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THE

Railway and Marine World

DEVOTED TO STEAM AND ELECTRIC RAILWAY, MARINE,
GRAIN ELEVATOR, EXPRESS, TELEGRAPH AND
CONTRACTORS' INTERESTS

GENERAL INDEX

FOR 1910

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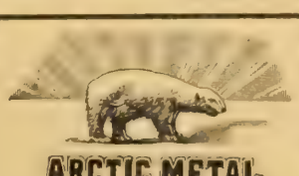

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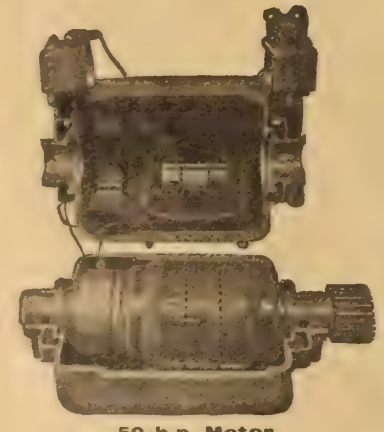

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TORONTO, CANADA, JANUARY, 1910.

For Subscription Rates, See page 41.

Steel Freight Cars.

By W. S. Atwood, Mechanical Engineer, Dominion Car and Foundry Co.

The subject of steel freight cars is one which may at present time be considered a live one in Canada and a very important one among those interested in the designing, handling, and maintenance of railway freight cars. Steel cars have long since passed the experimental stage, and have demonstrated conclusively their superiority and desirability, and the Canadian railways are, therefore, specifying each succeeding year a greater proportion of their requirements to be of all-steel or steel underframe construction. The introduction of all-steel or steel frame cars on the American continent is comparatively recent, the first of the modern steel cars being built about 1897, yet we have records of steel cars being built in limited quantities as early as 1853 in America, and in much larger quantities a few years later on the European continent, the Eastern Ry. of France alone having in 1905 over 20,000 cars, with metal framing or all-metal construction, in service. During 1907, which represented a healthy condition in the car building industry, the returns from 36 car building concerns in the United States and Canada show 284,188 freight cars built, of which 72% were of all-steel or steel underframe construction. This proportion of steel cars to wooden cars built seems remarkable when one considers the comparatively short time since their introduction, and is very convincing evidence that they have demonstrated their superiority over the wooden cars.

DESIGN.—The designing of the modern all-steel and steel frame cars has been left, in large measure, to the car builders themselves, in conjunction with and often under the supervision of railway officials, due to the fact that this type of construction was new, and it was necessary for the steel car builders to design and illustrate to the railroads the many advantages to be gained in substituting steel for wood in car construction. How well they have succeeded, as well as the proof of their assertions, is shown by the figures just referred to, as well as other figures given in the numerous articles appearing in the press during the last few years. Some of the larger systems have, however, taken up the designing of their steel car equipment on quite an extensive scale, and not only furnish the builders with complete specifications, but complete detail drawings and bills of material, and insist on the cars being built in accordance with them. Both arrangements have their advantages and disadvantages. In the case of the railways designing their own cars they are able to standardize their castings, forgings, and miscellaneous parts to some considerable extent, and, by keeping in mind their standard cars of different classes, are often able to design them in such manner as to have several parts common to all classes, thereby helping to reduce the investment for spare parts, as well as making substitutions easily. This, however, often works out to the disadvantage of the builders, as they, too, have their standard dies, patterns, etc., which, of course, are to their advantage to use, but which may differ from the railway company's standard just enough to necessitate new dies and patterns to such an extent that the saving gained in having the drawings, specifications, and bills of material furnished is more than offset by the die and pattern cost. These dies may never be used on later orders, which means, of course, that the entire die and pattern cost would have to be borne by this particular lot. In the case of large orders this cost, distributed over the entire lot, would, of course, not represent as important a charge per car as in the case of small orders, but it is an important item to be taken into consideration in estimating and designing, and the number of complicated shapes should, therefore, be kept as low as possible. And particular attention should be paid to standardizing all castings and such forgings as might be termed the moving parts, such as brake gear, draft gear, etc., which are more liable to damage and need renewal at repair points.

Too much cannot be said in favor of standard parts, and while the Master Car Builders' Association has accomplished admirable results in the way of standard truck parts and wooden car body parts, they have, as yet, done little towards standardizing construction for steel car bodies. It would also seem as though the railways could do a great deal along this line to cheapen the building of freight cars, and it has often occurred to me that an ideal arrangement would be possible, in Canada at least, if the railways could each appoint representatives to assemble and decide on a standard construction for each class and capacity of freight cars, and have standard specifications and drawings, in so far as general dimensions, arrangement of framing, unit fibre stress, etc., are concerned, which would be common to all the railways. A representative from the leading car building firms, and perhaps a representative from the Railway Commission, could be included if considered advisable, the idea being to decide on the best possible construction, keeping in mind the building and maintenance cost. Any improvements suggesting themselves from time to time could be considered by this committee, and, if found advisable, would be adopted on all roads and incorporated in the standards. This standardizing is carried out extensively and advantageously on some of the largest railway systems, so, why not go farther and include all railways? This, no doubt, would be considered by many as an impossible task, but the advantage that would be gained and the money that could be saved would certainly warrant a considerable outlay in establishing such a system. In fact, after all things are considered, each railway company's cars are in operation accomplishing practically the same results, the differing details being more or less an expression of personal opinion and experience, and it would seem as though the spirit of give-and-take could prevail, creating a practical standard which would be satisfactory to all. This, of course, would apply to the more common types which are more numerous, and not to the few special types designed for special service.

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the indestructibility of steel cars, the question of repairs is still a very important consideration in designing them; in fact, it might be called the all-important one, with the possible exception of strength. On some of the first steel cars built there were several details which developed weaknesses in service, but, owing to the manner in which this subject has been taken up, these defects have all been remedied and the steel cars as now proportioned are withstanding the service to which they are put.

The proportioning of the longitudinal sills for the vertical load is an important question in designing, and one which has been the cause of frequent discussions; some advocate proportioning the sills for an evenly-distributed load, while others consider it necessary to figure for concentrated loads. A large number of designers and car builders favor the assumption that it is perfectly safe to take the maximum load carried by the sills and assume it as evenly distributed, and keeping the fibre stress within reasonable limits. For the rare cases of concentrated loads in service the metal would not be strained beyond its elastic limit, as it would be taken care of by the low fibre stress, and it would hardly seem economical to provide for a heavy concentrated load with low fibre stress, when the usual condition would be a distributed load which would only produce a portion of the fibre stress provided for, in figuring concentrated lading.

It is also an open question as to how the sills should be proportioned in relation to each other, viz., as to whether the centre sills should carry all the load, or whether side and centre should each carry their portion, and, in the case of the cars requiring sides for containing the lading, whether these sides should also act as a plate girder and carry all the load. The usual method followed for flat cars is to design them having deep centre sills proportioned to carry all the load, and a rolled section for side sill figured as a continuous beam, supported at the bolsters and top cross-bearers, and carrying only that portion of the load distributed along the sides of the car. For gondola and such cars as require sides for containing the lading, and which usually consist of a web plate with top and bottom flange angles, it is, of course, the most economical construction to figure them as complete girders and proportion them to carry the entire load, keeping in mind to provide for lateral stiffeners to contain the lading, and prevent the girder from buckling. The centre sill would then be proportioned for the buffing shocks only. The severity of the buffing shocks to provide for is usually specified by the railway, and is simply a question of how safe they wish to make the cars in this respect, and whether they are willing to stand the extra expense of providing for the more excessive shocks recorded in recent dynamometer tests. This construction usually works out the cheapest, but would, of course, not apply to box cars with wooden superstructure. In this case the framing should not be depended upon to carry any of the load, on account of its becoming loose due to wood drying out, nuts on the frame rods becoming loose, etc. It would, apply, however, where the side frames are of steel, securely riveted to the side sill at the bottom and to a member forming the side plate at the top, thereby constituting an open truss between the bolsters. In proportioning the side frame, however, to carry a portion or all of the vertical load, account should, of course, be taken of the bulging stress in the members due to the loading.

The splicing of the centre sills in front of the bolster to facilitate repairs is a detail which has been the source of many arguments, but a large number of master car builders now contend that, if the sills are made proportionately stronger at and between the bolsters than they are between the bolster and the end sill, any stress great enough to damage the sills would do the damage where they could be easily gotten at and cut off and spliced if necessary, and that the cost of doing this in the small number of cases required would not be nearly as great as the additional cost of making the splice on all the cars at the time of building.

The diagonal brace, which is usually put in all underframes at the corners, is a detail which varies according to the ideas of the designer or master car builder. Some advocate extending it from the ends of the centre sills to the intersection of the side sill and bolster, arguing that it relieves the centre sills of a portion of the buffing shocks, transmitting same to the sides; also that any cornering of the car sufficient to damage it to any extent would also be great enough to damage the brace if it was extending from the corner of the car to the intersection of the centre sill and bolster, and without the brace at the corner the underframe is much easier repaired. It would seem good practice however, to extend the brace from the intersection of the centre sill and bolster to the corner of the car, bracing the corner against ordinary cornering shocks, and to always take care of the buffing shock in the centre sills.

On some of the early types of cars one can notice both sides and ends have bulged out, due to the lading, but more particularly the ends, due to the shifting of the lading, on acount of rough handling of the cars. This has now been overcome by the use of horizontal end braces, extending the entire width of the car and being tied securely to the sides, in place of the former vertical end stakes. The sides have also been strengthened, some using an inside pressed flange stake tapering towards the top in the form of a gusset, which is, no doubt, the strongest form of stake when securely fastened at the bottom, but has the objection of decreasing the available space for lading when the car is being used for handling long material. One common cause of damage to the sides of coal cars is the mechanical unloader, and it would seem as though some improvement could be made in the manner of gripping the car sides to distribute the load over a larger area.

The proportioning of the bolsters and cross-bearers depends, of course, to a large extent, as to how the vertical load is distributed and carried by the sills, thereby determining how much load is to be carried to the centre through these members. The fact of the possibility of having to raise the car while under load, by placing jacks at the extreme ends of the body bolsters, should not be overlooked. One of the most important details in the bolster construction is the centre brace between the centre sills, directly over the centre plate. On some of the early cars it was customary to use rather light pressed diaphragms, and one can see a number of these cars with the bolster bottom plate bowed up between the sills sufficient to allow the side bearing clearance to be taken up. This, however, is well taken care of by substituting a substantial malleable-iron or cast-steel casting, securely riveted to the centre sills and having a good bearing on the bolster plate. This especially applies to cars having a body centre plate of small diameter, and where the load on the centre plate is transmitted to the centre sills by the bolster centre brace.

At the time of the introduction of the modern steel cars the matter of weight received considerable attention, as one of the leading arguments in favor of them was the greater ratio of paying load to dead weight, and on this account some parts were designed too light, so that the same class of car as built to-day is considerably heavier. The important question among railway officials at present is, is the car designed strong enough to withstand the service for which it is intended and keep off the repair tracks, as the cost of moving the small additional dead weight is more than offset by its decreased maintenance cost and the increased earnings, by reason of its continuous service?

CORROSION AND PAINTING.—A great deal has been said on the subject of painting steel cars, some roads going into this phase quite extensively, while others give it less consideration, arguing that the corrosion can in most cases be neglected, and paint for appearance only. It would seem, however, that the car should not only be well protected with paint at the time of building, but should be repainted as often as the service which the cars are in would require. Up to the present time, however, where the cars are kept in service there has been no serious effect from corrosion, except, perhaps, under some extraordinary conditions, and while in a badly corroded steel plate it is possible to chip off quite a thick scale, it does not, of course, follow that the plate is decreased in thickness an amount equal to the thickness of the removed scale. The 12 years which steel cars have been in service in this country have not been sufficient to determine accurately the percentage of loss in section due to corrosion, as it has not taken place to any appreciable extent, except, perhaps, in some floor sheets in cars loaded with coal and similar material, when allowed to stand idle, particularly when wet. So that the report of Mr. Tolmar, chief of shops on the Eastern Ry. of France, who has had experience with steel cars since 1861, is very interesting, and shows conclusively that the corrosion of steel cars is not a consideration of consequence. Mr. Tolmar found that steel frame cars showed the following proportion of loss in section from corrosion:—

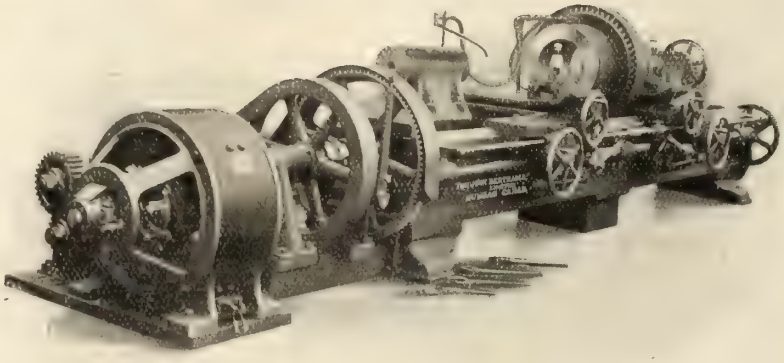
Cars built in	Life.	Loss in p.c.
1869	27 years.	6%
1874	22 years.	4%
1875	21 years.	3.18%

From the above, it will be noted that a piece of steel one-quarter inch in thickness would, after 27 years of service, be reduced in thickness by a little less than one sixty-fourth inch, so that, if, as usual, the cars are given a very small amount of attention in the way of repainting, and are kept in service and not allowed to stand for long periods of time, the matter of corrosion can be practically neglected.

REPAIRS.—The ease with which steel cars have been repaired and maintained with a few very simple tools and facilities has probably been one of the main reasons for their adoption. Some years ago it was thought by many that the repairing of steel cars was going to be a serious problem, and would have to be done by expensive skilled labor, but, instead one has only to walk through some of the large repair yards, and notice the regular wood car repair gangs working either on wood or steel car repairs, to be convinced that the wood car repair men handle the steel car equally as well as the wood car, and that there is no need of additional skilled labor. In fact, in building steel cars highly-trained mechanics are not required, so it would hardly seem necessary to use more expensive labor to repair them. Not only can the steel car be as easily repaired, but the cost of the repairs are much less. This saving, of course, varies with the different companies and different classes of cars, but it has been conservatively estimated that the cost of running repairs to steel cars is at least 30% less than for wooden cars, with the additional advantage of being on the repair tracks a fewer number of times, and instead of there being from 2 to 4%, or, in some cases, as high as 7%, of the cars out of service for repairs as with wooden cars, the number of steel cars out of service for repairs is nearer one-half of 1%.

One could give a large volume of fig-

BERTRAM MACHINE TOOLS



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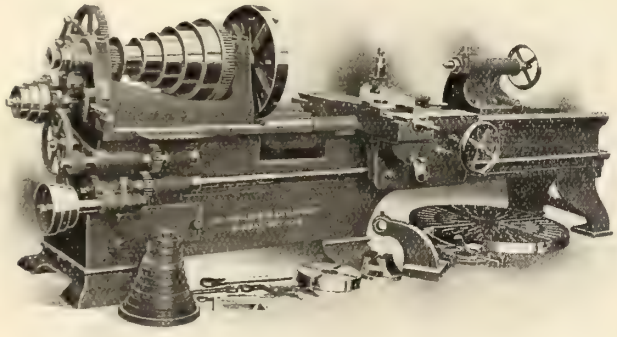

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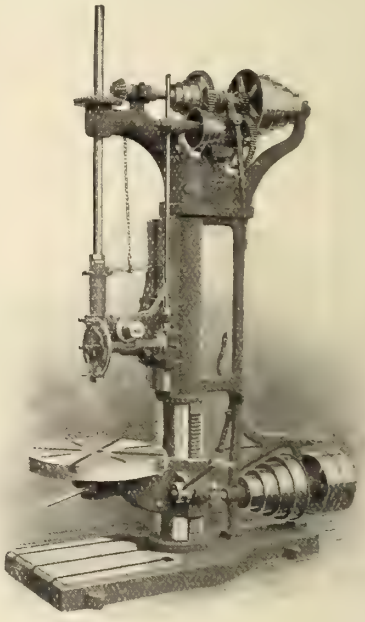

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ures showing these advantages, but it would only be repeating what has already appeared in all the leading journals in the past few years. As a fair representation, I will refer slightly to an article appearing in the American Engineer, of October, 1908, written by G. E. Carson, who was at the time of writing the article with the P. & L.E. Ry., which road was among the first to adopt steel cars, and which has nearly 60% of its equipment all-steel. Mr. Carson states as follows:—

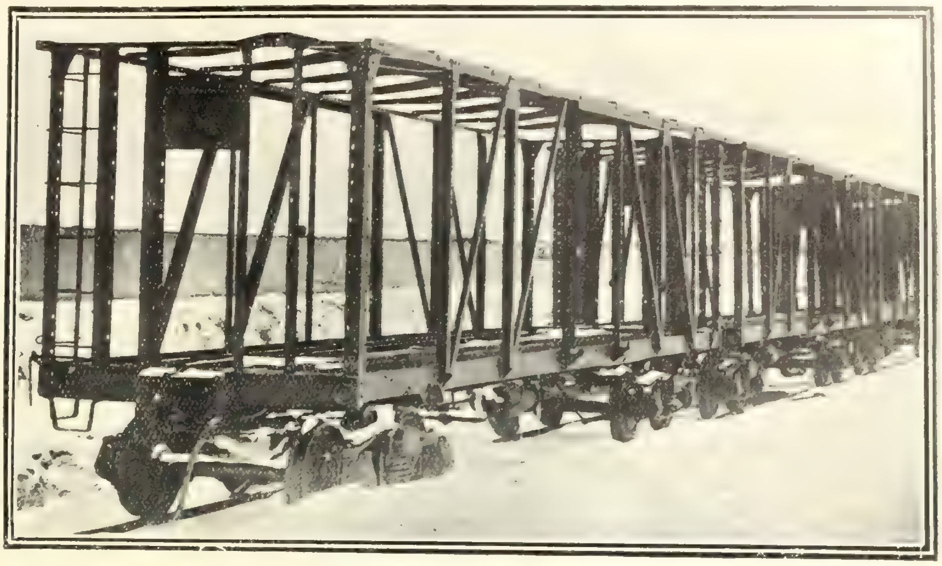
"A very accurate record was kept of the average number of times the different classes of cars were called into the shop for light, medium, and heavy repairs, covering a period of one year.

"Average number of times one wooden coal car was in the shop during one year...... 7 times.
"Average cost of repairs each time in shop $16.23
"Average number of times one wooden coke car was in the shop during one year ..... 6 times.
"Average cost of repairs each time in shop $10.74
"Average number of times one steel car was in the shop during one year ....1⅓ times.
"Average cost of repairs each time in shop .... $6.74."

The above figures, Mr. Carson states, are the cost of material and labor less scrap credit, and show average cost of the total light, medium, and heavy repairs to 11,338 steel cars and 32,070 wooden cars. Adding the above amounts for the wooden car together, and averaging same would show the saving in cost of repairs in favor of the steel car of $5.74, or a saving of over 42% in cost, and also showing that the wooden car was on the repair track five times as often as the steel car, which, in itself, is an item of considerable consequence, especially in times of car shortage.

LIFE OF STEEL CARS.—Owing to the modern steel cars having only been in general use since about 1897 and 1898, and their still being in such good condition, it would be difficult to state accurately the life of steel cars, and same can only be estimated principally from the experience of the companies in the old country, who have had steel cars in use long enough to enable them to ascertain the life more definitely. From this information, and also from what experience has been had in this country with the steel cars, it has been conservatively estimated that the life of steel cars is from one and a half to two times that of the wooden cars, and that during the life of the cars the repairs to the body of the steel cars would be considerably less than those to the body of the wooden cars. In fact, the steel car bodies are practically indestructible, and the estimate of twice the life of a wooden car would seem to be very conservative, when one considers the small number of steel cars which have been destroyed since their adoption. In this connection one might refer to the American Engineer, of March, 1909, in which it was stated that on the Pennsylvania Rd., which had then 47,775 all-steel cars in service, 1,075 of which had been in use since 1898, only seven cars had been destroyed. Two of these cars were lost in a flood in Kansas, and most of the others were destroyed on foreign lines.

The foregoing paper was read before the Canadian Railway Club recently.



CANADIAN PACIFIC RAILWAY STEEL FRAME BOX CARS.
Photographed before the wooden lining was put on.

C.P.R. Steel Frame Box Cars.

The C.P.R. has had built by the Dominion Car & Foundry Co. 500 box cars which are somewhat different from the usual type, as the frame, including the carlins, is entirely of steel, and is only sheathed on the inside, or in other words, the car has only a single course of lining on the inside of the frame, the linig being 1¾" thick both on the sides and ends. This 1¾" lining is bolted to the members of the steel frame, as shown in the accompanying illustration, with ½" bolts, the holes for the bolts through the steel frame being slotted, in order that in case the lining should shrink sufficient to develop cracks between the planks, they can be pulled together by means of a strap rod, which extends up and hooks over the top board, the bottom end being forged round and extending through the steel side sill, and which is threaded for a nut, and as the lining extends up and overlaps the side plate about 3 , the boards can be drawn down this distance before any opening would be left between the top and side plates. This, of course, is much in excess of anything that would ever be required. These cars, however, have now been in service for a considerable length of time, and no serious trouble has been experienced along this line, with the exception of a few cars in which the lining was not very dry, and which therefore were required to have the sides drawn down and tightened by means of the rod referred to.

The underframe of these cars is of the usual design, and consists of standard 15" channels with ¼" cover plate, the side sills of 8" channels and the end sills of 10" channels. The bolsters and cross bearers are the built up type with pressed diaphragms, and top and bottom cover plate. The floor supports are composed of Z bars in place of the usual wood stringers, and the floor is bolted to same. The framing of the cars is quite clearly shown in the illustrations, the side members being made of standard 3" Z bars. The corner posts are 5 5 angle iron. The end framing, it will be noticed, is of unusually strong design, the two centre posts being composed of 4" Z bars and the intermediate posts of 3" Z bars, which extended down back of, and are securely riveted to, the end sills. To thees posts, of course, is bolted the 1¾" lining which taken altogether makes an unusaully strong construction. The roof of the cars above the pressed steel carlins is of the usual construction. These cars conform to the American Railway Association standard dimensions, being 46 ft. long inside, 8½ ft. wide, and 8 ft. high, with 5 ft. door opening.

On account of the lining being on the inside of the frame, these cars phesent a very smooth interior, and they are particularly adapted for grain service. Since having been in service, they have been watched carefully by the C.P.R. officials, who are so well satisfied with them that they have placed an additional order with the Dominion Car & Foundry Co. for 1,000 more.

CANADIAN PACIFIC RAILWAY STEEL FRAME BOX CAR

Letters patent were issued in Sept., 1909, covering railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, respecting C.P.R. grants of 571.24 acres.

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CHARLES MILLER,

PRESIDENT

MAINTENANCE REGULATION CARDS

By R. W. Burnett, General Master Car Builder, C.P.R.

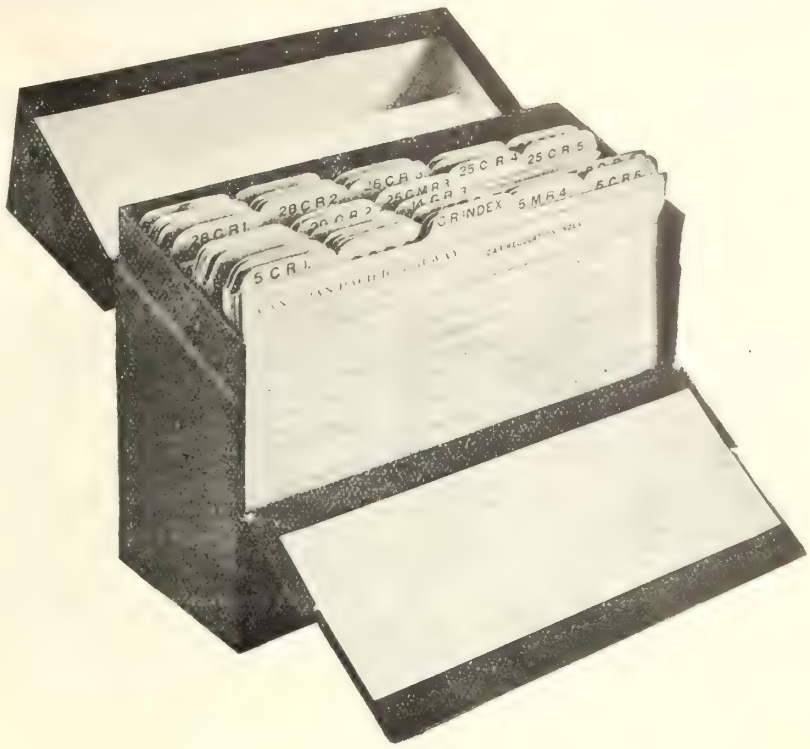
In the operation of a railway one matter of prime importance in all departments is the issuing of instructions in such a clear and concise manner that there will be no misinterpretation by those who have to be guided by them, and to the extent that they are clearly understood largely depends the efficiency of any department. Instructions as to maintenance of equipment, standards, shop practice, etc., have been issued in various ways. The M.C.B. Book of Rules, for what it is intended, is complete and indispensable. Instructions on certain subjects, such as air brakes, steam heat, etc., are to a large extent issued in book form. Other instructions are contained in blue prints.

Aside from the instructions issued by the methods above mentioned, there is a field which has to be covered in a more direct way, and in the past this has largely been done by circular letters. The preparation of circular letters consumes a great amount of time and study, to prevent conflicting instructions being issued. This time is consumed by the head of the department or most valuable members of the staff, in reading former instructions and checking the various points covered to make certain that the letter to be issued covers the subject in a clear manner, and that all letters issued, subsequent to the original, modifying or cancelling portions therof, are taken into consideration. This is sometimes impossible by reason of the number of former issues and multiplicity of duties of the person who has the responsibility. This naturally results in letters being hurriedly prepared partially covering a subject, with the feeling that omissions or inaccuracies can be corrected by subsequent letters. These are also often issued to persons not in active touch with details, and to persons in other departments who shonld have the information, but who do not have the time or the assistance available to go through the file and arrive at what the present practices are. They, therefore, do not constitute the ready reference which such persons should have.

I might at this point mention some of the difficulties met with in depending too much on blue prints for every-day reference. A station of sufficient importance to warrant an office staff, that can keep the prints properly filed, may keep them in reasonably good shape, but there are a large number of men whose facilities for filing prints is limited by the available wall space for framing and hanging. Furthermore, blue prints or folios of pattern numbers contain a vast amount of information which is useful only as a matter of record. What the man doing the work requires is condensed information relative to parts liable to failure, instructions as to how, and under what conditions, repairs or betterments are to be made, materials to be used, and drawings to be followed.

The filing of circular letters is a difficult problem. In an office where there is a sufficient staff to properly attend to the filing any letter may be located quickly, but with the foremen and inspectors, who are the men depended upon to make daily use of the instructions and for whom they are really intended, it is different. Some men may place them in books or in files that may be provided, others will place them in the most convenient drawer, or on hooks, but, in search of information, we have too often discovered that there are missing links. Even with the most modern filing systems a considerable time is often necessary to arrive at a correct understanding of what constitutes the up-to-date instructions on any one subject. It is often impossible to ascertain this in any reasonable time, owing to overlapping, conflicting, or apparently conflicting, letters having been previously issued. This may result in arguments between various persons as to the proper interpretation, or they are left in doubt for indefinite periods as to the meaning intended, the result being different practices at different points.

As a substitute for and improvement on the circular letter system, we have instituted a system of issuing instructions by cards, which we call "Maintenance Regulation Cards." To distinguish between the car and locomotive department, those pertaining to car work are called "C. R." cards, meaning "Car Regulation," and those pertaining to motive power "M. R.," meaning "Motive Power Regulation." The use of these cards has been developed by evolution. In the earlier stages they were used only to give direct instructions relative to standards, materials to be used (such as paint for the various classes of freight equipment), giving drawing numbers, or such



5 C R 1.

CANADIAN PACIFIC RAILWAY
OFFICE OF THE MASTER CAR BUILDER
CAR REGULATION 5 C R 1
ISSUE NO 7 JUNE 16, 1908

PRESSURES FOR APPLYING WHEELS TO AXLES

FOR TENDER AND CAR AXLES

SIZE OF JOURNAL	STANDARD DIAMETER OF WHEEL FIT	PRESSURE FOR MOUNTING CAST IRON WHEELS	PRESSURES FOR MOUNTING STEEL TYRED WHEELS
3 3-4" x 7"	6 1-8"	30 TO 40 TONS	48 TO 58 TONS
4 1/4" x 8"	6 3-4"	38 TO 48 TONS	60 TO 80 TONS
5" x 9"	6 1-2"	40 TO 60 TONS	60 TO 70 TONS
5 1-2" x 10"	7"	48 TO 68 TONS	68 TO 78 TONS

67 C. R. 1.

CANADIAN PACIFIC RAILWAY.
OFFICE OF THE GENERAL MASTER CAR BUILDER
CAR REGULATION 67 C R 1
ISSUE NO 1, SEPTEMBER 8, 1909

INSTRUCTIONS GOVERNING THE REPORTING, REPAIRING, CONDEMNING ETC., OF CARS DAMAGED IN WRECKS OR GENERAL DILAPIDATED CONDITION DUE TO AGE WEAR AND TEAR ETC

1. As soon as possible after arriving at wreck the foreman in charge will wire the Gen M C B Gen Supt and such other officials as he requires giving initial number or names of each car damaged with estimated cost to repair and cause of wreck
2. When wreck has been picked up the foreman in charge will furnish a full list to the Gen M C B at Montreal on first train Form M C B 89 The estimate on the form may vary from the telegraph report as more complete inspection may make necessary
3. Divisional Car Foreman In all cases must be notified by wire of wrecks and should make every effort to get to serious wrecks to take general charge and prevent unnecessary damage to equipment
4. Precautions must be taken in lifting or rolling passenger cars to prevent damage to the frame roof or sheathing by crushing or twisting or slipping of ropes or cables due to improper hitching
5. (a) Wooden flat Ballast or Coal cars of 30 ton capacity or over must not be burned or otherwise destroyed under any circumstances, but when badly damaged loaded on flat cars and shipped to point designated by the M C B for repairs
(b) Wooden cars of 30 ton capacity and over of the flat or coal should not be burned unless the car is in such pieces and can not be picked up and run on trucks and then should be burned only with the consent of the Divisional Car Foreman who should make every effort to make personal inspection
(c) Cars of less than 30 ton capacity may be destroyed when damaged to the extent of $100 00 or more unless equipped with metal roofs in which case they should be treated as cars of higher capacity
(d) Steel cars, or cars with steel underframes must never be reported as destroyed except on authority from the Gen M C B
6. No cars will be condemned other than are destroyed in wreck as covered by paragraph No 5 without submitting Form 25 and receiving authority from the Gen M C B
7. All cars destroyed must be reported to the Gen M C B on Form M C B No 18
8. (a) Cars taken from revenue service to use as boarding cars must be selected by the Divisional Car Foreman and approved by the Gen M C B
(b) Cars must not be taken for boarding car service that are equipped with metal roofs
9. Cars that are to be burned at wreck or when otherwise condemned that are equipped with metal roofs must have serviceable roofs or parts of roof carefully removed and kept for further use and when destroyed at repair points purposely made for the rafters etc should be kept as far as practicable, to avoid using new material
10. All cars that are burned should first have couplers springs air brake equipment and serviceable side doors removed

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instructions as pressures to be used in mounting various sizes of wheels, etc. But, as the cards were issued, the possibilities of the scope for which they could be used became more and more apparent. In a short time cards were prepared giving in detail instructions covering certain subjects, containing drawing, pattern, and form numbers, stating under what conditions betterments could be made, naming stations that would do the work, and the amount of work expected at various stations, and in many cases saying what not to do and advising how report of work should be made.

The method of preparing these cards varies. The usual procedure is to originate them in the general office, by making a preliminary draft of the proposed card, covering the subject as completely as possible, and giving copies to one or more members of the staff, or to foremen particularly interested, for criticisms and suggestions, after which all papers are turned over to one of the staff to compare with previous instructions and rewrite. The card is then given to the Chief Draughtsman to be checked for accuracy as to drawing, pattern, and form numbers and dimensions. Copies are then sent to the heads of the departments interested, who in turn refer them to their staff for suggestions and criticisms. The card is then finally approved and proof-printed, proof is checked up, and necessary number printed. If necessary, extracts of the proposed card are sent out for the guidance of the foremen, pending the final approval and issuing of the card. The Chief Draughtsman is asked to prepare cards which consist principally of data that would be furnished by the drawing-room. Various other members of the staff are called upon to make drafts of proposed cards on subjects with which they are in close touch. In some cases a local foreman may be asked to prepare a card on some practice that he has developed, or which has necessarily been carried on more largely at his station than at other points. It does not necessarily follow, however, that it is always advisable to assign the preparing of cards to the persons most intimately acquainted with the subject, as some men, owing to close application to other duties, may get out of touch with a certain subject, but when it is necessary for them to prepare a card on same they are forced to familiarize themselves with all the details in a way not likely to be forgotten. Considering the manner in which these cards are prepared, which gives so many of the staff an opportunity to make suggestions and criticisms, it may be said that, to a large extent, foremen are carrying out their own instructions. We invite suggestions as to the subjects that should be covered by cards, and at divisional car foremen's meetings the drafts of the proposed cards are criticized and suggestions considered, also propositions are made as to the issuing of cards on subjects requiring definite instructions, sometimes accompanied by draft of proposed card. This combines the practical side of the subject, as seen by the men actually handling the work, with such necessary data and further instructions as may be furnished by the office.

The cards are given the same index number used for correspondence. The index number of wheels, tires, and trucks is 5, and the first card on any of these subjects would be 5-C. R. 1, and the second 5-C. R. 2. One card has been issued showing the index numbers and the subjects they cover. A card is issued quarterly showing the active cards, giving the index number of each, subject covered, issue number and date, by which all on the mailing list are enabled to check their file, and should they be short of any, they are supplied upon request.

In the beginning we had a mailing list, each person on the list receiving a copy of each card printed. Some of the persons on this mailing list received a stated number of each card printed, to supply their different foremen. We have since found it necessary to issue in a different manner, and one card is printed on which the persons to whom certain cards are to be furnished are designated by symbol letters, as it has been found that, instead of confusing the foreman with a large number of cards on subjects in which he is not interested, he should receive only such as pertains to the work that he handles. Heads of departments on this list receive a copy of each card issued, and are designated by symbol letter "A"; others, such as assistant foremen, receive only such as pertain to their work. The symbol indicating to whom they will be sent is printed on the card. The cards pertaining to wheel-mounting, tire-turning, etc., are mounted in a frame and placed in a conspicuous place in the wheel shop. Cards pertaining to air brake work are mounted in a frame and placed in a conspicuous place in the air brake room.

14 C. R. 2.

CANADIAN PACIFIC RAILWAY
OFFICE OF THE MASTER CAR BUILDER
CAR REGULATION 14 C. R. 2
ISSUE NO 2. APRIL 1, 1909

METHODS OF FUMIGATION
"THOROUGH" AND "ORDINARY"

THOROUGH FUMIGATION

1. Fumigation should be done before the carpet or anything in car is removed, or cleaning is begun
2. Close all outside doors, windows, deck sash and ventilators tight and pack all lamp chimneys and similar jacks tightly with waste from the outside
3. Open all interior doors and **RAISE CLOSET SEATS**. If car has dry hoppers stop up chutes at bottom.
4. Pull seats forward and loosen pillows in pillow boxes
5. Open upper berth and lay headboards across the seats so that one corner rests upon a seat arm
6. Lay lower mattresson the headboard with middle arched upwards, by placing the ends together.
7. Raise curtain poles and hang curtains near the ends by a single hook
8. Throw blankets over curtain poles, making as few folds and thicknesses of cloth as possible
9. Arch the upper mattresses in the berths.
10. Soiled linen in the lockers must be pulled out and scattered in passage.
    NOTE. It is necessary to make the greatest possible surface exposure of the contents of the car, so as to ensure the best results.
11. After car has been prepared for fumigation as above, place 3 galvanised iron pails per Dwg. No 4898 1-6 in the aisle of the car, one in each end, and one in the middle. In each pail place 1 lb. of Permanganate of Potash and 1 pint of Formaldehyde.
12. After placing pails in position, cars must be closed and locked, and left for at least 3 hours, after which time thorough ventilation will be necessary. Pails should be removed soon after opening car to hasten ventilation.
    NOTE. In ventilating the car, open all windows, and deck sash when weather will permit
13. The ventilation usually requires about 3 hours before car is in condition to recieve passengers

ORDINARY FUMIGATION

1. Make the car as nearly air tight as possible by closing all deck sash, windows, ventilators and other openings
2. Open all inside doors, berths and lockers and raise closet seats. If car has dry hoppers stop up chutes at the bottom
3. Prepare Formaldehyde as in "thorough" fumigation, except that only 1 pail containing one lb of Permanganate of Potash and one pint of Formaldehyde will be used, placing the pail in the aisle, in the centre of the car.
4. Close and lock car, and leave closed for 1 1-2 hrs, or longer if time will permit, after which car should be ventilated as thoroughly and quickly as possible, the same as in "thorough" fumigation.

28 C. R. 4.

CANADIAN PACIFIC RAILWAY
OFFICE OF THE MASTER CAR BUILDER.
CAR REGULATION 28 C. R. 4
ISSUE NO. 1 MAY 29, 1909

INFORMATION REGARDING
ELECTRIC FIXTURES
FOR PASSENGER EQUIPMENT.

Note:- The catalogue Nos. given are Safety Car Heating & Lighting Co's (S) and Castles & Sons. (C)

Class of car on which used.	Where used	Catalogue No.
Observation and Sleeping car with smoking room.	2 - Light centre lamps.	S. 2276.
	2 - Light deck rail fixtures.	S. 2277
	1 - Light deck rail fixtures.	S. 2278.
	2 - Light bracket.	S. 2279.
	1 - Light bracket.	S. 2280.
	1 - Light corridor fixture.	S. 2281.
	1 - Light berth lamp.	S. 2282.
	3 - Light platform fixture.	S. 2283.
Observation and Sleeping car without smoking room.	2 - Light centre lamps.	C. 1.
	1 - Light deck rail fixture.	C. 2.
	1 - Light bracket.	C. 3.
	1 - Light corridor fixture.	S. 2281.
	1 - Light berth lamp.	S. 2282.
	3 - Light platform fixture.	S. 2283.

LIST OF PARTS LIABLE TO NEED RENEWING.

Name of part.		
Opal bowl	for S fixture No 2283	
Opal glass	for S berth lamp No 2282	
Switch	Diamond H flush midget type	plate 2" x 1"
Socket	Stone 1 2" keyless type No 2	
Incandescent lamp	8 C. P Stone Osram lamps	24 volts.
Incandescent lamp	16 C P. Stone Osram lamps	24 volts.
Electric fan	Type 12" blade, 24 volt direct	current. Diehl Mfg Co. Drawing 05136

5 C R 5

CANADIAN PACIFIC RAILWAY
OFFICE OF THE MASTER CAR BUILDER
CAR REGULATION 5 C. R. 5
ISSUE NO 1 APRIL 10, 1908

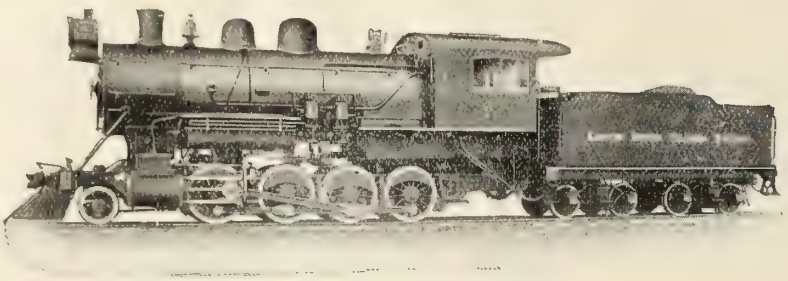
MOUNTING OF CAST IRON WHEELS

1. **WHEELS WITH REINFORCED FLANGES** - i. e. wheels having 5 8-8" total width of tread and flange - must be mated on the same axle
2. **WHEELS WITH CORRESPONDING TAPES** must be mounted on the same axle
3. **USE M. C. B. STANDARD WHEEL CIRCUMFERENCE MEASURE** shown on M. C. B. sheet No. 7 when taping wheels.
4. **NEW WHEELS MUST BE INSPECTED** for flange thickness by maximum and minimum gauges as shown on M. C. B. Sheet No. 12
5. **NEW WHEELS** must be retaped before mounting.
6. **WHEN ENTERING AXLES IN WHEEL BORE** care must be taken not to damage the journal after entering the first wheel on axle, journal must be protected by using wooden wedge or brass lining between the wheel bore and the journal
7. **BEFORE REMOUNTING SECOND HAND WHEELS** they must be inspected for flange thickness and height of flange - M. C. B. Limit Gauges. A method of using same are shown on drawing No. 1 of 1 B
8. **SECOND HAND WHEELS MUST BE TAPED** before remounting, and wheels with re-turned tapes must be mounted on the same axle
9. **WHEEL PRESS SHOULD BE FITTED** so that either wheel can be pressed on without having to turn wheels on axles.
10. **WHEN MOUNTING CAST IRON WHEELS** press on both wheels together, using centre Gauge as shown on Dwg. No. 4271 1-4 on the wheel farthest advanced when entering journal on axle, to prevent the wheel, and if still further pressing on the other wheel, use Limit Flange Gauge as shown for mounting, on Dwg shown on M C B Sheet No 12, afterwards checking wheels and equalizing gauges on the opposite by the other side gauge as used for inspecting wheels are not true, this indicates either a warped wheel or false tapering.
    LENGTH OF CENTRE GAUGES SHOULD BE AS FOLLOWS -
    For Wheels 5 8-8" Wide over tread and flange 2' 2 9 16"
    For Wheels 6 1-2" wide over tread and flange 2' 2 11/16"
11. **WHEEL BORE AND WHEEL SEAT** on axle must be [illegible] Wheels are mounted. Axle [illegible] journal must be given a coat of same mixture [illegible] paint on [illegible] not be used.

OVER

To file the cards a box which is illustrated on pg. 7 is furnished, and it is expected that in a short time it will amount to a text book, covering the maintenance of our equipment, at all times revised to date. It has been found that to a large extent it is advisable to eliminate parts of the contents of instruction books and issue on cards, as it is easily seen that any part of the subject can be revised and reissued much more easily and cheaply than by reprinting an entire book. The result is that they are revised, where a book would not be. The difficulty of filing circular letters was explained earlier in this paper. In contrast with this there is only one manner of filing these cards, which is instantly apparent to any man of ordinary intelligence. The subjects are numbered in numerical order. The first in the file is the index card; the second is the card issued quarterly showing the active cards. I have sometimes visited points where the

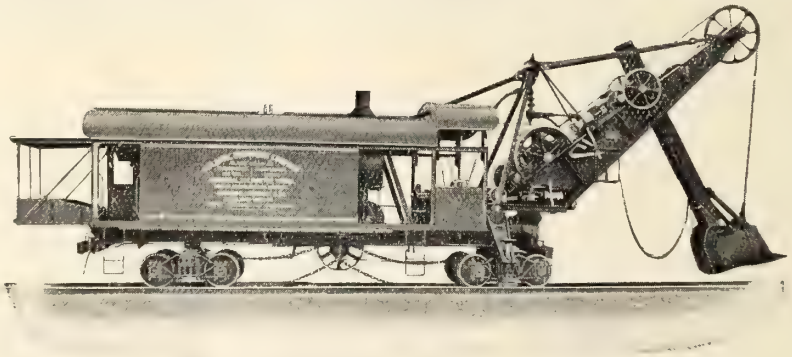
LOCOMOTIVES FOR ALL CLASSES OF SERVICE



Consolidation Type Freight Locomotive, Built for Eastern British Columbia Railway.

Total weight of engine in working order, 186,310 pounds. Weight on driving wheels, 166,100 pounds. Diameter of driving wheels, 51 inches. Boiler pressure, 210 pounds. Cylinders, 20 x 28 inches. Maximum tractive power, 39.200 pounds.

ATLANTIC STEAM SHOVEL



Direct wire rope hoist with but one sheave, instead of chain hoist with from five to seven sheaves, reduces delays and loss of time due to breakdowns, increases the efficiency of the engines, and reduces repair bills as well as fuel consumption.

Finished, interchangeable spare parts always on hand at works.

MONTREAL LOCOMOTIVE WORKS, LIMITED

BANK OF OTTAWA BUILDING, MONTREAL, CANADA

cards were not properly filed through carelessness, and have properly filed and checked them, to see if the file was complete, within five minutes time, which could not be accomplished with any circular letter system I have seen, regardless of time. Such assistant foremen, leading hands, and inspectors, as do not have a place in which to keep a file of cards, not only have access to the regular office file, but it is insisted that they read the cards and familiarize themselves with up-to-date instructions.

It is, of course, necessary to occasionally revise the cards to take care of new developments, such as a change in shop practice or the alteration of drawings that would affect the subject covered. When this is done the card retains its index number, but is given a new issue number corresponding with the number of times it has been issued, and is also given the last date of issue. When a revised card is issued, the card which it supersedes is returned to the office. It has not been found necessary to revise many cards. The cards that have been revised were those issued before the present more thorough system of preparing them was developed and the revisions have consisted principally in more thoroughly covering the subject. It has not been found necessary to make any extensive arrangement for revising, as, the correspondence having the same index number, it is an easy matter to run through a file and make note of developments subsequent to the last date of issue. This, however, we find can be more easily done by keeping one set of cards especially for revision purposes, and making notations on the cards in this file of anything affecting the subject they cover.

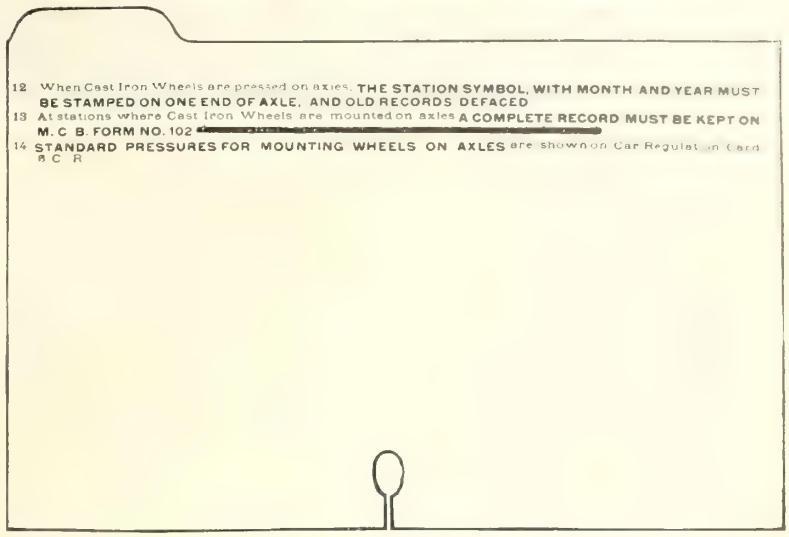
It is the intention to institute a system of examination of foremen and inspectors with regard to their familiarity with the cards covering their work. This is carried on to some extent at present, although it is not perfected, but, with a properly arranged set of standard instructions and regulations, it is evidently a comparatively easy matter to establish a periodical examination of foremen and others, which will insure their familiarity and thorough understanding of the methods which they are expected to pursue in handling their work.

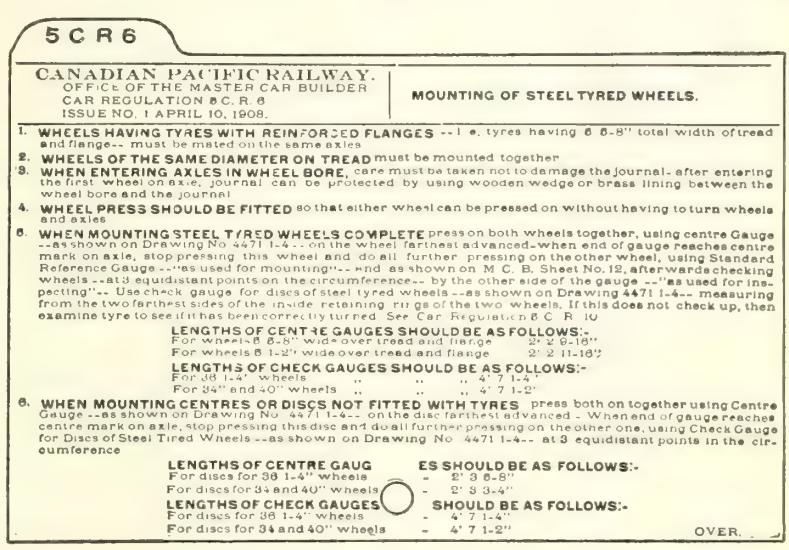
It should be understood that the development of this system has not been followed, regardless of expense, to the extent of obtaining an unnecessary degree of refinement, but on the contrary, in addition to the benefits derived by those to whom instructions are issued, through the saving of time, and their having a clear understanding of what is required, the amount of office work has been greatly reduced, with the result that more attention can be given to other things. When a card is once issued it furnishes a foundation upon which any changes or alterations can be made with comparatively little work, and avoids the reconsideration of any subject as a whole. To a large extent, where explanatory correspondence was formerly used, where work has been neglected or information asked, it is only necessary to call attention to the card and insist on instructions being carried out.

Our set of cards is by no means complete, as we have not covered all the subjects we originally intended to cover, but we daily find an extended scope for their use beyond that originally anticipated. While the work of drafting and revising will never be complete, we expect that in a short time the main subjects will be so thoroughly covered that the work of preparing will be comparatively small.

One thing that has been learned in the development of this system is that, before the preparation of a card is commenced, it is best to sub-divide a subject, covering sub-divisions by separate cards. As an instance of this, the card covering gas equipment, 28-C. R. 1, gives full catalogue reference as to lamps, class of cars in which used, and where used in car, also catalogue reference of parts liable to failure. 28-C. R. 2 gives instructions regarding cleaning and testing of gas equipment both at terminals and shop. 28-C. R. 3 gives instructions regarding gas mantles, showing catalogue reference, stating where large and small mantles are used, how and in which car extra mantles will be carried, and method of applying new mantles. For electric train lighting equipment we have the cards subdivided into instructions for shops, originating terminals, and intermediate terminals, as we wish the men at intermediate terminals to have a clear understanding as to the extent to which they should attempt to make repairs to a car in transit, with brief instructions as to how to locate cause of trouble and make repairs quickly.

I will cite a few of the advantages we have found in using cards in place of circular letters. In


12 When Cast Iron Wheels are pressed on axles, THE STATION SYMBOL, WITH MONTH AND YEAR MUST BE STAMPED ON ONE END OF AXLE, AND OLD RECORDS DEFACED
13 At stations where Cast Iron Wheels are mounted on axles A COMPLETE RECORD MUST BE KEPT ON M. C. B. FORM NO. 102
14 STANDARD PRESSURES FOR MOUNTING WHEELS ON AXLES are shown on Car Regulation 6 C. R.


5 C R 6

CANADIAN PACIFIC RAILWAY.
OFFICE OF THE MASTER CAR BUILDER
CAR REGULATION 6 C. R. 6
ISSUE NO. 1 APRIL 10, 1908.

MOUNTING OF STEEL TYRED WHEELS.

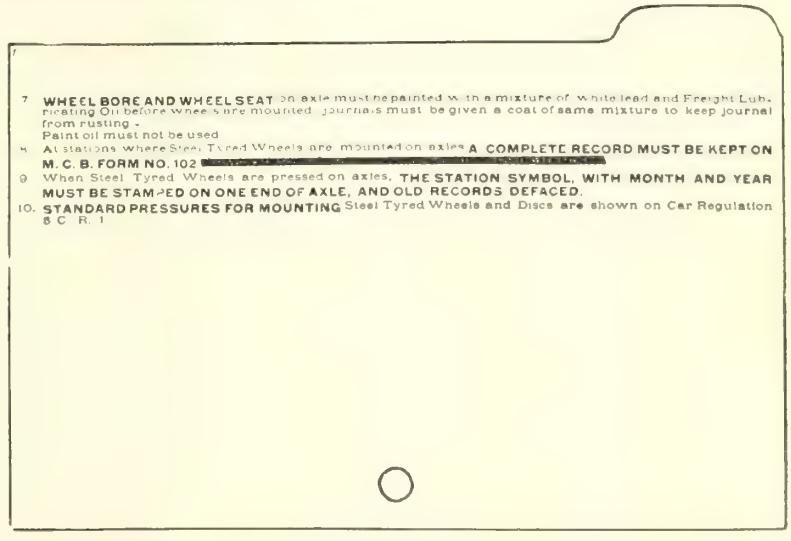
1. WHEELS HAVING TYRES WITH REINFORCED FLANGES --i. e. tyres having 6 6-8" total width of tread and flange-- must be mated on the same axles
2. WHEELS OF THE SAME DIAMETER ON TREAD must be mounted together
3. WHEN ENTERING AXLES IN WHEEL BORE, care must be taken not to damage the journal- after entering the first wheel on axle, journal can be protected by using wooden wedge or brass lining between the wheel bore and the journal
4. WHEEL PRESS SHOULD BE FITTED so that either wheel can be pressed on without having to turn wheels and axles
5. WHEN MOUNTING STEEL TYRED WHEELS COMPLETE press on both wheels together, using centre Gauge --as shown on Drawing No. 4471 1-4-- on the wheel farthest advanced- when end of gauge reaches centre mark on axle, stop pressing this wheel and do all further pressing on the other wheel, using Standard Reference Gauge --"as used for mounting"-- and as shown on M. C. B. Sheet No. 12, afterwards checking wheels --at 3 equidistant points on the circumference-- by the other side of the gauge --"as used for inspecting"-- Use check gauge for discs of steel tyred wheels --as shown on Drawing 4471 1-4-- measuring from the two farthest sides of the inside retaining rings of the two wheels. If this does not check up, then examine tyre to see if it has been correctly turned. See Car Regulation 6 C. R. 10

LENGTHS OF CENTRE GAUGES SHOULD BE AS FOLLOWS:-
For wheels 6 6-8" wide over tread and flange 2' 2 9-16"
For wheels 6 1-2" wide over tread and flange 2' 2 11-16"
LENGTHS OF CHECK GAUGES SHOULD BE AS FOLLOWS:-
For 36 1-4" wheels " " " 4' 7 1-4"
For 34" and 40" wheels " " " 4' 7 1-2"

6. WHEN MOUNTING CENTRES OR DISCS NOT FITTED WITH TYRES press both on together using Centre Gauge --as shown on Drawing No. 4471 1-4-- on the disc farthest advanced - When end of gauge reaches centre mark on axle, stop pressing this disc and do all further pressing on the other one, using Check Gauge for Discs of Steel Tired Wheels --as shown on Drawing No. 4471 1-4-- at 3 equidistant points in the circumference

LENGTHS OF CENTRE GAUG ES SHOULD BE AS FOLLOWS:-
For discs for 36 1-4" wheels - 2' 3 6-8"
For discs for 34 and 40" wheels - 2' 3 3-4"
LENGTHS OF CHECK GAUGES SHOULD BE AS FOLLOWS:-
For discs for 36 1-4" wheels - 4' 7 1-4"
For discs for 34 and 40" wheels - 4' 7 1-2"

OVER.


7 WHEEL BORE AND WHEEL SEAT on axle must be painted with a mixture of white lead and Freight Lubricating Oil before wheels are mounted. Journals must be given a coat of same mixture to keep journal from rusting -
Paint oil must not be used
8 At stations where Steel Tyred Wheels are mounted on axles A COMPLETE RECORD MUST BE KEPT ON M. C. B. FORM NO. 102
9 When Steel Tyred Wheels are pressed on axles, THE STATION SYMBOL, WITH MONTH AND YEAR MUST BE STAMPED ON ONE END OF AXLE, AND OLD RECORDS DEFACED.
10. STANDARD PRESSURES FOR MOUNTING Steel Tyred Wheels and Discs are shown on Car Regulation 6 C. R. 1

the first place, they are prepared with more care and cover in detail all points of the subject referred to, while circulars letters are more apt to be hastily prepared, and subsequent circular and other letters often give further instructions and modify or cancel portions of former ideas. This is often confusing to the persons receiving such letters, causes extra work checking with previous letters, and also necessitates great care to avoid issuing contradictory instructions. With the card system all obsolete instructions are cancelled, but, when letters are depended upon, any prudent foreman can refer to some long-forgotten letter as authority for almost any practice that may be found at his station.

Another advantage is that, when a card is to be prepared, it is found that there are many points in connection with the subject that have not received the necessary amount of attention. Frequently

VANADIUM
IS AS OLD AS THE WORLD

THE only thing new about Vanadium is man's knowledge of it:—where to find it,—how to get it into a useful state,—how to apply it,—and what it will do.

Its History:—

1. A Chemical element hidden in earth and rock since Time began.
2. Discovered by Sefström in 1830.
3. Isolated as a metal by Sir Henry Roscoe in 1867.
4. Classed as a rare element, and used for making dyes and tinting glass.
5. In 1890 there wasn't enough ore in sight to make a lump of Vanadium big as a base-ball. Valued then at $10,000.00 a pound.
6. Minute quantities found in the finest Swedish Irons and Steels.
7. Immense ore beds found in Peru and purchased by The American Vanadium Co.
8. Methods of refining developed and accurate data secured by Experts concerning the effects of Vanadium on Iron, Steel, Copper, Bronze and other metals.
9. The American Vanadium Company's factories built at Bridgeville, Penna., and Vanadium Alloys produced in commercial quantities, absolutely true to specified analysis, and low enough in cost to permit their use in all High Grade Steels, such as armor plate, springs, forgings, gears, shafts and piston rods; also in iron and steel castings.
10. Vanadium recognized by Steel Experts all over the world as "The Master Alloy."

Vanadium is old,—the knowledge is new. We are prepared to furnish all you want of either. Booklets free. Mention your line of work, and particular needs.

The American Vanadium Company
324 FRICK BUILDING
PITTSBURGH, PA.

parts have not been maintained as they should be and could have been without extra expense, and inexpensive alterations can be made and betterments applied. For example, in considering the maintenance of doors and door fixtures, we find that a 3-inch stop secured in a certain manner is necessary in place of a 2-inch stop, that the brackets should be rivetted on (a plain inexpensive bracket can be used for all wooden cars), that the hasp should be secured with a wrought staple instead of malleable and malleable wedge applied to doors of old cars in place of wooden. All these changes were found advisable on going into the subject thoroughly, in order to avoid as far as possible any afterthoughts that would make it necessary to change instructions, and that when repairs or alterations were made they would all be considered at once and be cheaply done. It might be said that this could have been done independently of the regulation card, which is of course true, but the fact remains that, had the work been ordered in the usual way by circular letters, it is probable that first one item and then another would have been changed, and, in place of one clear, concise set of instructions on a single card, a series of letters would have been issued, which would have been far more difficult to follow up.

Another advantage that has been found is that some devices, having a number of parts with in many cases no established name for each part, have to some extent been ordered complete to get one part, the heavier and more expensive pieces being held indefinitely in stock, where they have little better than scrap value, owing to their freedom from failure. To overcome this we have issued cards on the various devices or specialties, with full information as to what parts have proven liable to failure, instructions as to what should be ordered, pattern numbers, stating which parts are interchangeable, and other necessary information, and coining a name where necessary. On the back of the card is printed a photograph of the device, showing number and name of each piece, which has promptly enabled the foreman to obtain the parts which he had difficulty in procuring before, and prevented the purchase of parts not required.

Another point of advantage in the card system, which also illustrates the disadvantages of depending on circular letters and blue prints, is found when an officer visits a station with limited time to check various subjects. He is often confronted by some subject on some points of which, on account of possible confusion, neither he nor the local man are entirely clear. They go to the office, and his time is consumed in looking over circular letters and correspondence pertaining to the subject, and drawing and pattern numbers, possibly having to follow the file through several years to determine what should be done on one subject, only to learn perhaps that a part of the instructions are missing, and at best having no assurance that the file is complete. His time should be used in looking at the actual work, assuring himself that proper shop practice is being followed, and that maintenance of equipment is promptly and economically conducted. Where maintenance cards are depended upon, the foreman would most likely be informed on the subject, and, if in doubt, a very few moments would locate the card and settle the matter.

In preparing these cards the difficulties often experienced by one of the staff more familiar with the subject—in sorting out various instructions, eliminating obsolete and cancelled instructions, filling in proper pattern, drawing, and form numbers, and dimensions and conditions under which certain instructions should be followed—have brought to us a realization of what we have been expecting of our foremen in the way of memory and office work, which expectations have not always been realized, or have been partially realized at the expense of proper supervision.

By the use of this system, it has been possible to have work done in a uniform manner, at points separated by thousands of miles, which could not always be done when other means of issuing instructions were used, and that when you step into the office of a foreman or inspector at the most remote station, even if he is not present, you can instantly locate his set of maintenance regulation cards, complete and properly filed, and, on questioning, he is almost invariably found to be familiar with all instructions pertaining to his work, having exactly the same understanding as his co-worker 3,000 miles distant.

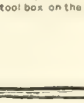
The foregoing paper was read before the Canadian Railway Club recently.

53 M. R. 8.

Issue to a. b d e

CANADIAN PACIFIC RAILWAY. ALL LINES MOTIVE POWER DEPARTMENT	MAINTENANCE REGULATION 53 M. R. 8 SHIPPING DEAD ENGINES ISSUE NO 2, SEPTEMBER 15, 1909

1. When dead engines are being moved in trains it is advisable that they be placed in the front portion in case two or more are toget her they must be separated, but not more than three cars apart. All brakes must be cut in and operative and the following precau tions taken to prevent skidding of drivers due to boilers being empty, application of new brake shoes or tyres new or newly turned
   a. Cut out cock under the engineer's brake valve must be closed and wired in this position
   b. Driver brake piston travel must be lengthened a sufficient distance so that when brakes are applied fully by a 20 lb reduction not more than 35 lbs will be shown on the gauge registering driver brake cylinder pressure
2. Main rods are to be taken off, put together complete with straps and brasses and placed on the tender, side rods must not be removed unless necessary and a speed of 20 miles must not be exceeded at any point. If the side rods are removed the maximum speed will be reduced to 10 miles per hour
3. When an engine thus shipped is equipped with an engine truck brake the piston travel must be increased to at least two-thirds of the TOTAL TRAVEL
4. On tenders handled empty without coal and water the tender piston travel must not be less than 9 inches When fitted with slack adjusters they must be released sufficiently to insure 9 piston travel and their automatic operation prevented by removing the pipe connected with the brake cylinder and plugging the hole
5. A competent man must be sent in charge of the dead engine or engines handled in any train
6. The boilers and tenders should be emptied before the dead engines are put in the train and all superheater pipes, cylinders and W A B pumps tho ...ghly drained
7. Wrecked engine rods to be taken care of as stated in Clause 2. If the engine truck is destroyed or broken on 8 wheel, Mogul or Ten Wheel Engines they should not be hauled past the first siding until a temporary truck is put under and the weight of the engine distri buted as well as circumstances will permit, the speed under these conditions must be limited to 10 miles per hour
8. If the tyre is off any wheel on an engine or tender that wheel must be blocked up clear of the rail, under no circumstance must the wheel center be allowed to run on the rail
9. Locomotives being shipped dead to Angus Shops must have such loose or easily removable parts as engine tools, signal lamps, oil cans etc placed in the smoke-box and smoke box door fastened in usual manner
   Car replacers to be placed in the tool boxes under tender frames and sealed up, on tenders not so equipped they are to be placed in tool box on the front of the tender



13 M R 1.

Issue to a b c

CANADIAN PACIFIC RAILWAY. ALL LINES MOTIVE POWER DEPARTMENT	MAINTENANCE REGULATION 13 M R 1 BOILER INSPECTION AND TESTING NO 3 AUGUST 14, 1909

1. Boilers must be tested by hydraulic pressure when engine is in shop for No 1 or 2 machinery repairs after any repairs have been effected to the bo er and in the case of boilers over 10 years old at intervals of service not exceeding 12 months
2. The temperature of the water used in filling and testing must not be less than 100 degrees the test pressure must equal 25 per cent in excess of the authorised working pressure and must be indicated by a standard test gauge
3. Jacket must be sufficiently removed to allow any leaks or weaknesses to be detected especially those which may occur around the bottom of the barrel
4. The test is to be reported on Form M P 18 and date of test filled in on Form 181 in cab of engine
5. Boilers under 10 years old must be inspected internally the first time flues are removed after 2 years from the date of last inspection and when over 10 years old within 2 years service from date of last inspection
6. Inside of boiler to be thoroughly cleaned, edges of all joints scraped careful examination made for grooving and pitting longitudinal braces dome and belly stays thoroughly examined and hammer tested and thorough examination made for any weakness or defect
7. All defects discovered must be marked by the inspector for repairs and reported on Form M P 18 Fireboxes must be inspect ed when engine is in shop for No 1 or 2 machinery repairs
8. Inspectors will be held responsible for reporting all defects and calling attention to those caused by improper maintenance or construction
9. Locomotive Foremen will be held responsible for tests being carried out and properly entered and reported.
10. See 13 M R 2 for additional inspection required for special classes.

76 M R 1.

Issue to a b f g

CANADIAN PACIFIC RAILWAY. ALL LINES MOTIVE POWER DEPARTMENT	MAINTENANCE REGULATION 76 M R 1 TIRE LIMITS OF WEAR AND DEFECTS ISSUE NO 6 AUGUST 12 1909

Tire	Type of Locomotive	Service	Weight on pair of wheels	Thickness at final turning	MAXIMUM DEPTH OF GROOVE After final turning	After other turnings
Driving	All Types	Pass	30000 lb or over	2 inches	3 16 inch	1 4 inch
Driving	All Types	Pass	Under 30000 lb	1 3 4 inch	3 16 inch	1 4 inch
Driving	Mogul	Freight	All weights	1 5 8 inch	1 4 inch	1 4 inch
Driving	Consolidation	Freight	All weights	1 3 4 inch	1 4 inch	1 4 inch
Driving	10 Wheel	Freight	All weights	1 5 8 inch	1 4 inch	5 16 inch
Driving	8 Wheel	Freight	All weights	1 1 2 inch	1 4 inch	5 16 inch
Driving	Switch	Switch	30000 lb or over	1 1 2 inch	1 4 inch	3 8 inch
Driving	Switch	Switch	Under 30000 lb	1 3 4 inch	1 4 inch	3 8 inch
Eng Truck	All Types	All	All weights	1 3 8 inch	1 8 inch	3 16 inch
Ten Truck	All Types	All	All weights	1 3 8 inch	1 8 inch	3 16 inch

1. Engine and tender truck wheels must be taken out of service when tires are less than 1 1 4 inch thick
2. Driving tires will not be allowed to run which have the following defects
   a. Flat spots due to sliding 2 1 2 or over in length

Elements of Transportation.—This is the title of one of a series of books on business subjects published by D. Appleton & Co., New York. It is written by E. R. Johnson, Ph. D., Professor of Transportation and Commerce, University of Pennsylvania, and author of a number of other works on transportation and transportation economics. The present book has been written with special reference to its use with classes in commercial and business high schools, and for classes in practical economics in normal schools and colleges. The subject is dealt with in four parts, viz.: steam railway transportation; electric railway transportation; ocean transportation; lake, river and canal transportation. The field is thoroughly covered in each part, and the various subjects are dealt with in a clear and simple manner, making it a valuable work for the general body of transportation employes, as well as for the student of economics. The volume is well illustrated, the specially engraved maps being an interesting feature. The price of the volume is $1.50, and it may be procured through the Railway and Marine World's Book Department.

MONTREAL STEEL WORKS, LIMITED

P. O. BOX 2369 MONTREAL

MANUFACTURERS OF

STEEL CASTINGS (Acid Open Hearth System)

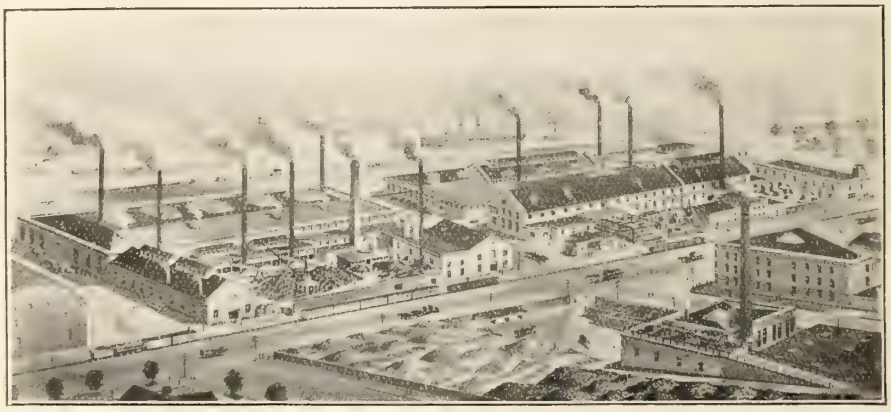
SWITCHES AND TRACK WORK for Steam and Electric Roads

MANGANESE STEEL CASTINGS for wearing Parts, insuring Great Hardness and Durability

INTERLOCKING PLANTS

TOWER, CLIMAX and SHARON COUPLERS and PARTS THEREOF for PASSENGER and FREIGHT CARS and LOCOMOTIVES

SPRINGS OF ALL KINDS



TRUCKS FOR ELECTRIC CARS

AGENTS FOR CANADA FOR

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Machine Shop System and Economy.

By H. J. Varlow, General Foreman C.P.R., Fort William, Ont.

Machine shop economy may be summed up as developing every machine to its utmost efficiency, and obtaining the maximum output from each. Consistent with the requirements and nature of the work, which can only be accomplished by a good system of tool work, a portion of the shop should be devoted to the manufacture and storing of tools, for the whole of the shop's requirements, discriminating between poverty and excess, and discontinuing all waste. An attendant should be appointed to supply the wants of the men, who come provided with necessary checks, which all employes are supplied with when given employment, the checks being numbered as on the register. When a tool is required a check is handed in to the attendant, he at once supplies the tool, and on the returning of the tool the check is handed back to the workman. Should the tool have sustained any damage, the fact is recorded by book being kept for the purpose, with spaces for the workman's name, with number, date and remarks as to conditions. Tools should be kept in first-class condition for good results. Taps, stocks, dies, gauges, twist drills, templates, milling cutters, ratchets, manarils, etc., are all dealt with in this manner.

A shop without system and organization is simply chaos, whereas with them everything is reduced to order; every man knows what to do, and when and where to do it. System does not require any more workmen, but it reduces the work of existing hands, and everything is done well because each is individually responsible for the particular work in his care. At the same time the responsibility is reduced to a minimum for every individual knows the system, and that it will be rigidly carried out. In fact, it is impossible to grapple with large concerns without it and even small ones become utter failures. It also insures that nothing is interrupted, not only in one shop, but every portion of the works, if by absence for whatever reason of foreman, man or apprentice. Every machine is fixed to a plan, so that heavy or light work can be done most expeditiously. Suitable crane power or lifting hoist are found exactly where wanted.

The beneficial effect of accuracy in tool work is well and easily illustrated by the twist drill, the circumferential speed for half-inch to seven-eights inch diameter is 20 to 30 ft. per minute on mild steel, and a good feed is about 1-100 inch for each revolution, that is half that amount per lip for each revolution. Consequently, if the drill is ground with uneven lips, the whole cut comes on one edge. Therefore, the drill is soon damaged, and the driller reduces the feed until the one edge cuts well, which is apparently to one-half the feed. To drill at the smallest cost, absolute accuracy is required throughout, each egde must be of equal length for obvious reasons, and have the same angle with the centre of the drill.

It will be clearly understood that grinding is an important factor. Two very important points respecting all tools are the cutting and clearance angles in all ordinary lathe work. Deep cuts and course feeds are first principles, one doughing and one finishing, bringing down the speed to suit the cut rather than suit the cut to the speed, for the greatest amount of work will be done in a given time, that is let it be a maximum of feed rather than speed, and have the finishing a good sliding cut.

Milling machines now take the most important place of all tools in any shop, efficiency and economy. It is almost impossible to push the utility of the universal machine too far. One of the first essentials is to well man the machine, and keep the cutters in first-class order, as success depends entirely upon the facility for production and re-grinding cutters, it being an absurdity to use a cutter beyond a profitable period of service, consequently there is less wear and tear upon the machine. It is needless to make comparison between milling and other machine tools, it is also difficult to estimate and compare the cost of work done by milling with that of other machines, because sometimes the milling machine embodies the work of various others. Where it replaces slotting or planing only its superiority is at once recognized. It is an important machine and cannot be set up too rigidly on good foundations. Let any part of the machine be defective and it will effect the work done.

January Birthdays.

Many happy returns of the day to:—

W. U. Appleton, Assistant to Superintendent of Motive Power Intercolonial Ry., Moncton, N.B., born there Jan. 29, 1878.

G. Bazzard, ex-Freight and Passenger Agent Delaware, Lackawanna and Western Rd., Toronto, now of Hamilton, Ont., born at Westhide Court, Herefordshire, Eng., Jan. 3, 1838.

A. H. Bears, Master of Bridges and Buildings C.P.R., Saskatoon, Sask., born at Charlottetown, P.E.I., Jan. 6, 1857.

F. X. Belanger, General Freight and Passenger Agent Temiscouata Ry., Riviere du Loup, Que., born at Chlorydormes, Que., Jan. 20, 1876.

R. H. Bell, Commercial Agent Canadian Northern Ry., Pittsburg, Pa., born at Toronto, Jan. 13, 1865.

J. R. Bowles, City Freight Agent, G.T.R., Montreal, born at Sarnia, Ont., Jan. 14, 1874.

G. McL. Brown, General Traffic Agent C.P.R., London, Eng., born at Hamilton, Ont., Jan. 29, 1866.

W. H. Burr, Traffic Manager Dominion and Western Express Companies, Toronto, born at Bloomington, Ill., Jan. 19, 1864.

C. A. Cotterell, Chief Train Dispatcher district 1, Pacific Division, C.P.R., Revelstoke, B.C., born at Enden, Eng., Jan. 18, 1877.

W. A. Cowan, Resident Engineer C.P.R., London, Ont., born at Galt, Ont., Jan. 22, 1877.

J. E. Dalrymple, Assistant Freight Traffic Manager G.T. Pacific Ry., Winnipeg, born at Montreal, Jan. 1, 1869.

Sir Sandford Fleming, K.C.M.G., Director C.P.R., born at Kirkcaldy, Scotland, Jan. 7, 1827.

Gordon Grant, Chief Engineer National Transcontinental Railway Commission, Ottawa, born at Dufftown, Banffshire, Scotland, Jan. 2, 1865.

H. V. Harris, ex-General Manager Midland Ry. of Nova Scotia, Truro, N.S., now of Louisville, Ky., born at Devonport, Devonshire, Eng., Jan. 16, 1857.

F. L. Hay, Superintendent Sleeping and Dining Cars and News Service C.P.R., Vancouver, B.C., born at Portland, Ore., Jan. 16, 1868.

G. F. Hichborn, formerly Agent Great Eastern Fast Freight Line, New York City, born at Boston, Mass., Jan. 31, 1875.

Carl Howe, Manager New York Central Fast Freight Lines, Buffalo, N.Y., born at Berrien Springs, Mich., Jan. 11, 1870.

W. C. Hunter, ex-Manager New Brunswick Coal and Ry. Co., Sussex, N.B., born at St. John, N.B., Jan. 4, 1865.

W. J. Hunter, Division Freight Agent G.T. Pacific Ry., and Commercial Agent G.T.R., Winnipeg, born in Toronto, Jan. 10, 1864.

H. G. Kelley, Chief Engineer G.T.R., Montreal, born at Philadelphia, Pa., Jan. 12, 1858.

Jas. Kent, Manager C.P.R. Telegraphs, Montreal, born Jan. 15, 1854.

A. Lichtenhein, Galena Signal Oil Co., New York, born there Jan. 15, 1855.

A. J. McGee, Secretary-Treasurer Temiskaming and Northern Ontario Ry. Commission, Toronto, born at Lachine, Que., Jan. 24, 1876.

G. Pepall, Canadian Agent National Despatch—Great Eastern Line, Toronto, born at High Wycombe, Buckinghamshire, Eng., Jan. 15, 1849.

W. Phillips, General Eastern Agent Canadian Northern Ry., and General Freight and Passenger Agent, Canadian Northern Ontario Ry., Toronto, born at Toronto, Jan. 31, 1870.

W. Pratt, Superintendent Sleeping and Dining Cars C.N.R., Winnipeg, born at Sibbertoft, Northamptonshire, Eng., Jan. 18, 1870.

J. Pullen, Assistant Freight Traffic Manager G.T.R., Montreal, born at Shepton Mallet, Somersetshire, Eng., Jan. 23, 1863.

L. J. Rouleau, Travelling Freight Agent and Agent National Despatch—Great Eastern Line, Montreal, born there Jan. 6, 1879.

S. L. Shannon, Comptroller and Treasurer Intercolonial Ry., Moncton, N.B., born at Halifax, N.S., Jan. 18, 1862.

S. J. Sharp, Western Passenger Agent C.P.R., Atlantic Steamship Line, Toronto, born at London, Ont., Jan. 21 1860.

J. R. Steele, Freight Claims Auditor C.P.R., Montreal, born at St. John's, Newfoundland, Jan. 14, 1856.

J. G. Sullivan, Assistant Chief Engineer C.P.R., Montreal, born at Bushnell's Basin, N.Y., Jan. 11, 1863.

S. G. Wagstaff, Commercial Agent G.T.R., Toledo, Ohio, born at Hamilton, Ont., Jan. 6, 1866.

F. J. Watson, Division Freight Agent G.T.R., Montreal, born at Toronto, Jan. 12, 1866.

G. H. Webster, C.E., Vancouver, B.C., born at Creemore, Ont., Jan. 31, 1868.

T. H. White, Chief Engineer in charge of C.N.R. surveys in British Columbia, Vancouver, B.C., born at St. Thomas, Ont., Jan. 27, 1848.

We are officially advised that the reports that the C.P.R. is figuring on operating its trains between Montreal Jct. and the Windsor St. Station, Montreal, by electricity, are entirely incorrect.

The Province of Quebec Association for the Protection of Fish and Game, held its annual dinner and meeting in Montreal, Dec. 9, 1909. An appeal was made for subscriptions and $3,000 was raised in the room, of which W. E. Davis, Passenger Traffic Manager G.T.R., contributed $500.

In giving evidence at the inquiry in Halifax, N.S., into the alleged coal operators' combination Dec. 16, General Manager Cowans of the Cumberland Ry. and Coal Co., stated that the company had practically lost all its trade owing to the strike at Springhill collieries. It would take a year to get the collieries in the position in which they were a year ago, when the strike was declared. The company owns a railway extending from Springhill mines to Parrsboro', N.S., 30 miles.

During Oct., 1909, 26 employes were killed and 44 injured in the course of their work on Canadian railways. Of the fatal accidents, nine were due to being run over, seven to collisions, four to falls, two to being caught between cars and one each to being struck by an object in passing, to blood poisoning, to a derailment, and to falling material, while of the other accidents, 15 were due to derailments, nine to collisions, seven to being run over, four each to explosions, to falls and to being caught between cars, and one to falling material.

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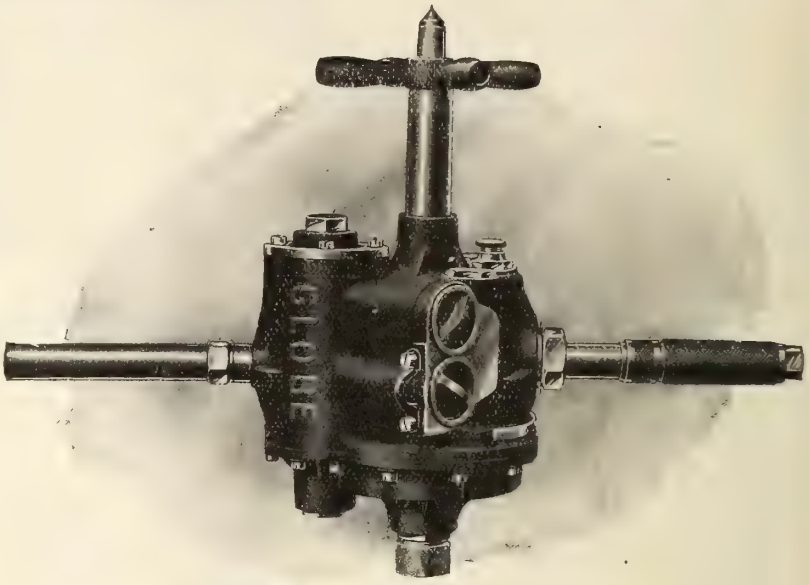

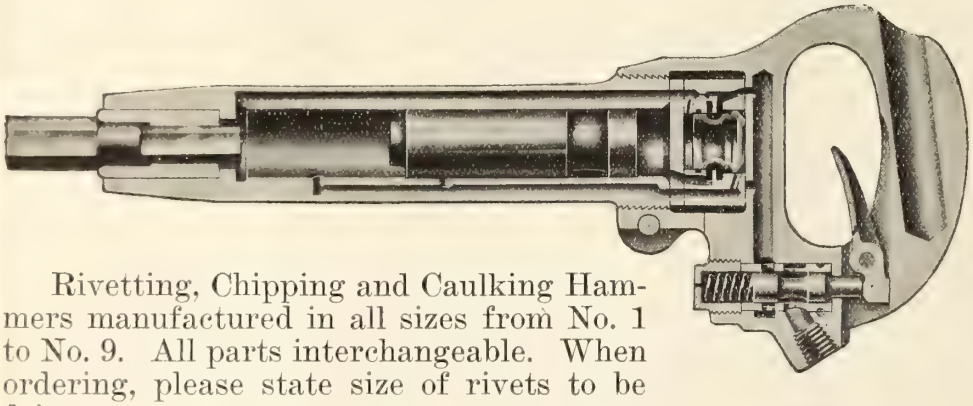

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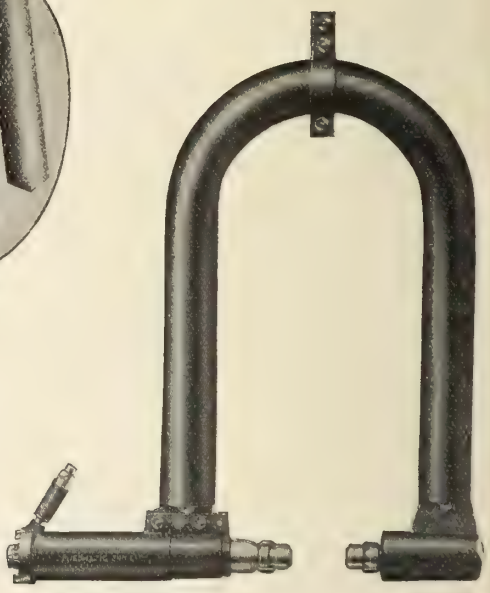

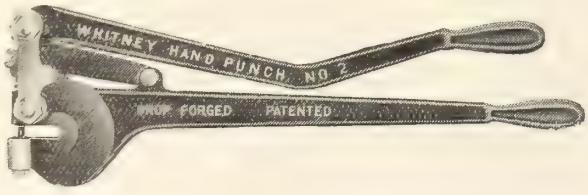

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COPPER AND STEEL FOR LOCOMOTIVE FIRE BOXES.

By H. B. Lake, Chemist, C.P.R. Western Lines.

In commencing a consideration of the suitability of these two metals for the making of locomotive fire boxes, it may be advantageous to tabulate their principal physical properties.

PHYSICAL PROPERTIES.

Metal	Sp. Gr.	M. Pt.	E. Con. @ 0° C.	T. Con.	Ratio of Wt.	Ratio of Thermal Conductivity.
Copper	8.9	1080° C.	52	73.6	9	6
Iron (Steel)	7.9	1600° C.	9.7	11.9	8	1

NOTE:—E. C. compared with Mercury @ 0° C. = 1 T. C. compared with Silver = 100.

Metal	% pure	C.	Fe.	Si.	S.	P.	As.	Pb.	Sb.	Bi.	Au. and Ag.
Mechl.	99.46	—	.14		—	—	.10	—	—	.30	
Copper Electrolytic	99.47	—	.0189		—	—	.0015	.0013	.0010	.0008	
Steel (Firebox)	99.285	.15	Mn. .45	*.035	.04	.04					

TENSILE STRENGTH AND DUCTILITY

Metal	Breaking strength, lbs. per sq. inch	Elastic limit	Elong % on 8 ins.	Redtn. of area %	Cold bend	Hot bend	Drifting test
Copper Electrolytic	60.480	49.280	20	20	Flat upon itself	Flat upon itself	Greater than for steel
Steel (Firebox)	52.000 to 62,000	32.000	26	45	Bend double	Bend double	⅝" hole to 2"

NOTE:—Bending tests for steel are generally around diameter twice thickness of plate. Copper easily bends double flat.

It appears therefrom that sheet copper weighs ⅛ more than sheet steel. Assuming the price of steel at 3c. and copper at 21c., then copper costs 7 times as much as steel, and as the thickness of the sheets of copper used in a firebox are generally about twice those for steel, the initial cost of the material for the copper box will be a maximum of 16 times that for a steel box. However, we have to allow for the value of the scrap copper which locally is stated to be 75%, and allowing 5% off this for the steel scrap, this reduces the ratio of the cost of the copper plate to about 5 times that of the steel.

Now we come to the labor cost of making the box. This ought to be in favor of copper, being the easier metal to work, less wear and tear on tools, and the time required to make the copper box ought to be less. Where cost of labor bears a high ratio to cost of material, then this factor will increase in importance.

The possible life of the two fireboxes depends largely on local conditions; but with copper boxes it appears to be, on English roads, about 10 years=800,000 miles, and copper tube plates last about five years in hard, constant service at high pressure. Steel boxes, under similar conditions, only appear to give a life of one year=80,000 miles before requiring repair, and on a certain section of the C.P.R. where the water supplies are of medium quality the side sheets of steel boxes in new engines have required renewal inside 12 months=about 45,000 miles. Hence the labor expended in making steel boxes is as much, or more, than in making copper boxes, and totally with labor for repairs it is apparently safe to assume that it is five times as great. Where labor costs as much, and more, than the material used in the box this will reduce the relative life cost of the two boxes to copper 1 is to steel 1. This reduces the considerations to the relative time engines fitted with either kind of box would spend in the shops directly consequent to the copper or steel firebox. Evidently if a steel box required more frequent repair the comparison will be in favor of copper.

Another important consideration is the greater reliability of one material by which engine failures, or delays, might be less than with the other. Copper is more resistant to corrosion than iron, and being higher in purity than mild steel, as tabulated 99.5: 99.28, and electrolytic copper (whilst equally ductile and tenacious with that produced by smelting and rolling) is even purer, being 99.9. Pure iron, and more readily steel, is dissolved by pure water, and when carbonic acid and air are present the action is accelerated. Also the impurities in the steel are segregated, and are more readily acted upon with local electrolysis producing pitting. Copper is not acted upon by pure water at any temperature, and even resists the action of hydrochloric acid if air is absent, and is far more resistant to corrosion than steel.

As to tensile strength copper is almost equal to very mild steel, and in ductility very much higher. It is, therefore, less physically damaged by the punishing operations of riveting and beading than steel, and makes a tighter and more tenacious joint than steel with the tubes or flues. This superiority was demonstrated in a series of tests made by J. A. Holden, of the G.E. Ry., Eng. He expanded steel flues into copper and steel plates, and then pulled the plates. Out of 12 tests the tubes started in the steel plates 10 times, and finally 11 tubes pulled through the steel, whilst 11 remained tight in the copper plates. The tubes were expanded in taper and straight holes, the former giving more uniform results. The plates used were copper 1¼" thick, and ¾" thick steel. No ferrules were used. Bending over did not improve the hold in steel plates, but increased the tenacity in copper plate from 7 to over 12 tons pull required to remove tube.

In reply to a letter I addressed to him, B. A. Raworth, Editor of Engineering, London, Eng., points out that, "The merit of the copper firebox is that it lasts a long time; the material is exceedingly tough and plastic, and stands the very severe strains caused by differences of temperature without exhibiting fatigue." In addition, the plates are very much thicker than in the steel box; the tube sheet is generally 1" or 1⅛", while the side sheets are ⅝" thick. "The screwing of ¾" or ⅞" stays into a ⅜" steel plate can never be made a secure job, while in the ⅝" plate, of course, the stays get a great deal better hold. The flanging of copper, of course, is a much easier matter than the flanging of steel, and the plates are not nearly so apt to crack in the corners (in the course of time) where the flanging has been done."

G. H. Churchward, Chief Mechanical Engineer of the G. W. Ry., of England, states that "In 1901 we fitted 14 sets of steel firebox plates in Belpaire boilers, working at 180 lbs. per sq. inch. Thickness of the tube plates was ⅝" and ⅜" below. The wrapper was in one plate ⅜" thick, and the back was ⅜". The life of the boxes varied between 30,000 and 80,000 miles. No signs of failure occurred in the crown of the firebox where the vertical stays were tapped into the plate, and had a nut and washer underneath. Copper stays were used and the boxes failed generally by cracking from the stay holes in the tube and back plates, as well as in the wrapper plate. The failures were probably caused by the work done in riveting over the stay heads, producing initial stress in the plates round the holes."

In reply to the same question W. J. Benton, Consulting Engineer, of Leeds, England, writes, "The copper firebox is looked upon as an old and thoroughly reliable servant; its advantages are, when of good quality, uniformity of texture, freedom from lamination and blistering, resistance to corrosive action of various waters; resistance to the adhesion of most kinds of scale; ductility, which makes it easy to work, and to stand repeated racking strains; good conductor of heat, and it stands the wasting action of the fire; all of which qualities endear it to the English locomotive engineer, regardless of its first cost."

Edgar Worthington, Secretary of the Institution of Mechanical Engineers, London, writes, "The advantages claimed for copper over steel fireboxes are: Less tendency to cracking of the plates, which takes place in steel fireboxes if the material is not of exactly the right quality. Copper also has an advantage in taking up contraction strains when the boiler is cooled down either for washing out or for repairs. It was claimed in 1895 that the time the engine was out of service while fixing the new steel firebox was longer than for fixing a copper box. The result of experiments made on the G. S. and W. Ry. of Ireland with English and American steel plates, and on the N. L. Ry., the G. E. Ry., the L. & N. W. Ry., and the Compagnie du Nord tended with one or two exceptions to the abandonment of steel fireboxes in Europe."

Mr. Brocklebank suggests that "In view of the fluctuations in value of copper in recent years, it might be possible to obtain a bigger price for the old copper than that originally paid for the new copper.

SUMMARY.—The initial cost of a copper firebox is much higher than steel. The life cost, allowing for the value recovered on the scrap copper, of copper and steel is about equal. Copper sustains mechanical work better, and makes stronger and tighter joints than steel. It takes up sudden fluctuations in temperature more quickly and uniformly. Copper offers greater resistance to corrosion than steel. Therefore, engines fitted with copper fireboxes should spend less time in shop directly consequent to firebox trouble, and be less liable to failure on the road from leaking of stays and tubes, and cracking of plates.

The foregoing paper was read before the Western Canada Railway Club recently.

The Intercolonial Ry. and Branch Lines.—The bill providing for the leasing by the Minister of Railways of branch lines connecting with the Intercolonial Ry. is under consideration by the House of Commons. The bill provides that upon the recommendation of the Government Railways Managing Board the Minister may lease any such line which is found to be in a safe and proper condition for operation, the lease not to be operative until confirmed by Parliament. The bill was read a second time Dec. 8, and subsequently was passed through committee.

Toronto Viaduct Question.—The appeal against the order of the Board of Railway Commissioners directing the construction by the railway companies of a viaduct along the waterfront of Toronto came before the Supreme Court at Ottawa, Nov. 25. Arguments were concluded Dec. 3, and judgment reserved. In an interview in Toronto, Dec. 4, J. W. Leonard, General Manager C.P.R. Eastern Lines, said the railways would fight the issue to a finish. They did not contemplate abandoning their present lines on the waterfront

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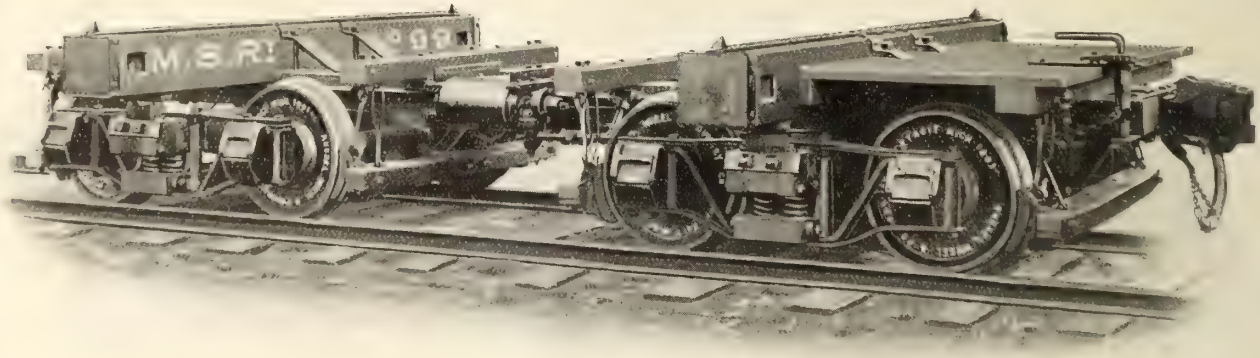

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The Alberta Ry. and Irrigation Co. during 1909 laid eight miles of new track from Raley to Woolford, Alta., this is a branch line from the old St. Marys River Ry., which runs from Sterling, on the main line from Lethbridge to Coutts. (Oct. 1909, pg. 743.).

Algoma Central and Hudson Bay Ry.—We are advised Dec. 14 that the surveys had not been completed for the line connecting the Michipicoten branch with the C.P.R. It is expected to call for tenders for the construction of the section of the line from Hawk Lake Jct., on the Josephine branch, to the C.P.R. transcontinental line at Hobon, Ont., about 29 miles. It is expected that a very favorable line will be secured, with a maximum gradient of about 0.6% and a maximum curvature of six degrees. There will be no large bridges or water crossings of any magnitude. No decision has been reached with regard to starting construction on the completion of the main line from the present end of track, mileage 69.33 to Hawk Lake Jct., a distance of 95.15 miles. (Dec., 1909, pg. 881.)

The Atlantic, Quebec and Western Ry., Co. entered into a contract with the Dominion Government Oct. 30, 1909, in respect of the construction of 26 bridges on the line from Paspebiac to Gaspe, Que. During 1909, 36 miles of track was laid as follows:—from Port Daniel to Grand Pabos, 20 miles; from Grand Pabos to Grand River, 10 miles; and from Gaspe to Douglastown, six miles. The portion of the line between Grand River and Douglastown, 46 miles, is under construction, the contractor being the New Canadian Co., Gaspe, Que. W. L. Browne is Chief Engineer in charge of construction.

We were advised Dec. 11 that a further two sections of this line had been inspected by the Dominion Government engineers and it was expected to have them open for traffic by Dec. 31. The temporary terminal station will be Newport, mileage 37, for passenger, and Pabos, mileage 42, for freight traffic. The work which will be carried on during the winter will be the erection of the different steel superstructures, the one for the crossing of Grand Pabos River being the first taken in hand. The steel is being manufactured by the Dominion Bridge Co.

Bay of Quinte Ry.—Application is being made to the Dominion Parliament to authorize the company to construct a branch from Bridgewater, to near the Actinolite mines, Ont., about 15 miles, and to extend the time for the completion of the previously authorized lines.

British Columbia and Manitoba Ry.—See Northern Empire Ry. on pg. 21, this issue. (Dec., 1909, pg. 831.)

The Canada and Gulf Terminal Ry. Co. has under construction the section of its line from St. Flavie, Que., the point of junction with the Intercolonial Ry., to Matane, 35.5 miles. Considerable work has been done, and we are advised that track laying will be proceeded with in the spring. It is expected to have this portion of the line opened for traffic about Sept. 1. The contractor is H. Doheny, Montreal. The company has power to construct the following additional lines:—from Matane to Gaspe Basin, 150 miles; and from St. Flavie to Pohemagamook, on the National Transcontinental Ry., 100 miles. (Nov., 1909, pg. 829).

Diamond Ry. and Coal Co.—We are advised that this company's recently completed line connects with the C.P.R. at Kipp station, six miles west of Lethbridge, Alta., on the new cut-off between MacLeod and Lethbridge. From Kipp to Diamond City, where the line terminates, is a fraction under six miles; the gradient is not over 1%, and the curvature not more than 20 degrees at any point. The contractors for construction were Cazier Bros., Cardston, Alta., and —. Medley, Calgary, was engineer in charge. The officers of the railway company are: President and Manager, T. Underwood, Calgary; directors: Hon. G. H. V. Bulyea, Edmonton; G. F. Stephens and C. W. Clarke, Winnipeg. We are informed that it is quite possible the railway will be transferred to the Diamond Coal Co., of which T. W. Underwood is Managing Director and Secretary-Treasurer. The line is being used for the carrying of coal from the Diamond Coal Co.'s mine at Diamond City. (Nov., 1909, pg. 829).

Dominion Atlantic Ry.—The construction of a branch line from Centreville, N.S., on the Cornwallis Valley branch, was under discussion, between a deputation from the district through which the branch will run and the management, Dec. 3, 1909. General Manager Gifkins stated that the line would be constructed, and it was probable work would be started in the spring. The line will run west from Centreville and extend to Somerset, passing through a large fruit growing district. It is hoped to complete the first 10 miles during the year.

The Dominion and Provincial Governments have voted subsidies at the usual rates. (Dec. 1909, pg. 881).

Eastern Townships Ry.—The Dominion Parliament is being asked to extend the time within which the company may construct the line of railway it is authorized to construct by sec. 8, chap. 84 of the statutes of 1907. (Nov., 1909, pg. 829).

Gatineau and Ungava Ry.—The Dominion Parliament is being asked to incorporate a company with this title with a capital of $2,000,000, to construct a railway, from the National Transcontinental Ry. near the height of land in Quebec, to Lake Chibougamau, 140 miles, thence to the east side of Lake Mistassini, 40 miles, and to the northern boundary of the province of Quebec, or border of the territory of Ungava, at Homani, or Summit Lake, a distance from the starting point of about 400 miles; thence turning round the headwaters of Big River to Lake Kaniapiskau, near the intersection of the 70th meridian and the 54th parallel; thence north-westerly, crossing the source of the Stillwater River to Lake Minto or Leaf River, or northerly on Kokseak River, and from either point north-easterly to Leaf Lake on Ungava Bay, a total of about 800 miles. The company also asks power to acquire steam and other vessels, to construct wharves, docks, telegraph and telephone lines, and to carry on general mining development and business operations along the line. Brooke, Chauvin and Devlin, Hull, Que., are solicitors for applicants.

Graham Island, B.C.—Application is being made to the British Columbia Legislature to incorporate a company to construct a railway on Graham Island, commencing at Queen Charlotte township, on Skidegate Inlet, northerly along Honna River and its tributaries and the Yakoun River, to Masset Inlet, near the mouth of the Yakoun River. The company also asks power to construct wharves, docks, etc.; to generate and dispose of electric power; to carry on a general navigation business, and to construct telegraph and telephone lines. F. Higgins, Victoria, is solicitor for applicants. (See Graham Island, B.C., Dec., 1909, pg. 881).

Graham Island Ry.—The British Columbia Legislature is being asked to extend the time for the deposit of security and construction of that projected railway. R. C. Lowe, Victoria, B.C., is agent for applicants. (Aug., 1909, pg. 573.)

Ha Ha Bay Ry.—We are advised that track has been laid from St. Alphonse, on the Saguenay River, to Jonquieres, on the Quebec and Lake St. John Ry., two miles, and that the construction of a further 25 miles inland is being proceeded with. The contractors are O'Brien, Payne and Jennings, and J. F. Grenon is Chief Engineer in charge of construction.

The officers and directors are:—President, Hon. A. Choquette, Quebec; Vice-President, J. E. A. Dubuc, Chicoutimi; Secretary, J. H. Parlardy, Chicoutimi; other directors:—H. Einon, A. Lepage, W. Levesques, E. Bolvin, R. H. Beaulieu, S. Lapointe, J. E. Cloutier, Bagotville, Que. (Dec., 1909, pg. 883).

Intercolonial Ry.—We are advised that the work which has been in progress for the last three years on the section between Blackville and Indiantown, N.B., has been completed and the line is now being operated. A diversion of 2,000 ft. was made at White Rapid Brook to improve the alignment, and 2,803 ft. of track was put in at Renous bridge and Blackville. The bridges have all been strengthened, and, in some cases reconstructed.

With reference to the proposed diversion from Sydney Mines to George's River, N.S., we are advised that revised location surveys have been made, but no decision reached when work is to be started.

As to the proposed diversion at Chatham, N.B., we are advised that the final location surveys are being made. (Dec., 1909, pg. 883).

International Ry. of New Brunswick.—A press report states that the grading on this line was completed into St. Leonards, N.B., Dec. 10, and that it was expected to have track laying practically completed by Dec. 31. (Dec., 1909, pg. 883).

Kamloops and Yellow Head Pass Ry.—Application is being made to the Dominion Parliament for an act extending the time within which the company may construct the line of railway authorized by its act of incorporation, chap. 115 of the statutes of 1906, as amended by chap. 120 of the statutes of 1908. This latter statute is to be repealed by the new act. (Nov., 1909, pg. 829).

Kettle Valley Lines.—We are advised that the company is considering the construction of additional lines, from Midway to Nicola, B.C., 150 miles; and from Republic, to Spokane, Wash., 120 miles. The first named is to be constructed under the contract with the B. C. Government, which will come up for ratification at the approaching session of the Legislature.

The company is applying to the Dominion Parliament for an extension of time for the commencement and completion of the various lines authorized, and for authority to construct an additional line from Coldwater to the navigable waters of the Fraser River. This line is part of that to be constructed under the agreement with the B. C. Government. (Dec., 1909, pg. 883).

London and Port Stanley Ry.—The directors have recommended the London, Ont., city council to permit the Pere Marquette Rd., lessee of the L. and P. S. Ry. to construct a siding on the north side of Bathurst St., from the freight sheds, across Burwell St. to Maitland St. The conditions attached to the permission are that the company shall indemnify the city against actions for damages arising from the presence of the siding, and that it shall become the property of the city when the P. M. Rd. lease expires. (July, 1909, pg. 477).

Lytton to Teslin Lake.—Application is being made to the British Columbia

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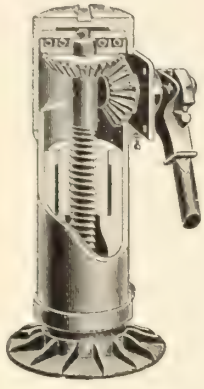
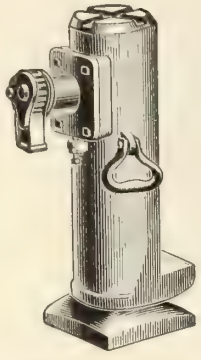
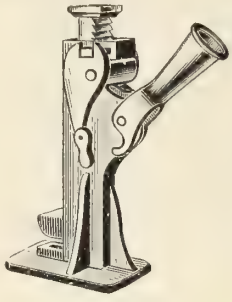

Sectional View


Foot Lift Jack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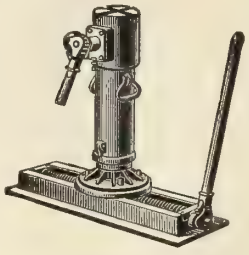
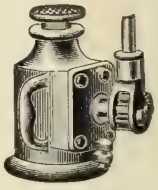

Traversing Jack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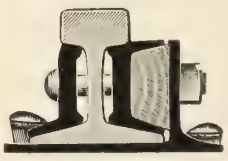
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Legislature to incorporate a company to construct a railway from Lytton, along Fraser River Valley through Lillooet to near Fort George, thence following Stuart River Valley, Stuart Lake, Tacla and Middle Rivers to North Tacla Lake, thence following the Stickine River to Telegraph Creek, and northerly to Teslin Lake, on the northern B. C. boundary. The company also asks power to construct wharves and docks; to carry on a general navigation business; to construct telegraph and telephone lines, and to generate and dispose of electricity. Barnard and Robertson, Victoria, are solicitors for applicants.

Manitoulin and North Shore Ry.—Construction was started on the eight mile extension from Gertrude mine to Crane Hill mine near Sudbury, Ont., in July, 1909, at station 738, a mile south of Gertrude, and we are advised that at the end of Nov. the grading to station 830 had been completed, with the exception of a trestle 500 ft. long. Work was started on this trestle early in Dec., all the material being on the ground, and it is expected to have it, together with all the grading to station 935, completed and ready for track by Jan. 31. This will bring the construction to near the Vermillion River. The abutments for the bridge across this river are under construction. From the opposite bank of the river to Crane Hill, grading is under way and it is hoped to have it all ready for track laying by April 1. The only difficulty in the way of completing the work as desired is labor. At present the supply is not abundant.

We are advised that the company has laid tracks from mileage 13 to 14.14 west of Sudbury and that the total length of the extension now being constructed by the O'Boyle Construction Co. is 9.68 miles. Surveys have been made for an extension from the end of the mileage at present under contract to mileage 81.3.

The Dominion Parliament is being asked to extend the time for the construction of the line from Sudbury to Little Current, on Manitoulin Island, (partially constructed); the line between Meaford and Owen Sound, Ont.; and the following:—from near Elsie mines northeasterly for 50 miles to Lake Timagami; from the line in Drury or Hyman tp., to Lake Superior, between Michipicoten harbor and Batchawana Bay; from Bothwell tp. to Maclennan tp.; from Little Current, northerly and easterly for 100 miles, crossing the C.P.R. at or near Onaping or Cartier (except that portion of such line between Little Current and Sudbury); from Drury or Hyman, easterly to Sudbury; from Little Current, to the south shore of Manitoulin Island or Fitzwilliam Island; and from Tobermorey, Bruce county, passing through Wiarton to Owen Sound. It is also desired to have it declared that the company's lines are works for the general advantage of Canada.

Margaree Coal and Ry. Co.—We are advised that a contract has been entered into between the Nova Scotia Government and the M.C. and R. Co. for the construction of a line from Chimney Corner Cove, via St. Rose to South West Margaree and thence by the east side of Lake Ainslie, passing west of Whycocomagh, to the Intercolonial Ry. near Orangedale station; and also from the Intercolonial Ry. near McIntyre's Lake to Habitant Bay or River. The total distance is not to exceed 51 miles. Surveys were made for these lines about a year ago, but no construction has been done. Arrangements are being made, we are advised, for the letting of a contract for construction to C. J. Wills and Sons, London, Eng., and that it is possible construction will be started in the spring. W. B. McDonald, Halifax, N.S., is President, and A. G. Morrison, Secretary. (Dec., 1909, pg. 883).

Menzies Bay to Quinsan River.—The British Columbia Legislature is being asked to incorporate a company to construct a railway from Menzies Bay, Vancouver Island, either north or south of Trout Lake, to the junction of Salmon River and Mamekay River, and from Menzies Bay to the point where the Quinsan River touches the south-east corner of lot 81, near the 50th parallel of north latitude. The line is to be operated by steam, electricity or other motive power, and is for logging traffic, but a section of the bill gives power to convert the proposed railway into a regular line for the conveyance of freight and passengers. The company also asks power to construct docks, and to operate steam and other vessels, as well as for various other powers. Wilson and Blomfield, Vancouver, are solicitors for applicants.

Montreal Central Terminal Co.—Application is being made to the Dominion Parliament for an act extending the time when this company may construct the various works which it is authorized to construct. Power is also being asked to amalgamate with the Canadian Northern Ontario Ry., the Ottawa Valley Ry., the Carillon and Grenville Ry., the Boston and Maine Rd., the Chateauguay and Northern Ry., the Montreal Terminal Ry., the Montreal Suburban Ry. and the Intercolonial Ry. The company also asks for power to acquire the franchises of certain power companies and to issue fully paid-up shares in payment for the same and for services rendered; to make agreements with telegraph and telephone companies, and with the city of Montreal. (Dec., 1909, pg. 883).

Montreal, Kapitagewan and Rupert's Bay Ry.—Application is being made to the Dominion Parliament to incorporate a company to construct a railway from Rupert's Bay northeasterly to Lake Kapitagewan, crossing the G.T.P.R., thence to Montreal; to construct telegraph and telephone lines, hotels, wharves, docks, grain elevators, etc., and to operate steam and other vessels; to generate electric power; and to connect and make agreements with other railways. P. Rainville, Montreal, is solicitor for applicants.

Nelson River Ry.—The Dominion Parliament is being asked to pass an act incorporating a company with this title for the purpose of constructing a railway from Lake Winnipeg, near its outlet into the Nelson River, or near the discharge of the Saskatchewan River into Lake Winnipeg, or from a place between these two points, to a junction with any railway to Hudson Bay which may be located by the Dominion Government. The company is asking for navigation and other powers to enable it to develop the country which it will traverse, and especially for power to construct tramway lines at points on the Nelson and Saskatchewan rivers where necessary to transport freight and passengers round any rapids. The offices are to be at Winnipeg; its capital will be $500,000, and it may issue bonds to the amount of $30,000 a mile of railway. The provisional directors are:—T. Malcolm, Campbellton, N.B.; C. Riordan, Hawkesbury, Ont.; R. C. Smith, J. J. Westgate, Montreal; W. H. Truman, Winnipeg; and W. Rigby, London, Eng. (Nov., 1909, pg. 829).

Northern Empire Ry.—The following press dispatches were sent from Edmonton, Alta., Dec. 16: "During the past two days plans have been formulated which will result in the carrying out of the biggest railway project yet planned in the west. The project is backed by millions, and will open up Athabasca and Peace River sections to a great extent. The charters granted to the Northern Empire Ry. Co. and the Manitoba & British Columbia Ry. Co. have been transferred to a new company, headed by Henry Roy, a millionaire. The newly-organized company is capitalized at $4,500,000. It will ask for a guarantee of bonds by the Government for the construction of a line north and south of Edmonton."

The Northern Empire Ry. Co. was incorporated by the Dominion Parliament in 1908, H. Roy, being one of the provisional directors. The British Columbia and Manitoba Ry. is the new name given to the Crawford Bay and St. Marys River Ry. incorporated by the Dominion Parliament in 1904, H. Roy being one of the provisional directors. Notices were issued calling meetings of shareholders at Edmonton, Alta., for the N. E. Ry., and at Lethbridge for the B. C. and M. Ry., early in Nov. Subsequently these notices were withdrawn and new dates fixed for the meetings, that for the N. E. Ry., being fixed for Dec. 15, at Edmonton; and that for the B. C. and M. Ry. for Dec. 18, at Lethbridge. (Dec., 1909, pg. 833.)

Northern New Brunswick and Seaboard Ry.—We are advised that track has been laid upon four miles of the line being constructed from Nipisiquit Jct., on the I.C.R., four miles south from Bathurst, N.B., towards the Canada Iron Corporation's mines. The ballasting upon this mileage has been partly completed. Track laying was gone on with until the weather caused work to be closed down for the season. Grading has been completed to the mines, a distance of 17 miles from the junction with the I.C.R., and it is expected that the line will be completed and ready for operation by May 15. The company has also completed the construction of a mile of track from Newcastle station, on the I.C.R., to its ore dock site, and is now proceeding with the construction of the ore discharging plant. (Nov., 1909, pg. 829).

Northern Quebec Colonization Ry.—Application is being made to the Dominion Parliament for the incorporation of a company with this title with power to construct a railway commencing at Tadousac, at the mouth of the Saguenay River, thence north-westerly along the north shore of the Saguenay River to between Lake Chibougamau and Lake Mistassini, thence north-westerly to Hannah Bay, Ont., with a branch line from Lake Chibougamau to Weymontache, on the National Transcontinental Ry. The company is also asking power to acquire steam and other vessels and to enter into arrangements with other companies. Smith and Johnston, Ottawa, are solicitors for applicants.

Ottawa, Montreal and Eastern Ry.—Application is being made to the Dominion Parliament for the incorporation of a company with this title to construct a railway from the shores of Lake Megantic, Compton County, Que., to Montreal, crossing the St. Lawrence River at Longueuil, with power to construct a bridge over, or a subway under, the river; and to continue the line westerly from Montreal to Ottawa through Prescott, Russell and Carleton counties in Ontario; with power to construct branch lines to Arthabaska, Victoriaville, and Yamaska, Que. LaFlamme, Mitchell and Chenevert, Montreal, are solicitors for applicants.

Ottawa Valley Ry.—The Dominion Parliament is being asked to authorize the company to enter into agreements with the Canadian Northern Ontario Ry., the Canadian Northern Quebec Ry., and the Central Ry. Co. of Canada, or either of them; and also for power to issue bonds or other securities for $30,000 a mile of single track, and $15,000 for each mile of second track; to generate and distribute, gas and electric, or other power and energy; and to operate hotels, parks and places of amusement at any point on its railway, and to issue bonds to cover the cost of same.

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CHICAGO. BOSTON. ST. LOUIS. ATLANTA. PHILADELPHIA. MONTREAL. BERKELEY, CAL.

Pacific Coast Coal Mines, Ltd.—We are advised that the company has constructed a line from Fiddicks Jct., on the Esquimalt and Nanaimo Ry., to Boat Harbor, about eight miles below Nanaimo, B.C. The line is approximately 5.5 miles long, and there is under construction an extension of 1.5 miles from Fiddicks Jct. to the company's mine at South Wellington. So far as future extensions are concerned, the company is at present developing a coal property at Suquash, in Rupert district, and it is possible that further railway construction will be necessary as this development proceeds. The line at present constructed is used solely for the purposes of the mine. The officers and directors are:—President, J. Arbuthnot, Victoria; Vice-President, L. D. Wishard, New York; Managing Director, S. H. Reynolds, Victoria; Secretary-Treasurer, J. M. Savage, Victoria; other directors, W. J. Moran, C. C. Michener and M. Hodgson. (April, 1909, pg. 249).

Pine Pass Ry.—Application is being made to the Dominion Parliament for the incorporation of a company with this title to construct a railway from Edmonton, Alta., north-westerly to the confluence of the MacLeod with the Athabasca river, thence continuing north-westerly to Pouce Coupe Prairie, and thence south-westerly to Fort George on the Fraser River, B.C. The company also asks for power to acquire and navigate steam and other vessels on any navigable waters touched by its line, and to amalgamate with the C.P.R., the Canadian Northern Ry., the Saskatchewan Valley and Hudson Bay Ry., or the Prince Albert and Hudson Bay Ry. The offices are to be at Edmonton, Alta.; its capital will be $1,000,000 and it may issue bonds for $50,000 a mile. The provisional directors are:—M. Kimpe, J. Smith, A. R. Chisholm, T. W. Lines and B. J. Saunders, Edmonton. (Nov., 1909, pg. 829).

Port Moody to Indian River, B.C.—The British Columbia Legislature is being asked to incorporate a company to construct a line of railway to be operated by steam, electricity or other motive power, from Port Moody to the north shore of Burrard Inlet, thence along the north shore of the inlet to lot 256, thence westerly or north-westerly to the north arm of Burrard Inlet, thence along the eastern shore of the north arm to the mouth of Mesliloret or Indian River, B.C.; and branch lines, not to exceed 20 miles in length in any one case. Davis, Marshall and Macneill, Vancouver, are solicitors for applicants.

Prince Albert and Hudson Bay Ry.—Application is being made to the Dominion Parliament to change the route of the line as originally projected, increase the bonding powers, and to extend the time for the commencement and completion of the lines. (Nov., 1909, pg. 829).

Prince Edward Island Tunnel.—A copy of all memorials, reports, correspondence and documents in the Government's possession not already brought down, relating to a survey of a route for a tunnel under the Northumberland Straits between the mainland and Prince Edward Island, and also relating to the construction of such a tunnel has been ordered to be made for the House of Commons. The object of the motion calling for the return was, that a case might be made out for the ordering of a survey which would finally settle the practicability or otherwise of the construction of a tunnel. It was pointed out that previous surveys showed the possibility of construction, but that before final estimates were made borings from the bed of the strait should be taken to ascertain definitely the geological formation, and the quantity of water likely to be encountered. (Dec., 1909, pg. 805).

Quebec Central Ry.—The extension from St. George Beauce to St. Justine, 30 miles, was practically completed on Dec. 15, track being laid up to St. Justine, the 28th mile. The stations are in course of erection and regular train service between St. George and St. Justine will be established on Jan. 1. The season being so late the line could not be fully ballasted but ballasting will be completed early next spring. Powers & Dessault, Levis, Que., are the contractors.

The further location of the line in the direction of Cabano is being proceeded with. J. T. Morkill, Chief Engineer, with a party is on the survey and 10 miles are already located, a very favorable line being found. It has not been decided what amount of construction will be proceeded with this year. (Dec., 1909, pg. 225.)

The Reid-Newfoundland Co. has entered into a contract with the Newfoundland Government to construct five branch railways, the total length of which will be nearly 300 miles. They will extend from the main line to different points on the coast as follows:—from Shoal Harbor to Bonavista Bay, about 75 miles; from Broad Cove to Heart's Content and Grete's Cove, about 62 miles; from Ransford Bridge to Trepassey, about 70 miles; from Country Chance to Fortune Bay, about 48 miles, and from Bay of Islands to Bonne Bay, about 42 miles. The gauge will be the same as the R.N. Co.'s other lines, viz., 3½ ft., and 50 lbs. rails will be used. The company has already graded about 22 miles of the Bonavista branch and will take out the necessary ties this winter. The company has also entered into a contract for the operation of all branches mentioned as they are completed, receiving therefor a subsidy of 4,000 acres of land per mile. (Dec., pg. 885.)

Salmon River, B.C.—Application is being made to the British Columbia Legislature to incorporate a company with power to construct a railway to be operated by steam, electricity or other motive power, from where the Salmon River crosses the International boundary between British Columbia and Alaska, to the source of the river, and such branch lines as may be necessary. Wade, Wheeler and McQuarrie, Vancouver, are solicitors for applicants.

Saskatchewan Central Ry.—Application is being made to the Dominion Parliament to incorporate a company with this title to construct a railway from tp. 41, range 3, west of the second meridian, westerly to Battleford, Sask., thence north-westerly to Smoky Lake, Alta., thence south-westerly to Edmonton; with power to construct branch lines as follows:—from near the starting point of the line, northerly to where the Saskatchewan River intersects the easterly boundary of the Saskatchewan; also from near the starting point of the line through Canora and Yorkton to North Portal; from tp. 43, range 21 west 2nd meridian north-westerly to Prince Albert, Sask., and from the same starting point southerly through Regina to the southern boundary of Saskatchewan, between ranges 18 and 20; and from the same starting point north-easterly to where the Saskatchewan River crosses the eastern boundary of the province; from near Battleford northerly to Meadow Lake, Sask.; from tp. 42, range 25 west of 2nd meridian, south-westerly through Saskatoon to the southern boundary of the province between ranges 10 and 21; from tp. 18, range 14, west 3rd meridian, westerly to the Saskatchewan River, and thence south-westerly to Lethbridge, Alta. The company is asking for all the usual powers, and for authority to enter into agreements with other railway companies. Smith and Johnston, Ottawa, are the solicitors.

The Temiskaming and Northern Ontario Ry. Commissioners have under survey a branch line from Charlton to Gowganda, Ont., 50 miles. The question of construction will not be settled for some time, as the Legislature has to approve and the Commission is not desirous of recommending its construction until fully convinced of the possibilities of traffic from the district to be opened up.

Tenders were received to Dec. 31 for the grading required in the construction of a second track between Cobalt and North Cobalt, two miles. The other work proposed to be done during the winter includes the completion of stations at Cobalt and Cochrane. (Dec., 1909, pg. 885).

Toronto Central Terminal Co.—The application to the Dominion Parliament for the incorporation of a company with this title, signed by P. Howland, Toronto, and others, has been presented to the House of Commons, and is passing through the usual routine. The Mayor of Toronto has received a letter from the solicitors of the company expressing a desire to obtain the fullest information as to the present and future requirements of the city and its environs in the way of freight and passenger terminal facilities, and as to the cheapest and most expeditious mode of transferring freight between different parts of the city. The company is said to have secured the services of engineers of experience in the matter of laying out terminals who are making surveys with a view to preparing plans, and desires to have all the information available, so that plans to the advantage of all interests may be drawn up. The city council has decided to oppose the bill. (Dec., 1909, pg. 914).

Vancouver to New Westminster, B.C.—Application is being made to the British Columbia Legislature to incorporate a company to construct a railway from Vancouver to New Westminister, B.C. Abbott and Hart-McHarg, Vancouver, are the solicitors.

Vancouver to Upper Lillooet Lake.—Application will be made to the British Columbia Legislature to incorporate a company to construct a railway, to be operated by electricity, steam or other motive power, from Vancouver to Upper Lillooet Lake, either by way of Stave Valley or Harrison River Valley, with power to construct branch lines to points not more than 30 miles distant. It is also desired to have power to construct wharves, docks, and operate steam and other vessels. Barnard and Robertson, Victoria, are the solicitors.

Western Alberta Ry.—Application is being made to the Dominion Parliament to extend the time for the commencement and completion of the authorized line of railway. Beaton and Shapley, Toronto, are the solicitors. (July, 1909, pg. 483).

Western Canada Power Co.—The Dominion Parliament is being asked to enlarge the scope of the company which was incorporated under the Dominion Companies Act, so as to enable it to construct such railways, and branches, side-tracks, turnouts, tramways, and telegraph and telephone lines, and works in connection therewith, as may hereafter be authorized by legislation or other authority. C. H. Cahan, Ottawa, is the solicitor.

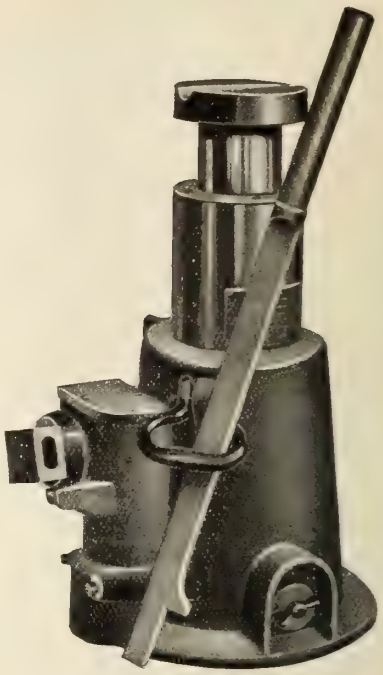
Winnipeg City Power Plant Line.—We are advised that during 1909 the Commission laid track on 25.25 miles of its line as follows:—from Lac du Bonnet to Pointe du Boise, 24 miles; and from station 1187 to gravel pit, 1.25 miles. It has under construction a line, 0.93 mile, from station 1217 to the power house. The contractor is O. E. Anderson, Winnipeg. (Feb., 1909, pg. 105).

Inside Pump Type

Quick Action Hydraulic Jacks

Joyce-Cridland Hydraulic Jacks have a speeding device whereby they can be run quickly up to load, where the speeding device automatically cuts out, leaving only the power pump in action This device adds no extra pump or complicated parts to the jack. These jacks are so built that they may be used in any position and the filling liquid will not escape. The outside pump type has a short barrel, adapting it for use in cramped quarters.

Full description and explanation of the working parts of the Joyce-Cridland Hydraulic Jacks are given in Bulletin 33.



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Orders by the Railway Commissioners.

Beginning with June, 1904, we have published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed our paper have a continuous record of the Board's proceedings. No other paper has done this.

The dates given of orders, immediately following the numbers, are those on which the hearing took place and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the date assigned to them.

8680. Nov. 4.—Ordering that C.P.R. forthwith erect shelter on or near wharf at East Robson, B.C. for protection of merchandise from weather.

8681. Nov. 8.—Dismissing application of town of Lemberg, Sask. for authority to open Main St. across C.P.R.

8682. Nov. 4.—Dismissing complaint of A. E. Watts, Cranbrook, B.C., with regard to inflammable material left on railway right of way and the destruction of public roads, including those from Yahk to Copeland and Sicamous to Vernon, B.C.

8683. Nov. 4.—Dismissing complaint of Kootenay Shingle Co., Salmo, B.C., that C.N.R. has departed from tariffs fixed by Board with respect to rates, weights, and shortage on shipments of shingles originating at Salmo and consigned to points in B.C., Alberta and Ontario.

8684. Nov. 18.—Authorizing East Luther and Amaranth Telephone Co. to install telephone instrument in C.P.R. station, Grand Valley, Ont.

8685. Feb. 5.—Authorizing city of Winnipeg, to construct subway under its tracks on east side of McPhillips St., between Fonseca Ave. and Jarvis St.

8686. Nov. 18.—Authorizing G.T.P.R. to put on a tri-weekly mixed train service between Wainwright and Edmonton, Alta.

8687. Nov. 18.—Authorizing city of Brantford, Ont., to lay sewer pipe under T.H. & B.R. at Gilkinson St.

8688. Nov. 18.—Authorizing Farmers' Telephone Co. to erect wires across C.P.R. in Northampton parish, Carleton Co., N.B.

8689, 8690. Nov. 18.—Authorizing Farmers' Telephone Co. to erect wires across C.P.R. at Brighton and Hartland, N.B.

8691. Nov. 18.—Authorizing C.N.R. to open for traffic the portion of its line from Saskatoon to Rosetown, Sask., 72 miles.

8692, 8693. Nov. 17.—Authorizing C.P.R. to construct a 3-track spur across road allowance between secs. 22 and 23, tp. 24, r. 9, w. 5th mer. and five other spurs near Exshaw, Alta., and a system of industrial spurs for International Elevator Co., St. Boniface, Man.

8694. Nov. 18.—Authorizing C.P.R. to open for traffic the extension of its Snowflake Branch to Windygates, mileage 0 to 6.5., Man.

8695. Nov. 18.—Recommending to Governor in council for sanction, agreement between C.N.R. and Northern Extension Ry.

8696. Nov. 15.—Authorizing Winnipeg Electric Ry. to operate cars over C.P.R. crossing at Logan Ave. for a further two months without being brought to a stop.

8697. Nov. 18.—Authorizing C.P.R. to construct spurs across Ross Ave., Xante St. and over blocks 89, 90, 91 and 92, lot 9, Winnipeg.

8698, 8699. Nov. 18.—Authorizing city of Toronto to lay ducts under G.T.R., C.P.R., near Strachan Ave., and on Strachan Ave., northern crossing.

8700, 8701. Nov. 18.—Authorizing village of Brussels, Ont., to erect wires across G.T.R.

8702, 8703. Nov. 18.—Authorizing Horton & McNab Telephone Co. to erect wires across C.P.R. in Horton tp., and near Castleford station, Ont.

8704 to 8709. Nov. 19.—Authorizing C.P.R. to use bridges at mile 47, Central Division, Prince Albert Branch; over Battle River, Western Division, Wetaskiwin section; over Government drainage ditch, Central Division, La Riviere section; bridges 147, 151, 196, 71, 84.3, 99.5, and 132.5, Cranbrook section, Western Division; 104.17 McLeod section, over Old Man River; and bridges 1.5 and 102.9, Western Division Edmonton section.

8710. Nov. 19.—Authorizing C.N.R. to operate temporarily and until further order, spur constructed by G.T.P.R. into Clover Bar Coal Co.'s property at Edmonton, Alta.

8711. Oct. 29.—Ordering that C.P.R. construct highway crossing about one mile west of Carlin station, B.C.

8712, 8713. Nov. 20.—Approving location of G.T.P.R. Calgary branch, mileage 0 to 24.753 and Tofield-Calgary branch, mileage 24.75 to 50, Alta.

8714. Nov. 20.—Authorizing C.P.R. to construct spur across 9th St., North Bay, Ont.

8715. Nov. 15.—Dismissing complaint of J. F. Hunter, Boissevain, Man., against C.P.R. as to the manner in which it handles local freight.

8716. Nov. 15.—Dismissing application of Tees & Persse, Ltd., for order directing C.P.R. to perpetually maintain a siding on what was formerly Point Douglas Ave., Winnipeg.

8718. Oct. 15.—Ordering C.N.R. forthwith to make passenger station facilities adequate and suitable to accommodate 12 persons, at Howell, Sask.

8718. Nov. 15.—Dismissing complaint of McCollom Lumber Co., Winnipeg, that C.P.R. and C.N.R. overcharged on a mixed carload of lumber from Warroad, Minn., to Indian Head, Sask.

8719. Nov. 22.—Authorizing G.T.P.R. to connect with C.N.R. near 1st St. east of 21st St., Edmonton, Alta.

8720. Nov. 23.—Recommending to Governor in council for sanction Temiscouta Ry. by-law re spitting in cars and premises.

8721. Nov. 22.—Authorizing G.T.P.R. to cross C.P.R. at grade at Yorkton, Sask.

8722. Nov. 24.—Authorizing city of Toronto to construct sewer under C.P.R. on Bathurst St.

8723 to 8725. Nov. 23.—Authorizing Bell Telephone Co. to erect wires across G.T.R. at Chesley, Ont., and across P.M.R. at Glenwood station and Leamington, Ont.

8726. Nov. 24.—Authorizing C.N.Q.R. to place tracks and telegraph wires under telephone and power wires of Quebec, Jacques-Cartier Electric Co. and Bell Telephone Co. in St. Sauveur parish.

8727. Nov. 23.—Authorizing Horton & McNab Telephone Co. to erect wires across C.P.R. on lot 9, con. 3, Horton tp., Ont.

8728. Nov. 24.—Authorizing Alberta Government Telephone Company to erect wires across C.N.R., near Bruderheim station.

8729. Nov. 24.—Dismissing application of A. Gordon, Cowichan, B.C., for order directing Esquimalt & Nanaimo Ry. to provide farm crossing where it intersects his farm in Shawinigan district, B.C.

8730. Nov. 23.—Ordering C.P.R. to construct spur at mileage 84.8, from Muskoka on its Toronto-Sudbury branch, Bigwood tp., Ont.

8731. Nov. 23.—Authorizing C.P.R. to construct spur in Beausejour, Man., for J. L. Turner, and Manitoba Glass Mfg. Co.

8732. Nov. 23.—Authorizing G.T.P.R. to construct spur on blocks 13 and 14, river lots 12 and 14, Edmonton, Alta.

8733. Nov. 24.—Authorizing Kaministikwia Power Co. to erect power lines across C.P.R. north of Victoria St., Westfort, Fort William, Ont.

8734. Nov. 24.—Authorizing C.P.R. to construct bridge 19.6 Farnham section, over Richelieu River, Que.

8735. Nov. 23.—Amending order 6523, authorizing G.T.R. to construct overhead farm crossing bridge at m.p. 125.12, between London and Windsor, Ont., and A. M. Dickie's land.

8736. Nov. 25.—Amending order 6858, Apr. 19, 1909, authorizing Atlantic Quebec & Western Ry. to operate its railway from mileage 19.75 to 20.5 at Port Daniel, Que., by striking out clauses 1 and 2 in the operative part.

8737. Nov. 15.—Extending for 30 days from date of order period within which M.C.R. may widen bed of stream across its right of way under trestle bridge at Bear Creek, near Petrolea, Ont.

8738. Sep. 22.—Amending order of Railway Committee of the Privy Council, Dec. 3, 1892, re crossing of G.T.R. by Davenport St. Ry. at Davenport Rd., Toronto, by ordering Toronto Suburban Ry. to install derails at crossing interlocked with semaphores and dismissing Toronto Suburban Ry. application for order reducing amount to be paid by it for construction, operation and maintenance of crossing.

8739. Nov. 17.—Restraining Nipissing Power Co. from erecting heat, light and power wires across Bell Telephone Co.'s wires between Powassan and North Bay, Ont.

8740. Nov. 24.—Ordering C.P.R. to lower its tracks where they cross Sutherland Ave., Winnipeg.

8741. Nov. 20.—Dismissing application of settlers of Ribstone, Alta., for order directing G.T.P.R. to provide a spur and loading platform between Dunne and Chauvin, Alta.

8742. Nov. 25.—Extending until Feb. 1, time for installation of interlocking plant at C.P.R. crossing of G.T.R., Drumbo, Ont.

8743. Nov. 22.—Limiting the speed of C.P.R. trains passing over Durham Rd., Walkerton, Ont., to 10 miles an hour.

8744. Nov. 22.—Ordering C.P.R. to provide a shelter with platform at Clark, Ont.

8745. Nov. 25.—Ordering C.N.R. to provide crossing at Lincoln Ave., Rosser municipality, Man.

8746. Nov. 19.—Authorizing C.N.Q.R. to construct its line across highways in Beauport parish, Que.

8747. Nov. 26.—Authorizing G.T.P.R. to appeal to Supreme Court of Canada upon all questions of law arising re location of its line through Fort William, Ont.

8748. Nov. 26.—Rescinding order 7320, June 18, 1909, approving plans of proposed C.N.R. subway at 22nd St., Saskatoon, Sask., by ordering that the city file new plans.

8749 to 8751. Nov. 25.—Authorizing Alberta Government Telephone System to erect wires across C.P.R. at three points.

8752. Nov. 26.—Authorizing Dresden Rural Telephone System to erect wires across P.M.R. at Emmett, Chatham tp., Ont.

8753, 8754. Nov. 26.—Authorizing town of North Battleford, Sask., to lay water and sewer mains under C.N.R. at Victoria St.

8755. Nov. 25.—Authorizing C.N.O.R. to cross and connect with G.T.R. near Brooklin, Ont.

8756. Nov. 27.—Authorizing Bell Telephone Co. to carry underground wires across Montreal Terminal Ry. at St. Antoine St., Tetraultville, Que.

8757. Nov. 25.—Authorizing C. Lawrence to lay water pipe under C.P.R. Walkerton & Lucknow branch at Durham Rd., Bentinck tp., Ont.

8758. Nov. 27.—Authorizing C.P.R. to construct spur for city of Winnipeg in St. Paul parish.

8759. Nov. 27.—Authorizing C.P.R. to construct spurs for North Pacific Lumber Co., New Westminster district, B.C.

8760. Nov. 29.—Approving C.N.R. location from mileage 0 to 5 up Fraser River from Yale, B.C.

8761. Nov. 29.—Authorizing C.P.R. to divert road allowance between secs 22 and 15, tp. 8, r. 5, Man.

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"I learn from_____the Master Mechanic here, that an engineer running between_____ and_____discovered a broken rail with the Pyle-National Electric Headlight and made the stop without ditching his train. One or two pairs of wheels got off, but that was a small affair to what it would have been where a foot of the rail was broken off. Also an engineer running east of here found some cars shoved out on the main line. He saw them with the 'Electric' and made the stop without hitting them."

PYLE-NATIONAL ELECTRIC HEADLIGHT CO.

MONADNOCK, CHICAGO

8762. Nov. 29.—Approving V.V. & E.R. location from Hope station 1988-79 to station 3020-7.5, to the boundary between Yale and Westminster districts, B.C.

8763. Nov. 29.—Approving C.N.O.R. location from Rideau River, mileage 5.3 to boundary between Goulbourne and Nepean tps.

8764, 8765. Nov. 29.—Authorizing Vancouver Power Co. to cross the Y of the C.P.R. Seattle branch north of Huntingdon station, and the main line and spur at Clayburn station, B.C.

8766. Nov. 29.—Authorizing C.P.R. to construct siding to R. West & Co.'s premises at mileage 14.75, London section, Ont.

8767. Nov. 29.—Extending for 30 days from date of order, time within which M.C.R. and P.M.R. shall each install upon its own line a highway crossing on town line between Southwold and Dunwich tps., Ont.

8768. Nov. 26.—Ordering C.P.R. to provide highway over its line at Mackey station, Head tp., Nipissing district, Ont.

8769. Dec. 2.—Authorizing Canada Atlantic Ry. (G.T.R.) to construct siding from south side of Sappers Bridge to the Chateau Laurier site, Majors Hill Park, Ottawa.

8770. Nov. 29.—Amending order 8540, Oct. 15, 1909, by approving substituted plans and specifications of Colchester North tp., Ont., re drain under M.C.R.

8771. Nov. 29.—Authorizing town of St. Louis, Que., to lay water pipe under C.P.R. at Sanguinet St.

8772. Dec. 2.—Authorizing Chatham Gas Co. to lay main under G.T.R. at Degge St. crossing, Chatham, Ont.

8773. Nov. 30.—Authorizing Burlington village, Ont., to place wires under G.T.R. at Burlington Beach, Ont.

8774 to 8777. Nov. 22.—Authorizing Consolidated Telephone Co. to erect wires across C.P.R., near Upper Kent station, one mile south of Bath, at Bath, and at Bristol, N.B.

8778, 8779. Nov. 22.—Authorizing Brussels village, Ont., to erect wires across C.P.R. at Walton and across G.T.R. at intersection of line between cons. 4 and 5, Morris tp., Ont.

8780. Nov. 22.—Authorizing North Huron Telephone Co., Wingham, Ont., to erect wires across G.T.R. near Whitechurch station, Ont.

8781. Dec. 1.—Authorizing Claremont & Ashburn Telephone Co. to erect wires across G.T.R. at 7th con. Whitby tp., Ont.

8782 to 8784. Nov. 18, 30.—Authorizing Bell Telephone Co. to erect wires across C.N.Q.R. at Tetraultville, Que., and across C.P.R. near Shaw station, Ont., and near St. Cuthbert station, Que.

8785 to 8793. Nov. 22.—Authorizing Manitoba Government Telephones to erect wires across C.P.R. at three points; C.N.R. at five points; and G.T.P.R. at one point.

8794 to 8798. Dec. 1.—Authorizing Alberta Government Telephones to erect wires across G.T.P.R. at two points; C.P.R. at two points and C.N.R. at one point.

8799. Dec. 1.—Authorizing Saskatchewan Government Telephones to erect wires across C.N.R. at Hague.

8800. Nov. 30.—Ordering C.P.R. to reconstruct culvert under tracks at mileage 3.3, Sudbury section, Humphrey tp., Ont.

8801. Dec. 1.—Amending order 7746, Aug. 5, 1909, approving C.N.R. location from tp. 15, r. 17, w. 6th m. to sec. 11, tp. 14, r. 17, w. 6th m., mileage 0 to 5, B.C., by changing the reference to r. 17, to read "r. 27."

8802. Nov. 29.—Authorizing C.P.R. to open for traffic the portion of its second track from mileage 59.4 to 59.6, Fort William section, Ont.

8803. Nov. 18.—Authorizing C.N.Q.R. to construct spur from near St. Marc's Jct. through St. Marc, Grondines and St. Albans parishes.

8804. Dec. 1.—Approving stress sheets of C.N.R. Lac Ouareau-Rawdon extension.

8805. Dec. 1.—Authorizing C.N.O.R. to construct its line across six highways in Whitechurch tp., York county.

8806. Nov. 30.—Extending until June 1, 1910, time within which North American Telegraph Co. may file tariffs of tolls.

8807. Nov. 30.—Extending until June 1, 1910, time within which North American Telegraph Co. may file tariffs of tolls.

8808. Nov. 30.—Certifying amended plan of C.N.R. right of way as constructed across s.e. ¼ sec. 24, tp. 43, r. 4, w. 3rd, m. north 28 miles from Dalemy, Sask.

8809, 8810. Nov. 27.—Dismissing application of city of Edmonton, Alta., for orders varying orders 5598, Nov. 12, 1908, and 6751, Feb. 19, 1909, providing that the G.T.P.R. and C.N.R. each provide its own diamond crossing, and that gates with home signals, to be operated by a watchman, be substituted for the half-interlocking plant required to be installed, and authorizing the city to again apply for the establishment of gates or other protection.

8811. Nov. 30.—Authorizing G.T.R. to construct siding to Otis-Fensom Elevator Co.'s premises, Hamilton, Ont.

8812. Nov. 30.—Authorizing C.P.R. to construct siding to the Noxon Co.'s premises, Ingersoll, Ont.

8813. Nov. 30.—Ordering G.T.P.R. to construct highway crossing and road diversion between secs. 25 and 26, tp. 35, r. 12, w. 3rd m., Saskatoon district, Sask., in accordance with and subject to general regulation of Board affecting highway crossings.

8814. Nov. 29.—Authorizing C.P.R. to construct spur in lots 15 and 16, r. 7, Aylwin tp., Que.

8815. Nov. 30.—Dismissing application of Tilbury East and Raleigh tps., Ont., for construction of bridge over Jeannette's and Baptiste Creeks, by G.T.R. on its Southern division.

8816. Dec. 3.—Authorizing C.N.O.R. to open for traffic the portion of its Ottawa-Hawkesbury division, from Rockland to Hurdman's bridge, Ottawa.

8817. Dec. 3.—Approving C.N.O.R. by-law authorizing D. B. Hanna, Guy Tombs and W. H. Jordan, to prepare and issue tariffs of tolls to be charged between and including Hawkesbury and Ottawa.

8818. Dec. 3.—Approving Standard Passenger Tariff C.R.C. 153, providing for maximum passenger rate of 3c. a mile between all stations on C.N.Q.R. and C.N.O.R., Ottawa section.

8819. Dec. 3.—Extending until June 1, 1910, time within which Canadian and Dominion Express Companies' tariffs of tolls for carriage of goods are temporarily approved.

8820. Dec. 2.—Dismissing complaint of Wagstaff, Ltd., Hamilton, Ont., that rate of $1.20 per 100 lbs. charged by the Dominion Ex. Co. on black currants from Montreal to Hamilton is excessive and discriminative as compared with rate of 80c. per 100 lbs. charged on like shipments from Hamilton to Montreal.

8821. Dec. 3.—Extending until June 1, 1910, time within which National and American Express Companies tariffs of tolls for carriage of goods are temporarily approved.

8822. Dec. 3.—Extending until June 1, 1910, time within which Maritime Express Co. may file tariffs of tolls for carriage of goods.

8823. Dec. 4.—Authorizing C.P.R. to open for traffic the second track of its Smith's Falls section from Vaudreuil to St. Lazare, also from mileage 44.9, just west of Dalhousie Mills to mileage 48.6; and from mileage 48.8 to Avonmore.

8824. Dec. 3.—Extending until June 1, 1910, time within which the United States and the Great Northern Express Companies may file tariffs of tolls for carriage of goods.

8825 and 8826. Dec. 2.—Authorizing city of Hamilton, Ont., to lay sewer under Hamilton Radial Electric Ry. and Toronto, Hamilton & Buffalo Ry. in Barton tsp., Ont.

8827. Dec. 6.—Authorizing G.T.P.R. to cross, at grade, the C.P.R. Pheasant Hills branch in sec. 13, tp. 21, r. 12, west of 2nd mer., Balcarres, Sask.

8828. Dec. 4.—Authorizing C.P.R. to construct spur to Continental Oil Co. and Canadian Petrified Brick & Stone Co.'s premises, Winnipeg.

8829. Dec. 6.—Authorizing city of Hamilton, Ont., to lay sewer under G.T.R. in Barton tsp., Ont.

8830. Dec. 4.—Authorizing Manitoba Government Telephones to erect wires across C.N.R. near Bethany.

8831, 8832. Dec. 4.—Authorizing North Huron Telephone Co. to erect wires across G.T.R. at two points near Wingham station, Ont.

8833 to 8837. Dec. 4.—Authorizing Guelph, Ont., Board of Light and Heat Commissioners to erect wires across C.P.R. at three points and G.T.R. at two points.

8838. Dec. 7.—Authorizing Temiscouata Ry. and Transcontinental Ry. to operate trains where the Temiscouata Ry. crosses Transcontinental Ry., about 12.2 miles west from Edmundston, N.B.

8839. Nov. 16.—Authorizing town of St. Louis, Que., to carry its highway under C.P.R. at St. Lawrence Blvd.

8840. Dec. 4.—Authorizing Bell Telephone Co. to place wires under Hamilton Radial Electric Ry. about two miles east of Burlington, Ont.

8841. Dec. 4.—Authorizing C.P.R. to construct spur for Riordon Paper Mills, Ltd., at mileage 95.16 from Ste. Therese, Que.

8842. Dec. 4.—Authorizing Toronto, Hamilton & Buffalo Ry. to construct spurs in n.e. part of Hamilton, Ont.

8843. Dec. 4.—Authorizing C.P.R. to construct spur in Lethbridge, Alta.

8844, 8845. Dec. 7.—Authorizing Bell Telephone Co. to erect wires across G.T.R. near Callander station, and near New Toronto, Ont.

8846. Dec. 7.—Authorizing Port Hope Telephone Co. to erect wires across G.T.R. at Newcastle, Ont.

8847. Dec. 6.—Ordering that Toronto Suburban Ry. install and maintain derails at crossing with G.T.R. at Davenport Road, Toronto.

8848. Dec. 7.—Authorizing Quebec Ry. Light & Power Co. to cross with its tracks the C.P.R. tracks at St. Valier St., Quebec.

8849. Dec. 7.—Approving location of C.P.R. station at Grassy Lake, Alta.

8850. Dec. 2.—Ordering G.T.R. to install distant semaphore at crossing with Galt, Preston & Hespeler Ry. at Hespeler, Ont.

8851. Nov. 24.—Authorizing city of Saskatoon, Sask., to carry Saskatchewan Drive under C.N.R. bridge.

8852. Dec. 7.—Approving stress sheets of G.T.R. for proposed renewal of viaducts near Tansley and Stewarton, Ont.

8853. Dec. 7.—Authorizing Erie Telephone Co. to place wires across G.T.R. two miles west of Canfield, Ont.

8854. Dec. 7.—Authorizing city of Toronto to lay sewer under C.P.R. on Huron St.

8855. Dec. 7.—Authorizing Bell Telephone Co. to place wires across G.T.R. telegraph lines two miles east of Burlington Jct., Ont.

8856. Dec. 6.—Authorizing G.T.R. to construct bridge over Ham's Creek, near Ernestown, Ont.

8857. Dec. 3.—Ordering C.P.R. to provide highway crossing at Murray St Sault Ste. Marie, Ont.

8858, 8859. Dec. 10.—Authorizing Ontario Power Co. of Niagara Falls, Ont., to erect wires across the G.T.R. in Thorold tp., Ont.

8860. Dec. 10.—Directing that all railways where shippers [illegible]

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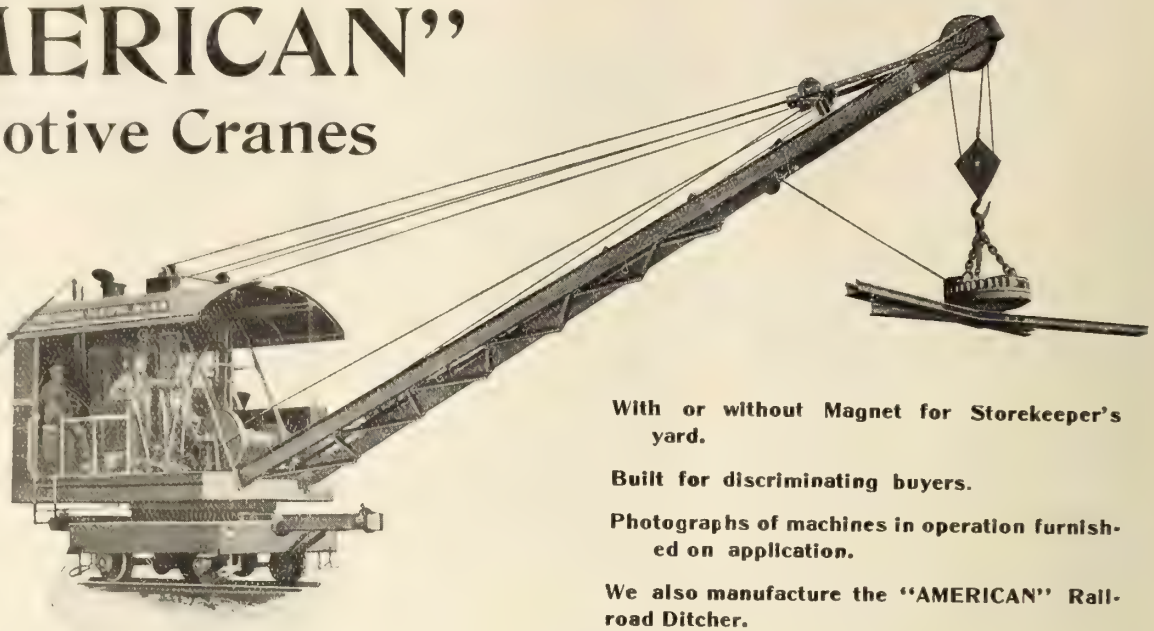

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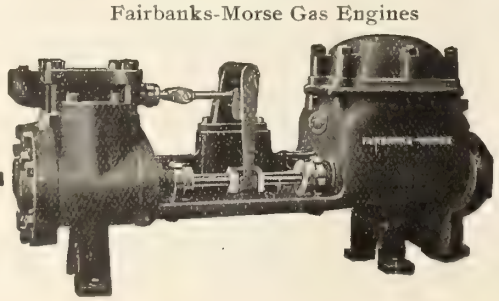

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supply car doors to enable cars to be used for traffic, make allowance therefor to such shippers upon the following basis:—at and west of Fort William, lower car door, $1; upper car door, 50c.; east of Fort William, upper or lower car door, each 50c.

8861. Dec. 2.—Authorizing C.N.O.R. to carry its proposed railway under G.T.R. near Scarboro Jct., Ont.

8862. Dec. 9.—Approving proposed bridge of Atlantic, Quebec & Western Ry. over Grand Pabos gully, at mileages 41 and 40.8.

8863. Dec. 9.—Authorizing C.P.R. to construct spur for Western Canada Timber Co., mileage 29.5 north from Lardo, B.C.

8864. Dec. 9.—Authorizing C.P.R. to construct spur at Gerrard station, B.C.

8865. Dec. 10.—Approving location of C.P.R. revision on a portion of its Kininvie branch.

8866. Dec. 10.—Approving location of C.N.O.R. at Greenwood, Pickering tp., Ont.

8867. Dec. 10.—Ordering that P.M. Rd. erect fences along its railway where it crosses near Cedar Springs, Raleigh tp., Ont.

8868. Dec. 10.—Authorizing G.T.P.R. to construct its railway across highways between secs. 35 and 34, and 34 and 33, tp. 52, r. 27, w. 4th m., North Alberta.

8869 to 8875. Dec. 10.—Authorizing Manitoba Government Telephones to erect wires across C.P.R. at seven points.

8876, 8877. Dec. 10.—Authorizing Bell Telephone Co. to erect wires across G.T.R. at West and Market Sts., Brantford, and near Whitby, Ont.

8878. Dec. 11.—Approving C.N.R. location through tp. 5, r. 7-11, west of 2nd mer., Sask.

8879. Dec. 10.—Ordering that C.P.R. and P.M.R. may operate trains over interlocker installed at Walkerville Jct. Ont.

8880. Dec. 10.—Authorizing C.P.R. to construct spur for Andrews & Son, Winnipeg.

8881. Dec. 10.—Authorizing C.N.O.R. to construct bridge over Rouge River, Scarboro tp., Ont.

8882. Dec. 10.—Authorizing C.P.R. to construct branch line near Westminster Jct., B.C.

8883. Dec. 9.—Authorizing C.P.R. to construct spur at mileage 86 from Lethbridge, Crow's Nest branch.

8884. Dec. 11.—Authorizing Dominion Natural Gas Co. to lay main under G.T.R. at Maple St., Simcoe, Ont.

8885. Dec. 11.—Authorizing Dr. A. L. Russell to erect telephone wires across G.T.R. at Fraserville, Ont.

8886, 8887. Dec. 11.—Authorizing Alberta Government Telephones to erect wires across C.P.R. at Camrose and Sedgewick.

8888. Dec. 11.—Authorizing Bell Telephone Co. to erect wires across G.T.R. 2½ miles south of Harriston, Ont.

8889. Dec. 13.—Authorizing C.N.R. to cross with its Goose Lake branch the G.T.P.R. near Saskatoon, Sask.

8890. Dec. 13.—Authorizing C.N.R. to cross with its track the C.P.R. near Bienfait, Sask.

8891. Nov. 22.—Authorizing Ontario Power Co. to cross with its transmission line the M.C.R. in Stamford tp., Ont.

8892, 8893. Dec. 11.—Authorizing C.N.O.R. to construct bridge over Dixie and Greenwood creeks, Pickering tp., Ont.

8894. Dec. 11.—Authorizing C.N.Q.R. to construct its line across lot 408, St. Marc parish, Portneuf Co., Que.

8895. Dec. 11.—Authorizing Canada Atlantic Ry. to reconstruct bridge across River St. Lawrence, between Giroux Island and Isle aux Seines.

8896. Oct. 17.—Approving C.P.R. crossings at Blackstone Rd., Moor's Rd., Gough's Rd., mileages 118.09, 119.67 and 120.25, and Portage Bay Rd., mileage 123.21.

8897. Dec. 11.—Amending order 2139, Dec. 6, 1906, which approved form, size and style of tariffs of telephone tolls.

8898. Dec. 13.—Authorizing C.P.R. to divert Hamilton St, Regina, Sask.

8899. Dec. 14.—Authorizing C.N.O.R. to construct bridge in Whitby tp., Ont.

8900. Dec. 13.—Approving plan of subway at intersection of Albert St., Regina, Sask.

8901. Dec. 14.—Authorizing city of Brantford, Ont., to lay sewer under G.T.R. across West St.

Turbo-Electric Locomotive.

Hugh Reid recently addressed the Glasgow University Engineering Society on the Reid-Ramsay turbo-electric locomotive now being built in Glasgow, Scotland. In describing it he said that steam is generated in a locomotive boiler, which has a superheater, and the coal and water supplies are carried in the side bunkers and side water tanks at both sides of the boiler. The steam is led to a 3,000-r.p.m. impulse turbine, to which is directly coupled a d.c. generator. The dynamo supplies current at from 200 to 600 volts to four series-wound traction motors, the armatures of which are built on the four driving axles of the locomotive. The exhaust steam from the turbine passes into an ejector condenser, and is, together with the circulating condensing water, delivered eventually to the hot well. As the steam turbine, unlike the reciprocating steam engine, requires no internal lubrication, the water of condensation is free from oil, and consequently is returned from the hot well direct to the boiler by a feed pump. This condensing water is circulated by centrifugal pumps driven by auxiliary steam turbines placed alongside the main turbine and dynamo. The cycle of the condensing water is from tanks through the first pump, then through the condenser, where it becomes heated in condensing the exhaust steam, then to the hot well. From the hot well it passes through the second pump to the cooler, situated in front of the locomotive, where the full benefit of the blast of air caused by the movement of the locomotive, aided by a fan, is utilized for cooling the hot circulating water.

The condensation of the exhaust steam deprives the locomotive boiler of the usual exhaust blast which induces the draft through the firebox and boiler tubes. In the experimental locomotive the induced draft is replaced by forced draft provided by a small turbine-driven fan. The fan is placed within the cooler, so that it will deliver hot air to the boiler fire, and at the same time assist the current of air through the cooler. The small switchboard and the instruments required, and the controller for the four motors are all placed on the motorman's platform within easy reach.

The main and auxiliary machinery of this experimental locomotive is mounted upon a strong underframe, which is carried upon two trucks, each of which carries two motors. As the locomotive is intended for express passenger main line work, it is hoped to obtain comparisons from its actual working with the performances of the reciprocating steam locomotives, especially as regards the relative consumption of fuel and water, the efficiency of transforming the energy of steam into drawbar pull, and also the relative rapidity of acceleration under the old and new systems.

The American Railway Master Mechanics' Association and the American Railway Master Car Builders' Association annual conventions will be held at Atlantic City, N.J., June 15 to 18 and June 20 to 22, respectively.

Great Northern Railway.

In connection with the various lines in Canada, owned by the G.N.R., the following information as to work done during 1909, and the work in progress will be of interest:—In Minnesota, the company has laid about 20 miles of track from Nashawauk to Grand Rapids. The extension is not yet completed. Nashawauk is on the Duluth, Swan River and Virginia line, and Grand Rapids is on the main line from Duluth westerly. In Washington State it has laid 60.62 miles of tracks from Columbia River to Westfield, a line projected to connect up in course of time with the company's line either at Marcus or Republic, and so give a through connection with its existing lines in the Kettle and Kootenay valleys in British Columbia. Another piece of line completed is the reconstruction from Blaine to the International boundary, 2.96 miles. This line connects with the Vancouver, Victoria and Eastern Ry., at the boundary and runs into Vancouver, replacing the old New Westminster Southern Ry., which has been abandoned. The lines under construction or projected are:—in North Dakota, from Stanley to Powers Lake, 24 miles; this branch runs northwesterly, towards the International boundary. In Montana a line is projected for 52 miles from Bainsville, to Plentywood, also just south of the International boundary. In Washington State a line is under construction from Oroville, on the section of the Vancouver, Victoria and Eastern Ry., which runs south of the International boundary, to Pateros, 76 miles. This line will ultimately connect with the main line at Wenatchee. In connection with the Spokane, Portland and Seattle Rd., the company is also constructing two miles of line at Spokane.

Midland Ry. of Manitoba.—We are advised that no recent purchases of land have been made for terminal purposes in Winnipeg by the M. Ry. of M., or any of the other companies connected with it; neither is any further purchase contemplated. Practically all the property required was purchased some time ago. It is not likely that any construction will be proceeded with during the winter.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—The laying of track into Princeton, B.C., is reported completed, the mileage laid during the year, from Keremeos, being estimated by A. H. Hogeland, Chief Engineer, St. Paul, Minn., at 42 miles; and by J. H. Kennedy, Chief Engineer on the work at about 45 miles. The estimates were made on different dates, and at neither time was the work completed. The company also completed and put in operation 21.05 miles of new line from the International boundary, north of Blaine, Wash., to New Westminster, replacing the old New Westminster Southern Ry.; the track laying for this line was completed in 1909. It also completed the portion of the line from Cloverdale to Sumas, B.C., 29.29 miles; 27.29 miles of track had been laid on this line up to Dec. 31, 1908, so that only two miles had to be laid to complete it. The company has also laid 1.93 miles in Vancouver, called its Burrard Inlet line.

The section of the line between Keremeos and Princeton was taken over by the operating department, Dec. 8, and a permanent train service was put on Dec. 11. The company is purchasing a right of way for the extension of the line from Princeton and Abbottsford in the Fraser River Valley, west of the Hope Mountains. (Dec., 1909, pg. 887).

The bill brought by E. A. Lancaster before the House of Commons to amend Sec. 238 of the R[illegible] Act [illegible] Nov. 25 ordered to be [illegible] time this day six months."

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National Transcontinental Railway.

We are advised that it is estimated that 312 miles of track were laid during 1909 on the Eastern Division, and on various stretches between Moncton, N.B. and Winnipeg, making with the 249 miles laid to Dec. 31, 1908, a total of 561 miles, and leaving 1,244 miles to be laid to complete the division. The track laid during 1909 is distributed over the different contracts as follows:—Moncton westerly mileage 20 to 30, and mileage 53 to 56, 13 miles; Chipman, mileage 5 to 10 west, five miles; crossing of the Intercolonial Ry., 36 miles west from Moncton, to 13 miles easterly and to 14 miles westerly, 27 miles; from Quebec-New Brunswick boundary easterly for 27 miles, and from mileage 61 to 64, three miles, making 30 miles; east of Quebec bridge 16 miles have been laid between mileage 2.6 and 36; west of the same point 10 miles have been laid in the first 50 miles, 15 miles between the 50th and to the 158th mile; at the junction with the Temiskaming and Northern Ontario Ry. nine miles of track have been laid easterly and 35 miles westerly; from mileage 8 east of the Ontario-Manitoba boundary to mileage 152 east, 144 miles.

Replying to questions in the House of Commons, Nov. 25, the Minister of Railways stated in regard to the delay in the completion of work by several of the contractors, that the contracts provided for a forfeit of $5,000 for each calendar month of default; that no extensions of any of the contracts had been given, and that the enforcement of the penalty clause was a matter for consideration before final payments were made.

On Dec. 9, the Minister said, the only amount paid for terminals for the Railway was $2,187.50 a month paid to the Canadian Northern Ry., being the Government's proportion of rental for terminals at Winnipeg, under the agreement of Mar. 1, 1907. No estimate had been made of the total cost of the terminals required for the line.

Quebec Bridge.—Preliminary work was started on the reconstruction of the bridge over the St. Lawrence at Quebec, Dec. 8, when about 100 men were put to work around the approaches of the old bridge, for the purpose of preparing for the clearing away of the debris, and the demolishing of such parts of the old work as have been condemned, preparatory to the construction of new piers and other works. A contract will be let at an early date for the removal of the steel work between the land and the piers. This has to be done by the spring so as to allow the caissons for the new piers to be sunk by May 1.

The Minister of Railways, in reply to questions in the House of Commons recently, stated that the new bridge is to be erected at the same site as the old one, the south pier will be used in part but must be enlarged, a new pier will be sunk to the rock on the north side, and the other piers will be rebuilt. Further questions elicited the information that the existing south pier caisson will be fully used, and enlarged to carry the greater load that will be required for the new superstructure. At the north pier, borings have demonstrated that the caisson can be founded on the rock and the span reduced from 1,800 ft. to 1,758 ft. The existing north pier will be demolished. The old bridge was estimated to weigh 35,000 tons, and was to have been built of carbon steel. The new bridge will be built in part of carbon steel, using nickel steel in the more important members. The weight cannot be given at present pending the receipt of tenders for the superstructure.

On Dec. 9, the Minister stated that the total cost of the Quebec bridge to the Dominion Government to date was $6,905,852.35; including subsidies paid of $374,353.33. A contract had been let to M. P. Davis for the substructure of two pneumatic caissons, two abutments, two anchor piers and one intermediate pier, which will all be required if the ultimate decision is for a cantilever bridge, at a cost of $2,448,475. If the decision is that a suspension bridge is to be built the abutment, centre pier and anchor pier will not be required; but anchorage piers for the cables will be required. No estimate for the latter had been made. There was a provision in the contract for withdrawing the items named. The cost of the two pneumatic caissons would be $2,000,800, and these will be required as planned whatever type of bridge superstructure is ultimately decided upon. Pending such decision it was not in the public interest to give any estimates of the cost of the superstructure.

The Department has issued an invitation to contractors for bridge superstructures to visit the office of the Board of Engineers in Montreal, after Jan. 3, for the purpose of receiving information to enable them to prepare bids for the superstructure of a span of 1,758 ft., having a width of 88 ft.

GRAND TRUNK PACIFIC RY.

We are advised that during 1909 the company laid 309 miles of new track distributed as follows:—from Irma, Alta., to Cloverbar, Alta., 102 miles; from Edmonton to Wolfe Creek, Alta., 122 miles, making 224 miles of main line; branch line from Melville to Balcarres, Sask., 34 miles; branch from Melville to Yorkton, Sask., 25 miles; and branch line from Tofield to Camrose, Alta., 26 miles, making a total of 85 miles of branch lines. The company has under construction 414 miles of main line and 24 miles of a branch. The contract for the main line work is being carried out under several contracts by Foley, Welch and Stewart, with headquarters at Stoney Plain, Alta., and Prince Rupert, B.C. The eastern contracts cover the 179 miles from Wolfe Creek to Tete Jaune Cache, and the western contracts cover the 235 miles from Prince Rupert to Aldermere, B.C. The branch line under contract is an extension of the Tofield-Camrose branch 24 miles southerly, the contract being let to J. D. McArthur, Winnipeg.

Replying to questions in the House of Commons recently the Minister of Railways said the cost of the Prairie section of the line, from Winnipeg to Wolfe Creek, 915 miles, to Sept. 15 had been at the rate of $33,423 a mile, and it was estimated it would cost $1,557 a mile more to complete it. On the Mountain section, from Wolfe Creek to Prince Rupert, there had been expended to Sept. 30, $7,053,863, and it was estimated that it would require $60,002,136.89 more to finish it; this amount includes $5,536,000 for interest. In reply to another question he said the Government was not paying any sum for terminals on the G.T. Pacific Ry.; it merely guaranteed the company's bonds for $13,000 a mile on the Prairie section, and to the extent of 75% of the cost of the Mountain Section.

The company has under construction an 18-stall standard round house at Edmonton, Alta. The foundations will be of concrete, the walls of brick, the frame work of timber with cast iron door columns, the roof of steel trusses in the machine shop, and the roof covering of tar and gravel. The building will be heated with hot air piping carried underground.

In a recent interview at New York, C. M. Hays, President G.T.R., stated that of the line easterly from Prince Rupert about 110 miles had been completed. The whole line was expected to be completed within three years.

Reports from Prince Rupert state that work on the second section of the line easterly has been suspended owing to the lack of supplies, principally explosives for blasting. Navigation closed at a much earlier date than was anticipated, consequently the contractors were not able to get their supplies in by steamer. An attempt will be made to get in supplies for some of the camps by land, but it is not expected that it will be possible to keep more than two or three camps going.

The Dominion Parliament is being asked to pass an act authorizing the construction of the following additional lines by the G.T. Pacific Branch Lines Co.:—From between the east limit of range 12 and the west limit of range 17 west of the third meridian, thence south-westerly and westerly to Calgary, Alta., or to the line authorized to be constructed by par. 14, clause 11, chap. 99, of the statutes of 1909; from the last mentioned line between the east limit of range 20 and the west limit of range 28 west third meridian, easterly or south-easterly to Regina, Sask.; from the last mentioned line between east limit of range 24, and west limit of range 27, west of the second meridian to Moose Jaw, Sask.; from between Artland and Wainwright, easterly and south-easterly to the line authorized to be constructed to Battleford, by par. 13, clause 11, chap. 99, of the statutes of 1909; from Regina, south-westerly and westerly to Lethbridge, Alta., on the line authorized to be constructed from Calgary to the southern boundary of Alberta, near Coutts; from the main line between Moose Lake and Tete Jaune Cache, through the valley of the Clearwater River, Bonaparte River, Seaton and Anderson lakes, Lillooet or Squamish River, to Vancouver, B.C. The company also asks power to issue bonds for $30,000 a mile for the Manitoba, Saskatchewan and Alberta extensions, and for $50,000 a mile for the extension to Vancouver. (Dec., 1909, pg. 893).

Union Station at Fort William.

The plans for the new union station to be erected at Fort William, Ont., by the C.P.R., for the joint use of the C.P.R. and the G.T. Pacific Ry., show a building 272 ft. long. The central portion will have a frontage of 105 ft., a depth of 51 ft. and a height of three stories, and basement. This three story building will be about 46 ft. high and the plan shows an attractive and imposing frontage, the principal feature in which is the arched doorway. The one story building to the right will have a frontage of 104 ft. and a depth of 34 ft., and that on the left a frontage of 63 ft. and a depth of 34 ft. The track frontage while not quite so imposing as the road frontage is equally attractive. Projecting over the platform along the main building will be a glass awning carried on steel trusses. The building will be erected on concrete and stone foundations; the superstructure of brick with stone, copings, keystones, and other finishing. Entering from the street there is a large vestibule, leading by swinging doors into a general waiting room, 102 by 34 ft., off which, to the right are the women's waiting, retiring and toilet rooms; and to the left, are men's waiting room and lavatories. To the right, at the track front is the joint ticket office, while adjoining the women's waiting room is the telegraph office. At the left hand, towards the track front are offices for the station master, parcels office, and the stairway to the upper stories, in which will be the offices for the divisional staffs. The baggage annex, 104 by 34 ft., contains a general baggage room with closed off sections for baggage checkers, storage of valises, the general public, and the baggage masters office. The annex at the other end of the building has a frontage of 63 by 34 ft., and is to be divided between the Dominion and Canadian Express Co.'s.

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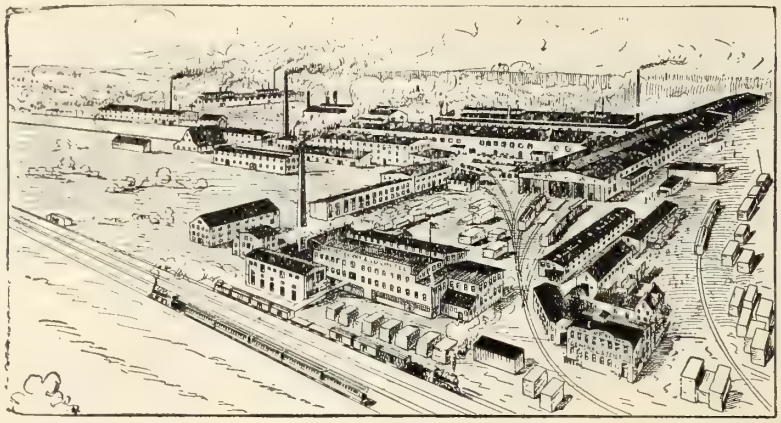

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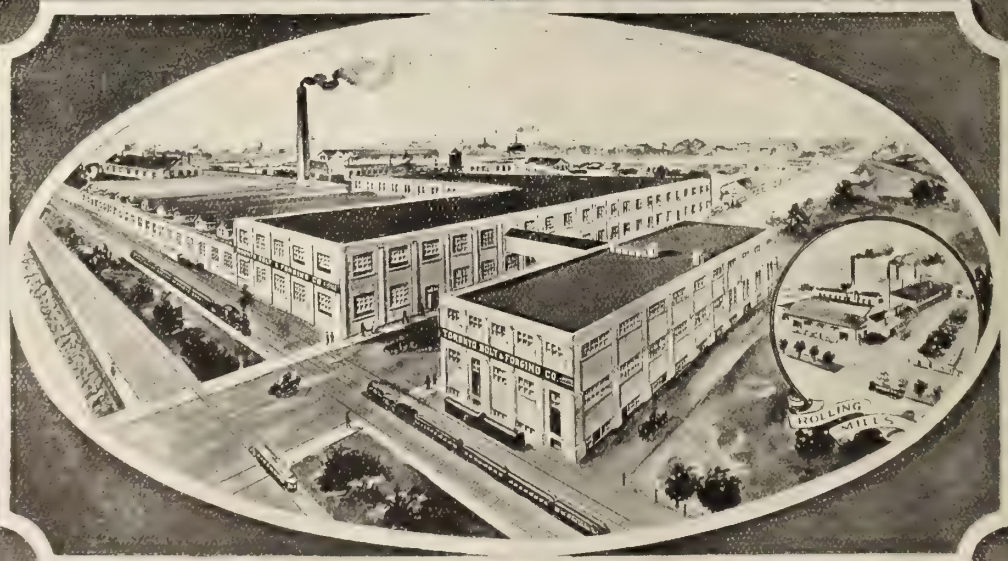

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MAINLY ABOUT PEOPLE.

Mrs. Hayter Reed, wife of the Manager in Chief, C.P.R. Hotels, is staying in California.

J. McVicar, a railway contractor of Goderich, Ont., died at Toronto, recently, aged 69.

A. R. Creelman, K.C., General Counsel C.P.R., and his daughters have gone to Bermuda.

C. R. Hosmer, director C.P.R., accompanied by Mrs. and Miss Hosmer, is spending the winter in Italy.

A. C. Smith, C.P.R. Ticket Agent, Winnipeg, has resigned to enter the Western Rubber & Supply Co.'s service there.

George Ham, of the C.P.R. headquarters staff, Montreal, is confined to his house by illness.

Sir Alfred L. Jones, head of the Elder-Dempster Co., Liverpool, Eng., died there, Dec. 13, aged 64.

Miss Margaret Haney, daughter of M. J. Haney, contractor, Toronto, is to be married there, Jan. 6, to Dr. A. H. Spohn.

H. Grout, C.E., who was for 30 years in the old Great Western Ry.'s service, died at St. Catharines, Ont., recently, aged 78.

F. Barlow Cumberland, Vice President Niagara Navigation Co., has published a third edition of his History of the Union Jack.

A. B. Calder, General Agent, Passenger Department C.P.R., Seattle, Wash., has returned there after a holiday trip to Europe.

John Mason, who died in Stratford, Ont., recently, was father of T. J. Mason, of the Northern Pacific Ry. engineering staff at Tacoma, Wash.

C. R. Hosmer, director C.P.R., will erect an additional pavilion to the Alexandra Hospital, Montreal, to be used for the treatment of erisypelas.

Nicol Kingsmill, K.C., Toronto, Canadian solicitor Michigan Central Rd., and his daughters are spending the winter in the south of France.

Miss Lilias Ahearn, only daughter of T. Ahearn, President Ottawa Electric Ry., was married Dec. 1 to H. S. Southam, of the Ottawa Citizen.

W. Whyte, Second Vice President C.P.R., Winnipeg, presided at a dinner of the Social and Moral Reform Committee, Regina, Sask., Dec. 3.

W. R. Baker, Secretary C.P.R., and assistant to President, Montreal, was married in New York, Dec. 6, 1909, to Miss Else Dicke, of Vienna, Austria.

S. N. Parent, Chairman National Transcontinental Railway Commission, has denied a recent rumor that he was about to resign to re-enter political life.

Miss Isabel Piers, daughter of A. Piers, Manager C.P.R. Atlantic Steamship Line, Liverpool, Eng., who has been visiting relatives in Canada, has returned to England.

Lord Strathcona had a narrow escape from a serious accident in London, Eng., Dec. 22, when his automobile collided with a motor bus. Though shaken, he was not hurt.

H. M. McCallum, General Agent C.P.R. Atlantic Steamship Lines, Winnipeg, and Miss J. B. Duncan, Winnipeg, were married Dec. 27, and sailed for a six weeks' tour in Europe.

R. H. Sperling, General Manager British Columbia Electric Ry., and Mrs. Sperling, who have been visiting Great Britain on their wedding trip, have returned to Vancouver.

Sir Thomas G. Shaughnessy, President C.P.R., left Montreal, Dec. 6, for New York, whence he sailed for Europe, to spend a short holiday on the Mediterranean, and then visit London.

C. H. F. Plummer, of the Canadian Lake and Ocean Navigation Co., who recently underwent an operation for appendicitis, is progressing satisfactorily at his home in Toronto.

F. Nicholls, director Canadian Northern Ry., sailed from New York, Dec. 22, for England, on account of the illness of his son, H. G. Nicholls, who was recently operated on for appendicitis.

Capt. Jas. Reid, of the Reid Wrecking Co., who was at Port Burwell, Ont., assisting the stranded car ferry, Ashtabula, received a paralytic stroke on Dec. 15, and was removed to his home at Sarnia, Ont.

H. Ingram, locomotive foreman C.P.R., Nakusp, B.C., was cut over the eye and had his lower jaw bruised, but was not seriously hurt, in the derailment of the C.P.R. Toronto express near Chapleau, Ont., Dec. 23.

W. E. Foster, who was recently appointed Assistant Solicitor G.T.R., Montreal, was born at Belleville, Ont., June 27, 1866, and has been connected with the G.T.R. Legal Department, since Sept. 30, 1884.

Four of the C.P.R. directors have been re-elected directors of the Bank of Montreal, viz., Lord Strathcona, Sir Thos. G. Shaughnessy, C. R. Hosmer and R. B. Angus, the former being Honorary President of the Bank.

Among the provisional directors of the recently incorporated York Club, Toronto, are, E. B. Osler, M.P., and W. D. Matthews, directors C.P.R.; W. Mackenzie, President C.N.R., and Z. A. Lash, K.C., director C.N.R.

W. Whyte, Second Vice President C.P.R., was a member of a deputation which waited on the Dominion Premier, Dec. 9, to ask for a grant of $2,500,000 to the Selkirk Centennial Exposition to be held in Winnipeg 1912.

Sir H. Montague Allan and H. A. Allan, of the Allan Steamship Lines; C. M. Hays, President G.T.R., and K. W. Blackwell, Vice President Montreal St. Ry., have been re-elected directors of the Merchants' Bank of Canada.

The late B. J. Coghlin, Montreal, left $200 each to the General Hospital and to the Notre Dame Hospital, Montreal, to provide life governorships for his two sons, B. W. P. Coghlin and G. J. R. Coghlin.

The following have joined the Canadian Ticket Agents' Association recently:—J. E. Finnegan, C.O.R., Bird's Creek, Ont.; C. G. Millard, C.P.R., Coldwater, Ont.; D. Goodwin, C.O.R., Gilmour, Ont.

Mrs. S. V. Paterson, wife of N. F. Paterson, K.C., Registrar at Osgoode Hall, who died in Toronto, Dec. 16, was the mother of N. F. Paterson, Inspector of Dining and Drawing Room Cars on the Chicago and North-West Ry., Chicago, Ill.

W. Downie, General Superintendent C.P.R. Atlantic Division, was married at St. John, N.B., Dec. 8, to Miss Charlotte Wilson, second daughter of the late Wm. Wilson, M.D., Q.C., of Quebec, the bride's brother-in-law, Rev. G. A. Kuhring, officiating.

H. Sutherland, Executive Agent Canadian Northern Ry., Winnipeg, is one of the provisional directors of the Canada's International Exposition and Selkirk Centennial Corporation, which has been incorporated in Winnipeg, under the Manitoba Companies' Act.

D. B. Hanna, Third Vice President Canadian Northern Ry., was the principal speaker at a dinner given by about 150 members of the National Club, Toronto, Dec. 11, to Noel Marshall, President Standard Fuel Co., in recognition of his services as director of the Club for 12 years and President for three years.

Mrs. M. A. G. Stanley, who died in Toronto, Dec. 10, aged 71, was a daughter of Mr. Garton, who was an engineer on the construction of the railway between St. John's, Que., and Rouse's Point, N.Y., and other early lines in Canada. One of her sons, E. Stanley, is a traveller for the Ontario Wind Engine and Pump Co.

W. McL. Walbank, who died in Montreal recently, was First Vice President of the Montreal Light, Heat and Power Co. He was one of the founders of the Canadian Society of Civil Engineers and was its President for 1904. He married a daughter of W. Richards, President of the Charlottetown Steam Navigation Co.

R. L. Nelles, formerly G.T.R. freight agent, Toronto, who was recently appointed General Agent Toronto Terminals, was presented with $500 in gold, a mahogany roll top desk, and a mahogany rocking chair for Mrs. Nelles, Dec. 22, by the Freight Department employes, on his retiring from the former position.

While Geo. Moore, foreman motion shop I.C.R., Moncton, N.B., was superintending the loading of some iron on a flat car recently, one of the rods, which was thrown too far, struck him on the side, knocking him on to an adjoining track, breaking one of his ribs and dislocating a hip. He is progressing favorably.

H. J. Cowie, the Liverpool, Eng., representative of the Canadian Northern Ry., recently celebrated the completion of 25 years' service in Anglo-Canadian transportation business, by entertaining at dinner the representatives of the steamship companies doing business with Canada, and the representatives of Canadian railways in Liverpool.

G. C. Hopper, for many years Paymaster of the Michigan Central Rd., retired from active service Nov. 30. He had been in the service of the company and its predecessors, since 1846, with the exception of the years of the Civil War, during which he was in the Northern army. The directors passed a resolution expressive of appreciation of his services and provided for a pension.

R. G. McNeillie, who was recently appointed acting District Passenger Agent C.P.R., Kootenay District, Nelson, B.C., was born at Lindsay, Ont., July 1, 1883, and entered railway service Oct. 1, 1901, in the C.P.R. Passenger Department, Winnipeg, since when he has held various positions there, having been for three years prior to Oct. 20, 1909, chief clerk General Passenger Agent's office, Winnipeg.

C. D. Fisher, who has been appointed Superintendent C.N.R., Dauphin, Man., was born at Athens, Ont., Aug. 24, 1867, his railway record being, 1888 to 1891, operator and agent C.P.R. at various points; 1891 to 1902, Train Dispatcher C.P.R., Moose Jaw, Sask.; 1902 to 1907, Chief Train Dispatcher C.P.R., Brandon, Man.; 1907 to 1909, Trainmaster and Chief Train Dispatcher G.T.P.R., Melville, Sask.; May 1 to Dec. 1, 1909, Chief Train Dispatcher C.N.R., Dauphin, Man.

S. J. Montgomery, who has been appointed City Freight and Passenger Agent C.N.R., Ottawa, was born at Kingston, Ont., Jan 30, 1868, and entered railway service Feb., 1885, since when he has been, to May, 1887, operator G.T.R.; May, 1887, to May, 1889, operator C.P.R., Sudbury, Ont.; May to Sept., 1889, assistant agent C.P.R. North Bay, Ont.; Sept., 1889, to Jan., 1896, assistant ticket agent C.P.R. Windsor St. station, Montreal; Jan., 1896, to June, 1903, agent C.P.R., Bedford, Que.; June, 1903, to Dec. 6, 1909, chief clerk C.P.R. ticket office, Ottawa.

T. L. Willson, President International Marine Signal Co., Ottawa, has been awarded the McCharles Prize of $1,000. This prize is the result of a bequest of the late A. McCharles, who left $10,000, the interest of which is to be from time to time awarded to some Canadian who

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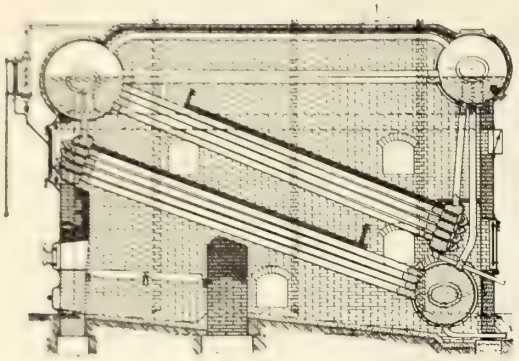

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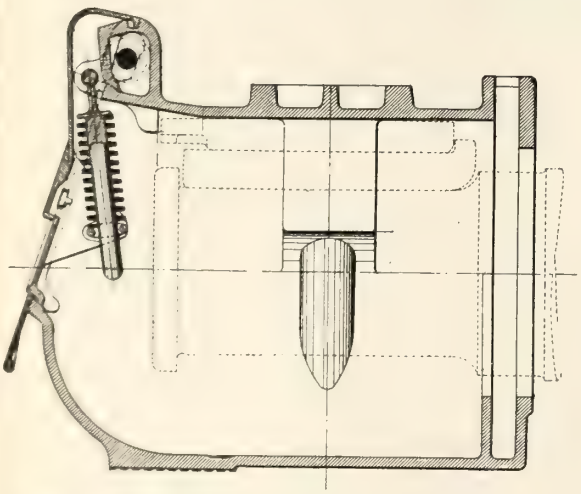

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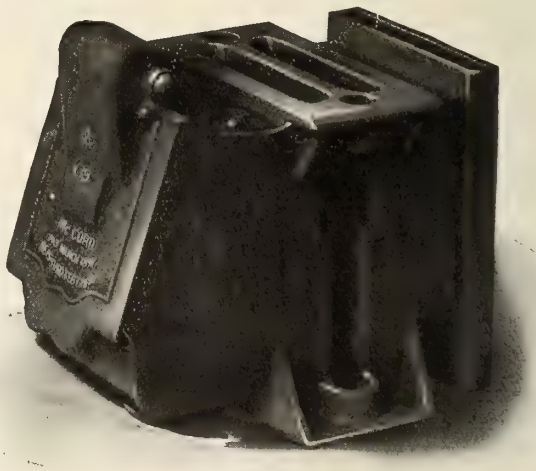

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E. Curry, until 1907, Secretary Treasurer Staten Island Ferry and Railway Co., who died recently at Staten Island, N.Y., aged 67, was born near Peterboro, Ont., in 1843, and entered business life as a telegraph operator and clerk, with the G.T.R. In 1860 he entered the Montreal Telegraph Co.'s service at Cobourg, Ont., as Assistant Manager, and was later appointed Manager. He was subsequently appointed in charge of the Northwestern Telegraph Co.'s office at St. Paul, Minn., and later, Assistant Secretary and Accountant same company. He moved to Staten Island in 1884, when he organized the Staten Island Ferry and Ry. Co.

J. C. O'Donnell, who has been appointed Trainmaster C.N.R., Dauphin, Man., was born at Cobden, Ont., Dec. 17, 1881, and entered transportation service Sept. 13, 1899, since when he has been, Apr. 2, 1901, freight brakeman C.P.R.; Apr. 2, 1901, May 1, 1902, conductor C.P.R., Chapleau, Ont.; June 17 to Sept. 18, 1902, freight brakeman C.P.R., Cranbrook, B.C.; Sept. 18, 1902, to Oct. 18, 1904, conductor C.P.R., Cranbrook, B.C., and Medicine Hat. Alta.; Nov. 3, 1904, to Jan. 15, 1905, switchman and engineer N.P.R., Jamestown, N.D.; May 16 to Nov. 30, 1909, with C.N.R., at Winnipeg.

F. Conway, acting General Superintendent and General Freight and Passenger Agent Kingston and Pembroke Ry., Kingston, Ont., whose portrait appears on the first page of this issue, was born at Ernestown, Addington county, Ont., Nov. 19, 1850. He entered railway service, Aug., 1869, since when he has been, to Feb., 1882, operator at Coteau, Que., relieving and station agent G.T.R.; Feb. to May, 1882, C.P.R. Freight Department; May, 1882, to Jan., 1883, agent Midland Ry. (now part of G.T.R.), Markham, Ont.; Jan., 1883, to date, General Freight and Passenger Agent Kingston and Pembroke Ry., Kingston, Ont., and since Oct. 1, 1906, also acting General Superintendent.

X. H. Cornell, who recently resigned the position of Master of Transportation G.T.R. Western Division, Durand, Mich., to become Chief Supervisor Michigan Car Demurrage Supervising Bureau, was in G.T.R. service for over 25 years, having been consecutively operator, dispatcher, Chief Dispatcher, Train Master, and, from 1903 to Nov. 30, 1909, Master of Transportation Western Division. He was entertained to dinner, at Durand, Mich., recently, by a number of his fellow officials, presided over by W. P. Fitzsimons, G.T.R. Commissioner of Industries, Montreal, and presented with a Knights Templar charm and chain set in diamonds, a gold cigar cutter and a sum of money in $5 gold pieces.

T. W. Paterson, who has been appointed Lieutenant Governor of British Columbia, vice J. Dunsmuir, resigned, was born in Ayrshire, Scotland, in 1852, and came to Canada with his parents, who settled in Ontario. He has been closely connected with railway construction for many years, commencing work on the construction of the Toronto, Grey and Bruce Ry., now part of the C.P.R. He was also associated with the construction of the Welland Canal, and later was one of the many contractors on C.P.R. construction. He removed to British Columbia in 1885, where he continued in the same work, and also became connected with various navigation interests on the coast. He was a member of the B.C. Legislature from 1902.

Ernest Walton, who was recently appointed Travelling Car Service Agent G.T.R., Montreal, was born at London, Ont., Sept. 29, 1878, and entered G.T.R. service as messenger at Stratford, Ont., July 1, 1891, since when he has been, Mar., 1893, to July, 1896, stenographer to Master Mechanic, London; July, 1896, to May, 1899, stenographer to Superintendent, Toronto; May, 1899 to Mar., 1901, secretary to Vice President and General Manager, Central Vermont Ry., St. Albans, Vt.; Mar., 1901, to Feb., 1902, secretary and Assistant to President Southern Pacific Rd., San Francisco, Cal.; Feb., 1902, to July, 1903, secretary to Vice President and General Manager, Central Vermont Ry., St. Albans, Vt.; July, 1903, to Jan., 1905, chief clerk to Vice President and General Manager Central Vermont Ry., St. Albans, Vt.; Jan., 1905, to Sept. 30, 1909, chief clerk to Third Vice President G.T.R., Montreal.

C. H. Nicholson, who has been appointed Manager G.T.P.R. Pacific Coast Steamship Lines, Vancouver, B.C., was born at Belleville, Ont., and was educated there, at Queen's University, Kingston, Ont., and at the University of Maryland, Baltimore. He entered transportation service with the Richelieu and Ontario Navigation Co., and subsequently became purser on one of the steamers operated by C. F. Gildersleeve, on the Bay of Quinte and River St. Lawrence. He remained as purser for three years, and became captain, having charge successively of the Hero, Hastings, Norseman and North King. When C. F. Gildersleeve organized the Lake Ontario and Bay of Quinte Steamboat Co., he became General Freight Agent, and until 1903 represented its interests in the U.S., with headquarters at Rochester, N.Y. During the season of 1903 he was Manager of Transportation Muskoka Lakes Navigation and Hotel Co. at Gravenhurst, and from Feb., 1904, to Nov. 30, 1909, was Traffic Manager Northern Navigation Co., Sarnia, Ont.

Dominion Railway Subsidy Contracts.

The Dominion Government has entered into agreements with the following companies, providing the customary aid, for the construction of the following lines:—

MANITOULIN AND NORTH SHORE RY.—Nov. 23. From Stanley between Little Current and Sudbury, westerly to the Algoma Central and Hudson Bay Ry., not exceeding 100 miles; from Little Current, crossing the C.P.R. at Stanley, to Sudbury, not exceeding 64 miles; from Sudbury northerly, not exceeding 30 miles, in all, not exceeding 194 miles.

QUEBEC CENTRAL RY.—Dec. 7. For extension of line from St. George to or towards St. Justine, Que., 30 miles.

Passenger Meetings at Buffalo.—Several passenger associations will meet at the Lafayette Hotel, Buffalo, N.Y., on Jan. 18, 19 and 20. The Niagara Frontier Summer Rate Committee's rate representatives will meet on Jan. 18 and 19 at 10 a.m. to arrange details as far as possible for submission to the general meeting on Jan. 20 at 11 a.m. The Great Lakes and St. Lawrence River Rate Committee will meet immediately after the adjournment of the Niagara Frontier Summer Rate Committee's meeting.

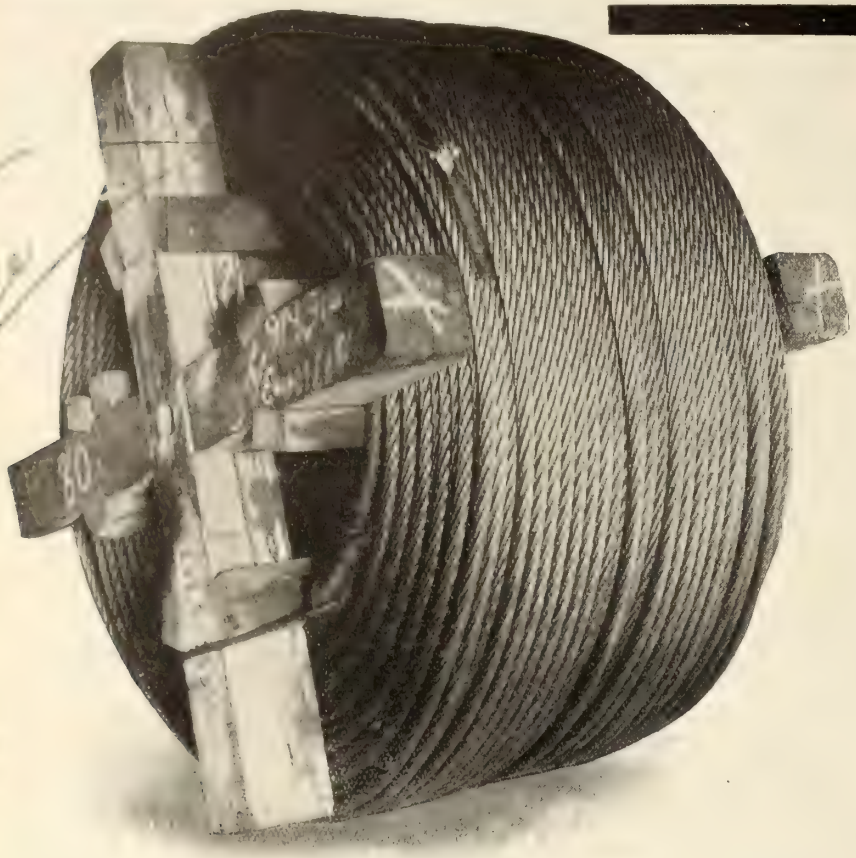
The Engineers' Club of Toronto held its annual meeting Dec. 16. Reports of the various committees and officers showed that the club was in a satisfactory condition. The following officers were elected for the current year:—Hon. President, J. Galbraith, LL.D..; President, Willis Chipman; First Vice President, C. M. Canniff; Second Vice President, Prof. R. W. Angus; directors, C. R. Young, W. V. Reynolds, W. A. Hare; Treasurer, L. J. Street; Secretary, R. B. Wolsey.

Speech by Sir Thos. G. Shaughnessy.

At the annual dinner of the Canadian Manufacturers' Association, Montreal branch, Dec. 2, Sir Thos. G. Shaughnessy, President C.P.R., said:—"I was reminded to-night that I was not entirely unqualified to be a member of the Manufacturers' Association, because I supervise in a general way one of the largest manufacturing establishments. Now, if there were no tariffs we could import our locomotives from the U.S. and save the expense of the Angus shops, but the 18,000 cars and locomotives built at a cost of $20,000,000, would have been built elsewhere, and the $20,000,000 would have gone out of the country and been lost forever to the people of this country. The five or six thousand men representing a population of 20,000 people for whom that work is furnishing employment, would not have been employed in this country, and you would have lost that population, and we would have lost the passengers and revenue resulting. When the C.P.R. was first opened for traffic in 1886, we had about 3,000 miles of railroad, which have since grown to about 10,000 miles in Canada, and the other railways of Canada have been progressing in something like the same proportion. We have rather too many railways for our population, because with our sparse population, there is not the requisite traffic, but notwithstanding this, I can say that the people of Canada are enjoying rates as low as any country in the world, and I can say that the men engaged are receiving wages equal to those in the U.S., and from 50 to 200% more than the wages in European countries. In a country like Canada, a railway has many functions to perform besides the mere carrying of passengers and freight, collection of revenue, and distribution of dividends when anything is left over for that purpose. I think at this stage we may look forward to the day when, with perfect lines of transportation, with our fields under cultivation, with our forests being worked intelligently, scientifically, with our minerals yielding yearly to the national wealth, with our manufactures, with our waterways deepened and improved, with our ports equipped, with an increased fleet on the Pacific Ocean, and faster ships on the Atlantic, that Canada may occupy the foremost place among the intelligent countries of the world, because while this work of progress is going on, education is not neglected and literature and the arts are encouraged. Canada a great nation—a powerful influence in the councils of the British people—unfailing in her devotion, in her fealty to the magnificent empire, with the protection that grew while she was growing—a nation self-reliant, self-confident, a nation honored and respected by her fellow-dominions in the Empire, a most potent factor in Imperial affairs."

The Central Railway and Engineering Club of Canada at its annual meeting in Toronto Dec. 21 elected the following officers:—President, J. Duguid, general foreman G.T.R. shops; First Vice President, G. Baldwin, general yardmaster Canada Foundry Co.; Second Vice President, J. Bannon, chief engineer city hall building; Executive Committee, C. A. Jefferis, W. R. McRae, O. A. Cole, A. M. Wickens, A. E. Till, A. Taylor, Toronto; R. T. Patterson, Stratford.

The Great Western Construction and Land Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $100,000 and office at Sudbury, Ont., to construct public works of all kinds, including railways, tramways, docks, harbors, piers, wharves, canals, etc. The provisional directors are: D. L. McKinnon, C. V. Price, Sudbury; W. E. Brown, C. W. Patton and J. W. Gamble, Ottawa.



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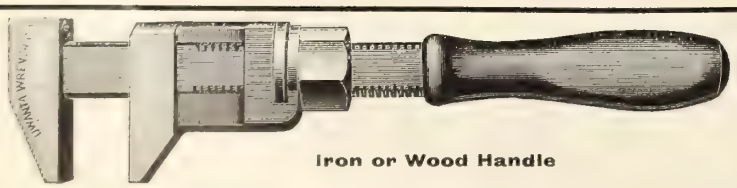

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Entrance to Halifax.—H. M. Killaly, of the C.P.R. engineering staff, Montreal, arrived in Halifax, N.S., Nov. 29. He made an inspection of the waterfront at Halifax and Dartmouth, and then drove out to Bedford and Wellington, from Dartmouth. As soon as he had completed his survey work at Halifax, he went on to Amherst and other points on the suggested route for a line to connect up the C.P.R. with Halifax. At a public meeting in Amherst, Dec. 2, a number of prominent business men endorsed the plan, which so far is for the construction of a line to Harvey, N.B. No suggestions were made as to the route beyond this point. Letters were received at the meeting from Springhill and Parrsboro, endorsing the proposal.

St. Maurice Valley Ry.—Application is being made to the Dominion Parliament to extend for five years the time within which this company may complete the railway authorized to be constructed by sec. 8, chap. 123, of the statutes of 1904, as amended by sec. 1, chap. 156, of the statutes of 1905. Part of the line from Three Rivers northerly to near Shawinigan Falls has been completed.

Subway at St. Louis, Que.—Tenders were received to Dec. 6 by the town of St. Louis, Que., for the construction of a tunnel under the C.P.R. tracks on St. Louis Boulevard. This subway is being constructed at a total cost of about $200,000, toward which the Board of Railway Commissioners has ordered the Montreal St. Ry. to contribute $15,000.

Windsor St.—Place Viger Stations.—The Montreal Witness states that the attention of C.P.R. officials has again been turned to the old plan for connecting the Windsor and the Place Viger stations in Montreal, by a tunnel. The distance between these two stations is 1.25 miles, but freight trains run between them have to go round, 18 miles.

St. Lawrence Hall.—D. McNicoll, First Vice President, stated, Dec. 4, that the company's architects have been engaged for some time in preparing plans for the erection of a new building on the site of St. Lawrence Hall, Montreal, which the company purchased some years ago. Work will, it is said, be started in the spring, but it has not yet been decided whether it will be purely an office building, or whether arrangements would be made for the continuance of the hotel business there.

Ottawa, Northern and Western Ry.—A bill granting a further extension of time for the construction of the lines of railway authorized, has been approved by the Railway Committee of the House of Commons. The particular lines referred to in the bill, are those from Waltham to Grand Lake, from Waltham to Ottawa River, and from Shawville to Pembroke. A clause was added that 15% of the capital stock must be expended within two years.

Campbellford, Lake Ontario and Western Ry.—The Dominion Parliament is being asked to grant an extension of time within which this company may commence and complete its projected railway. When the bill came before the Railway Committee of the House of Commons, Dec. 9, it was stated that an extension of time had been granted in 1908 on the promise that construction would be gone on with immediately. On the statement of R. L. Fowke, M.P., who had charge of the bill, that he had been assured by the C.P.R. President that the line would undoubtedly be constructed, it was decided to report the bill.

South Ontario Pacific Ry.—The Railway Committee of the House of Commons, Dec. 9, approved a bill granting a further extension of time for the construction of the railway and bridge authorized by the Company's act of incorporation, chap. 85 of the statutes of 1887.

Overhead Bridge, Guelph.—A proposition has been made by the C.P.R. to the city council of Guelph, Ont., to construct an overhead bridge over the line at the Eramosa road and Heffernan St. crossings, if the city will undertake the responsibility of protecting Allan's crossing.

West Ontario Pacific Ry.—The Dominion Parliament is being asked to grant the company an extension of time for the construction of the railway which the company was authorized by chap. 87 of the statutes of 1885, to construct.

St. Marys and Western Ontario Ry.—The by-law granting a bonus of $20,000 to the St. M. and W.O.R. for the purpose of constructing a line through the township to Exeter, Ont., was carried by the taxpayers of Blanchard tp., Nov. 19. It is reported that a protest will be entered against the vote, as was done on previous occasions when the by-law was submitted.

Roundhouse at London, Ont.—When Sir Thos. Shaughnessy visited London, Ont., recently, he was reported to have said that seven new stalls would be added to the roundhouse in the yards there, and that a number of other improvements would be made. It is now reported that plans are in preparation for the erection of a new roundhouse of much larger dimensions than the present one, and that the latter will be taken down in the spring.

We are officially advised that Sir Thomas did not make any announcement respecting the London roundhouse and that no proposition was submitted to him.

Walkerton and Lucknow Ry.—Application is being made to the Dominion Parliament to grant an extension of time within which the company may construct the railway authorized by chap. 138 of the statutes of 1904.

Western Lines Construction.—We are advised that track was laid on the following extensions during 1909:—Extension of the Mowbray branch, from Mowbray to Windygates, Man., 7.00 miles, making the total length of the branch from La Riviere, 33 miles. Extension of the Broomhill branch from Broomhill to Tilton, Man., 8.4 miles. Completion of the Pheasant Hills branch from Wynyard to Lanigan Jct., Sask., 40.7 miles. Completion of the Saskatoon-Lacombe line, track being laid from Wilkie, Sask., to Hardisty, Alta., 136.6 miles. Extension from Weyburn to Forward, Sask., 26.00 miles. Lethbridge cut-off, Alta., 20.4 miles. Grade revision between Hector and Field, B.C., new track laid, 8.2 miles. The lines upon which construction has been done but upon which track has not been laid are:—Komarno to Icelandic River, Man., 29.2 miles; Virden to McAuley, Man., 14. miles; Regina to Craven, Sask., 23 miles; Langdon to Acme, Alta., 38 miles; Kipp to Carmanguay, Alta., 28 miles; Stettler to Caslor, Alta., 35 miles.

Manitoba and North Western Ry.—Application is being made to the Dominion Parliament to extend the time for the construction and completion of the branch lines authorized by chap. 106 of the statutes of 1906, and also authorizing the construction of additional lines, as follows:—From near Birtle, to Hamiota, Man.; and from Russell, Man., northerly or north-easterly for 150 miles. The company asks power to issue bonds for $25,000 a mile in respect of these branches.

Birtle to Brandon, Man.—We understand that the question of the construction of a line from Birtle, via Hamiota to Brandon, Man., is under consideration, but that nothing definite has been done in the matter.

Calgary and Edmonton Ry.—The Dominion Parliament is being asked to extend the time for the construction and completion of certain of the authorized lines, and also authorizing the construction of an extension of the Lacombe branch to Outlook, Sask., 200 miles.

Strathcona-Edmonton Bridge.—In connection with the high level bridge which the C.P.R. proposes to build across the North Saskatchewan River between Strathcona and Edmonton so as to give the Calgary and Edmonton Ry. entrance to the latter city, the Edmonton ratepayers have sanctioned an agreement made between the city and the company with reference to the entrance to the city over certain streets and lanes. It is proposed that the Dominion and Alberta Governments, the city of Edmonton and Strathcona municipality jointly defray the actual cost of increasing the rise of the bridge to accommodate vehicular and electric railway traffic. Till this matter has been decided and financial arrangements made, the bridge plant will not be perfected.

Hotel at Nelson, B.C.—We are advised that a proposal is under consideration for the erection of an additional small tourist hotel in the Nelson, B.C., district, but that nothing has been decided, either as to the locality in which the hotel will be erected, or as to when it will be built.

Columbia and Western Ry.—Application is being made to the Dominion Parliament to grant an extension of time for the construction and completion of the lines of railway which the company was authorized to construct by sec. 16, chap. 54, of the British Columbia statutes of 1896. The Dominion Parliament confirmed the charter in 1898, and has granted extensions of time for construction from time to time.

Electrification of Boundary Lines.—We are officially informed that the report that the recent trip of G. J. Bury, General Manager Western Lines, through the Boundary District, B.C., was with the object of passing upon plans for the substitution of electricity for steam on the C.P.R. lines in that territory, is entirely without foundation. A report that the lines in that district are to be operated by electricity has been current for several years, the most recent rumor being that "the reports of engineers detailed by the C.P.R. to investigate as to the advisability of electrifying their branch lines here (Phoenix, B.C.) have been so satisfactory that the project is seriously considered. The proposed initial electrification is to the Granby smelter." It was then added that G. J. Bury, was in the district to finally pass upon the project. When the reports were first made we were informed that the matter had been given some consideration by the company, but that the use of electricity for the haulage of trains had not reached that stage of development which would justify its adoption.

Nicola, Kamloops and Similkameen Ry.—The Dominion Parliament is being asked to grant an extension of time within which the company may commence and complete the construction of the lines authorized by sec. 3, chap. 47 of the British Columbia statutes of 1891, and by sec. 1, chap. 134 of the Dominion statutes of 1905.

Esquimalt and Nanaimo Ry.—We are advised that track has been laid from Wellington to Parksville, B.C., 18 miles, upon the extension of the line to Alberin. The remaining 40 miles from Parksville to Alberin, is under construction, the contract for the first 12 miles from Parksville, having been let to Dixon and Moore, and that for the remaining 28 miles to Jense, McDonnell and Timothy. The company has under consideration

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the construction of a branch line from Parksville to Comox, 45 miles. H. J. Cambie, Vancouver, B.C., is Chief Engineer in charge of construction.

The Dominion Parliament is being asked to extend the time within which the company may commence the construction of the extension of its main line to Comox, and branches which it was authorized to construct by chap. 14 of the British Columbia statutes of 1884; and the railway and branches which it was authorized to construct by sec. 2, chap. 92 of the Dominion statutes of 1906.

Minneapolis, St. Paul and Sault Ste. Marie Ry.—We are advised that the company has laid track on its extension into Duluth, between Superior and Duluth, and Moose Lake, 49.2 miles, and 45 miles westerly on the Moose Lake extension. This is the line which the company has under construction from Brooton to Duluth, upon which a train service has been in operation for some time from Brooton to Onamia, 86.5 miles. From Onamia to Moose Lake the distance is 53.97 miles, and the track laid as reported leaves a further distance of nine miles to complete the line.

The company has also let a contract to Foley, Welch and Stewart, St. Paul, Minn., for the construction of a line from Moose Lake, Minn., to Plummer, Wis., on the Wisconsin Central Rd., a distance of 180 miles.

Duluth, South Shore and Atlantic Ry.—During 1909 the company laid 7.1 miles of new track, as follows:—Wellsburg to Woods, Mich., 2.2 miles; Halfway to Davis mine at Megannce, Mich., 2.1 miles; and Halfway to Valentine mine, Mich., 2.8 miles. On the Mineral Range Rd., owned by the D., S. S. and A. Ry., 2.87 miles of mining spur tracks were laid during the year, and surveys were made for another spur track of a mile to be constructed during 1910. (Dec., 1909, pg. 889).

A Railway to Hudson Bay.

A resolution was adopted unanimously by the Saskatchewan Legislature Dec. 4, and will be forwarded to the Governor-General in council, urging the necessity and importance of the immediate construction of a railway to Hudson Bay, and requesting the Government to make provision at the present session of Parliament for its actual construction.

The report of the Department of Railways for the year ended March 31, 1909, recently presented to Parliament, contains the full progress report of the special survey of the route, ordered last session of Parliament. On Dec. 13, there was laid before Parliament a further report from J. Armstrong, Chief Engineer in charge of the surveys. The Deputy Minister in introducing this report says he has amended Mr. Armstrong's estimates as to the cost of construction by substituting 80 lb. steel for 60 lb. steel, and by adding estimates for roundhouses, shops, buildings, elevators and yard facilities at terminals, and harbour work of which Mr. Armstrong did not take cognizance. The estimated cost of the Nelson line is placed at $4,085,800; of station buildings, two 4,000,000 bush. elevators, yards at terminals, etc., at $7,440,540, and of harbour works at $5,000,000, a total of $16,426,340. The cost of the Churchill line is placed at $4,676,520; of station buildings, elevators, etc., $7,757,152, and harbor works, $6,675,000, a total of $19,108,672. These estimates provide for facilities on a scale that will admit of the maximum capacity for a single track, passing tracks and telegraph stations every five miles, water stations every 15 miles, and roundhouse and shop accommodation to care for 32 freight trains and one express train every 24 hours. Piers and terminals have been placed at Port Nelson, as from the information available there is no room for doubt that it is much the better harbor. The line is also 67 miles shorter; the country through which it runs is better, and the possibility of local business is altogether with the Nelson route. There is also a probability that a fair proportion of the route is available for settlement, whereas on the Fort Churchill route there is no such probability beyond Split Lake, where the lines separate. It is of the utmost importance that a hydrographic survey should be made of Hudson Strait and Bay, so that the position and cost of the necessary lighthouses may be ascertained. The course from Mansfield Island to Port Nelson requires to be accurately charted; it would be well also to secure information as to the harbors on the Labrador coast, and the special feature of Davis Strait. A good seagoing steamship is required at Nelson for a year or two to study the bay itself, its tides, currents, etc. The sea route from Port Nelson will pass to the north of Ireland, the distance to Liverpool being 3,200 miles, against 3,007 from Montreal to Liverpool.

The crux of the matter is, says the Deputy Minister, what business can be handled by such a railway and of what value is it likely to be to the country tributary to it. He estimates that with the exception of the southeasterly corner of Saskatchewan, the other portions of the province and the whole area of Alberta are tributary to The Pas. Assuming that the line is to be worked for all that is possible to be done. The grades are 0.4 or 21 ft. to the mile. All trains are fully loaded and composed of 40 ton pay load cars; and locomotives of the Mallet articulated compound type are to be used with a hauling power of at least 4,000 tons of pay load. Thirty-two trains per day is about the capacity of a single track—better than this has been done, but it is enough. Sixteen trains loaded equals 64,000 tons per day—making allowance for accidents and delays—say for 30 working days would give 1,930,000 tons, or 64,000,000 bushels of wheat. It is apparent that at least nine per day would need to be loaded, or say 135 to 140, to do the business—allowing two trips to each ship. Any additional business taken to the bay would have to be stored until the following August—nine months.

Other sources of traffic possible to the line are: the exportation of cattle; the usual package freight to and from Europe; and the possibility of developing a reasonably large import coal trade. It is practicable to lay down coal at Port Nelson from Nova Scotia at a cost not exceeding $3.75 a ton. The rail haul say to Saskatoon—as an average point of distribution—need not exceed $4 per ton, making the cost of the coal $7.75. Equipment for 32 trains per day of the character outlined will cost about $9,000,000; and means the providing of 108 train crews, 150 telegraph operators, 54 gangs of section men, shopmen, round house men, superintendents, train and yard masters—the greater number of whom are not likely to be required once the rush of the season is over. It appears, therefore, to be a difficult proposition for independent operation, and would seem to require to be worked by one of the large corporations, so that the men and rolling stock could be utilized the whole year. There is in Canada only one locomotive of the type described, and by using the largest freight engines now operated on western roads the train load would be reduced one-half—and the capacity of the road in like measure. It is apparent, however, that under any circumstances grain may be placed at the Hudson Bay on board ship as cheaply as at Fort William, hence the saving possible is 5c. per bushel, assuming that insurance and freight rates are equal at Montreal and Port Nelson. Capt. Bernier is of the opinion that it is unsafe to be caught in the vicinity of the Fox channel with a steamship of ordinary construction, any later than Oct. 15.

Railway Y. M. C. A. at White River.

The Y.M.C.A. building erected at White River, Ont., by the C.P.R., at a cost of about $27,000, was opened Dec. 11, H. B. Stevens, Chief Dispatcher, presiding, and W. B. Way, Assistant Superintendent, representing the company. The building is a frame structure with concrete foundation, providing sleeping accommodation for 50 men, with dining room, bowling alleys, baths, reading and social rooms. Possibly not one of the 250 railway Y.M.C.A. buildings on this continent has been provided to meet so great a need as this one. Its complete isolation, its destitution of social advantages, and its climate put this division point in a class by itself. The railway Y.M.C.A. buildings at Kenora, Schreiber, White River and Chapleau, none of which existed two years ago, form a remarkable group, offering as they do comfort and cheer to those who man the trains running through the wilds of New Ontario. In erecting these splendid buildings for the comfort and uplift of its employes, the C.P.R. has set a worthy example for other corporations employing large numbers of men. Letters endorsing the work achieved by the various associations already organized were read from D. McNicoll, Vice President; H. H. Vaughan, Assistant to the Vice President; F. P. Gutelius, General Superintendent Lake Superior Division, and A. Price, General Superintendent Western Division; and also from W. Whyte, Second Vice President, who said:—"The Y.M.C.A.'s have demonstrated that they are a great power and influence for uplifting humanity, and not only railway companies, but other corporations, are rapidly coming to realize that the building, operation, and maintenance of edifices for the associations is a good investment. The Railway Y.M.C.A. building at Kenora, which I had the pleasure of handing over to the management of the Y.M.C.A. in March last, is proving a great success as is shown by the fact that it has been found necessary to finish the upper story of the building as early as possible, and I had expected the accommodation provided would be quite sufficient for some time to come."

The Eastern Canadian Passenger Association has decided, as last year, not to make any reduced rates for the Montreal winter carnival, as it considers such affairs to be injurious to Canada's best interests.

At the recent meeting of the Canadian Freight Association Western Lines, and the Canadian Car Service Bureau Western Lines, held in Winnipeg, the following officers and committees were elected for the current year: President, G. Stephen, General Freight Agent C.N.R.; Vice President, R. E. Larmour, General Freight Agent C.P.R.; Executive Committee and Audit Board, W. B. Lanigan, Assistant Freight Traffic Manager C.P.R.; G. H. Shaw, Freight Traffic Manager C.N.R.; Secretary-Treasurer, Manager and Chairman of Committees, H. R. Patriarche, 101 Bon Accord Bldg., Winnipeg. In addition to the foregoing officers, which are the same for each association, the first association named has a Freight Inspection Committee, consisting of G. Stephen and R. E. Larmour, and the latter association a Car Service Committee, consisting of D. C. Coleman, Superintendent Car Service C.P.R., and J. P. Driscoll, Superintendent Car Service C.N.R.

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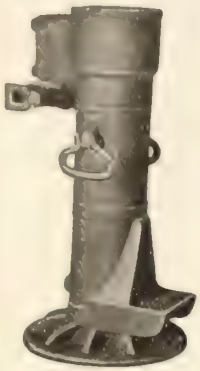

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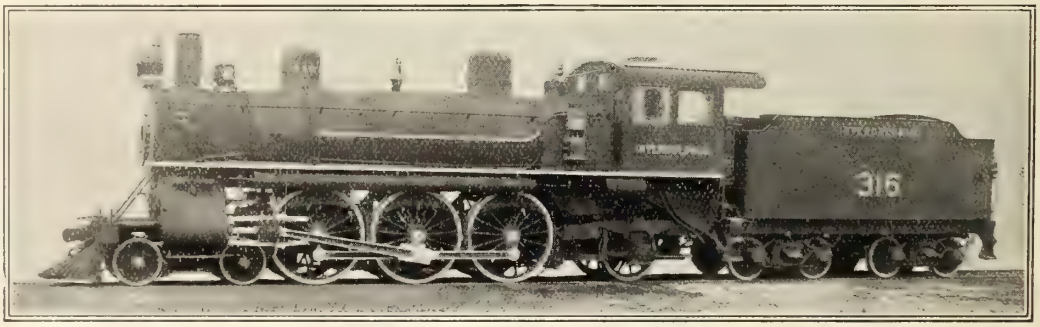

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Canadian Northern Ry. Construction, Etc.

Canadian Northern Ontario Ry.—The line from Hawkesbury via Rockland, to Ottawa, 59 miles, was inspected and passed for the operation of freight and passenger trains by the inspecting engineers of the Department of Railways, Dec. 3. A through train service from Quebec and Montreal to Ottawa was put in operation by the Canadian Northern Quebec Ry., Dec. 5. As a result of the refusal of the Board of Railway Commissioners to confirm an agreement with the Ottawa City Council, by which the line would cross Hurdman's Road at rail level, the company has had to erect a temporary station at Gladstone Ave. It is intended to construct a subway instead of a level crossing, and when this is done the line will connect with one of the existing lines near the University oval and run into the Central station.

In connection with the securing of the right of way for the line from Toronto to Ottawa, of which the section from Toronto to Trenton is under contract, the C.N.O. Ry. paid $17,800 into court, and has to pay $30,000 more into court, to enable it to enter into possession of certain lands required for its right of way in the vicinity of Toronto, the value of which is being settled by arbitration. Construction is proceeding with considerable rapidity. It is reported that the fencing along nearly the whole of the right-of-way has been put up. Between Trenton and Brighton, over four miles of grading has been completed, and considerable stretches have also been graded in the vicinity of Colborne, and other points between Cobourg and the Don Valley. An effort is being made by the residents of the lake front towns to induce the company to change the route of the line easterly from Trenton, so that it will take in all the lake shore territory, striking the C.N. Quebec line at Hawkesbury, from which point the company has already a connection with Ottawa. W. Mackenzie, President C.N.R., on his return to Toronto from Halifax, N.S., recently was waited upon by a deputation representative of the lake front towns between Toronto and Prescott, to urge consideration of the matter.

D. D. Mann, Vice-President C.N.R., said in an interview in Toronto, Dec. 16:

"We will erect repair shops and a roundhouse in Toronto next summer. Should we be given the right of entry, Ashbridge's Marsh will probably be the site on which they will be built. When our eastern and western lines are coupled up we will have to have very extensive shops in Toronto. And as our eastern line is being built under a year's contract, and should be finished, as far as Trenton next fall, we will have to start constructing these shops in the summer. They will be large enough for the requirements of our two lines running out of Toronto, and will be so arranged that extensions can be made just as fast as the exigencies of business demand. The suggestion has been made that Ashbridge's Marsh would be an excellent site, and should the city grant us the right to construct a line down there the district may be adopted." In connection with this matter the company's application for a right-of-way on the east bank of the Don into the Ashbridge Bay district have been left over with the Toronto City Council of 1910 to deal with.

Plans were filed Dec. 8, showing a proposed plan of entry of the company's line from Toronto to Buffalo, into Hamilton. The plans show a route over the C.P.R. and the Toronto, Hamilton and Buffalo Ry. A Hamilton report says that the C.P.R. objects to the plan on the ground that the Hunter St. tunnel is not calculated to accommodate more than the present traffic.

Engineering parties are in the field in the vicinity of the Nipigon River and Lake in connection with the surveys for the line to connect the C.N.O. Ry. near Sudbury, with the C.N.R. at Port Arthur. One party is reported to be at work between Nipigon River and Long Lake, and another between Nipigon River and Black Sturgeon River. It is expected that the new line will cross the Nipigon River at Deschamps, a short distance north of the C.P.R.

Canadian Northern Ry.—Application is being made to the Dominion Parliament to authorize the construction of the following lines of railway: from Dundee, northerly and easterly, to the Winnipeg River; Portage la Prairie, southerly and easterly, to tp. 2, r. 7, e.p.m.; Hartney, westerly, to tp. 5, r. 7, w. 2, m.; Moose Jaw, southerly and easterly, to Bienfait with a branch from near Estevan to Roche Percee. Between Davidson and Disley on the Qu'Appelle, Long Lake and Saskatchewan Rd., westerly and northwesterly, to the Saskatoon-Calgary line; Lashburn, westerly, to between Camrose and Edmonton; Sasktoon-Calgary line near tp. 28, r. 6, w. 4 m. to Rocky Mountain House; Saskatoon-Calgary near the crossing of Red Deer River, north-westerly, through or near Innisfail and Rocky Mountain House to head waters of Brazeau and McLeod Rivers and to Yellowhead Pass; Winnipegosis, southerly, to constructed line near south end of Lake Manitoba; from authorized line between Prince Albert and Battleford near tp. 49, r. 3, w. 3 m., northwesterly and northerly to Great Slave Lake; from authorized line east of Lake Manitoba, westerly, via the Narrows to its constructed line between Grandview and Roblin. The company asks power to issue bonds to the amount of $25,000 in addition to $5,000 a mile for the specific purposes mentioned in sec. 4, chap. 50, of the statutes of 1902, and excepting that in respect of any of the lines constructed west of the easterly limit of the foothills of the Rocky Mountains, bonds to the value of $35,000 a mile may be issued. The decision of the Minister of Railways shall be final as to the limit of the easterly limit of the foothills of the Rocky Mountains.

The bill also provides for an extension of time for the construction of the following lines authorized by sec. 2, chap. 92 of the statutes of 1908:—from Strathcona, southerly to Calgary, Alta.; from Regina, south-westerly to the International boundary between ranges one and four west of the third meridian, Sask.; from near Russell, on the Rossburn branch, westerly via Yorkton, to near Goose Lake, Sask.; from 10 miles north of the company's line between Winnipeg and Ste. Anne, Man., generally southerly to the boundary of Manitoba; from near Battleford, Sask., generally westerly to the Brazeau River, Alta.; from near Regina northerly to Humboldt, thence north-easterly down the valley of the Carrot River to a point near Pas Mission on the Saskatchewan River; and from between Humboldt and the South Saskatchewan River, north-easterly to the crossing of the South Saskatchewan River near the company's Prince Albert branch, and the bill further provides for further extending the time for the construction of the following lines:—from Prince Albert, Sask., to Edmonton, Alta.; from Swan River, Man., westerly to the Saskatchewan River, (partially constructed); from the Morden and North-Western Ry. between Neepawa and the westerly boundary of Manitoba, thence northerly to the line between Grandview and Battleford, Sask.; from near Regina, north-westerly and westerly to the Red Deer River, Alta., with a branch from west of the Saskatchewan River northerly to tp. 45, r. 4, west of the third meridian; the railway authorized to be constructed by the Winnipeg and Hudson Bay Ry. and Steamship Co. (partly constructed) from Winnipeg to Fort Nelson or Fort Churchill or some other point on Hudson Bay; the line commencing at the end of the 40 miles constructed by the Winnipeg and Great Northern Ry., thence to St. Laurent, or Oak Point, on Lake Manitoba, and thence generally northerly to the Grand Rapids on the Saskatchewan River, (partially constructed); the line authorized to be constructed from near the Narrows of Lake Winnipeg, Man., to near Battleford, Sask., thence to Edmonton, Alta., and on to the Pacific Coast, near the Skeena River, by way of Pine River Pass, or other feasible pass; and the partially constructed line from McCreary station, Man., passing through Cartwright to the southern boundary of the province.

W. Mackenzie, President, stated in a recent interview in Toronto, that the company had completed over 400 miles of track during 1909, and had finished the surveying of a route from Edmonton, Alta., to Vancouver, B.C. As soon as the necessary sanction had been given by the British Columbia Legislature to the agreement made with the Government, construction work would be proceeded with on the line to Vancouver.

The Supreme Court of Ottawa gave judgment Dec. 13, in the case in which the Canadian Northern Ry. appealed against an order of the Board of Railway Commissioners requiring it to fence certain portions of its railway. The court dismissed the appeal as to enclosed lands, but allowed it so far as unenclosed lands are concerned.

Edmonton and Slave Lake Ry.—The Dominion Parliament is being asked to authorize the company to amalgamate with the C.N. Ry. Co.

Yellow Head Pass to Vancouver.—We are officially advised that during last summer and fall an instrumental survey was made of the North Thompson River valley from Kamloops to Cranberry Lake, and a location projected thereon has been approved for 88 miles north from Kamloops. This survey was made by C. F. Hanington and Jno. Irvine, in charge of parties working from Cranberry Lake south and from Kamloops north, respectively. These two parties are now working, Hanington from Cranberry Lake easterly towards Yellow Head Pass, Irvine from Kamloops westerly, down the South Thompson. A survey of the Fraser River valley was also made during the summer from seven miles up the South Thompson above Lytton, westerly, for 37 miles, by J. V. Nimmo, to a junction with a party in charge of W. K. Gwyer, working easterly up from Yale, which party has since been running the line from Yale westerly towards New Westminster, where they were expected about the end of 1909. Of this work, 15 miles from Yale up the Fraser River and 5 miles from Lytton down, have been approved and plans for the remainder are now before the Government for approval or in course of preparation. T. H. White is the chief engineer in charge of the surveys.

Duluth, Winnipeg and Pacific Ry.—A U.S. press report states that contracts are about to be let for the construction of an extension of the Duluth, Rainy Lake and Winnipeg Ry., from near Virginia to Duluth, Minn., about 70 miles. Surveys have been completed for the projected line, the only point in regard to which there is any uncertainty is the entry into Duluth. (Dec., 1909, pg. 895.)

The brakeman was a novice, and on his first run there was a stiff grade to mount, on which the engineer always had more or less trouble, but this time he came near sticking. At the station at the top of the grade, the engineer saw the new brakeman, and with a sigh, said: "I tell you what, my lad, we had a job to get up there, didn't we?" "We certainly did," replied the brakeman, "and if I hadn't put the brake on, we'd have slipped back."

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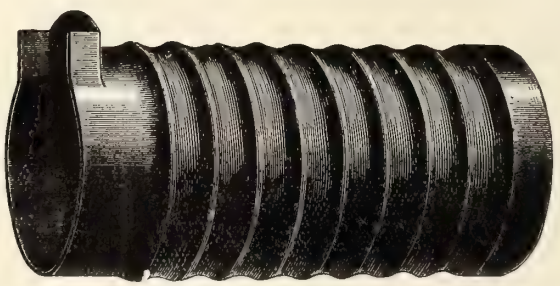

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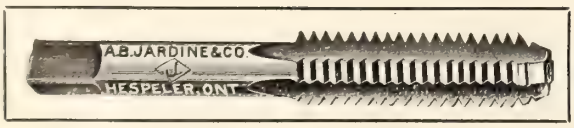

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Railway Rolling Stock Notes.

The Michigan Central Rd. has ordered four Pacific type and four switching locomotives from the Montreal Locomotive Works.

The Silliker Car Co., Halifax, N.S., has recently received orders for one passenger and 10 flat cars from the Anglo-Newfoundland Development Co.; and 100 box cars from the C.N.R.

The d'Israeli Asbestos Co., which has a short railway connecting its asbestos mines with the works at d'Israeli, Que., is in the market for a locomotive, some cars and other equipment.

The Northern New Brunswick & Seaboard Ry. will probably be in the market for some locomotives, ore and other cars in the near future. G. E. Drummond, 28 Victoria Square, Montreal, is President.

The Canadian Northern Ontario Ry., in view of the increasing development of the Moose Mountain and Mond Nickle Co.'s properties, has ordered 100 steel ore cars from the Canadian Car & Foundry Co., Montreal.

The C.P.R., between Nov. 15 and Dec. 9, received the following additions to rolling stock: 90 box cars, one flanger, four vans, two store supply cars and five M-4 locomotives from its Angus shops, Montreal, and one 75-ton wrecking crane from the U.S.

The Diamond Ry. and Coal Co. operating in Alberta owns one locomotive, one passenger coach and two flat cars. It uses C.P.R. cars for shipping coal from its Diamond City mines. It does not expect to be in the market for any more rolling stock for some time.

The G.T.P.R. has received the following additions to rolling stock, between Nov. 2 and Dec. 16, 1909: five parlor-cafe cars, nos. 3,900 to 3,904, from the Canada Car Co., Montreal; six baggage cars, nos. 412 to 417, from Rhodes, Curry Co., Amherst, N.S.; and five snow plows, nos. 395,003 to 395,007, from the U.S.

The C.P.R., between Nov. 15 and Dec. 9, placed orders for rolling stock as follows: 18 baggage and express cars, two mail and express cars, 120 box cars, 34 flat cars and three vans at its Angus shops, Montreal; 1,000 40-ton steel frame box cars from the Canadian Car and Foundry Co., Montreal, and one 75-ton wrecking crane in the U.S.

The Intercolonial Ry. has ordered a Pacific type locomotive from the Montreal Locomotive Works, of which the following are the chief particulars:—

Weight in working order	198,500 lbs.
Weight on drivers	133,500 lbs.
Weight on engine truck	30,700 lbs.
Weight on trailer	34,300 lbs.
Wheel base, driving	12' 7"
Wheel base, engine	31' 6"
Wheel base, engine and tender	57' 11"
Cylinders	21" by 28"
Driving wheels, diar.	72"
Boiler, type	Extended wagon top.
Boiler, diar.	63½"
Boiler pressure	200 lbs.
Tubes, no. and diar.	232—2¼"
Tubes, length	19' 0"
Brakes	Westinghouse American.
Capacity, water	5,000 imp. gals.
Capacity, coal	10 tons.

Following are the chief particulars of consolidation locomotive which the Toronto, Hamilton and Buffalo Ry. has ordered from the Montreal Locomotive Works:—

Weight in working order	197,000 lbs.
Weight on drivers	172,000 lbs.
Weight on engine truck	25,000 lbs.
Wheel base, driving	17' 0"
Wheel base, engine	25' 9"
Wheel base, total,engine and tender	57' 3"
Valve gear	Walschaert
Cylinders	21½" by 28"
Driving wheels, diar.	55"
Boiler, type	Extended wagon top.
Boiler, diar	68¼"
Boiler, pressure	200 lbs.
Tubes, no. and diar	353—2"
Tubes, length	15' 0"
Brakes	Westinghouse American.
Capacity, water	7,000 U.S. gals.
Capacity, coal	10 tons.

Following are chief particulars of the two mogul locomotives which the Quebec Central Ry. has ordered from the Canadian Locomotive Co., Kingston, Ont.;—

Weight on drivers	113,500 lbs.
Weight, total	144,000 lbs.
Wheel base of engine, rigid	13' 6"
Wheel base of engine, total	23' 8"
Wheel base of engine and tender	50' 4"
Heating surface, firebox	138 sq. ft.
Heating surface, tubes	1518 sq. ft.
Heating surface, total	1656 sq. ft.
Driving wheels, diar	66"
Driving wheel centres	Main, cast steel; others cast iron.
Driving journals	9" by 10"
Cylinders	19" by 26"
Boiler type	Extended wagon top.
Boiler, pressure	200 lbs.
Tubes, no. and diar.	223—2"
Tubes. length	13' 0"
Brakes	Westinghouse ET
Weight of tender loaded	104,000 lbs.
Capacity, water	4,300 gals.
Capacity, coal	9½ tons.
Truck	4-wheeled with steel bolster.
Wheels, diar.	33"
Wheels	W.I. centres, steel tire.
Journal	5" by 9"
Brake beam	Steel.

Following are chief particulars of the 10 Pacific type and two consolidation locomotives which the Montreal Locomotive Works is building for the Michigan Central Rd., as mentioned in our last issue.

Following are the general dimensions and chief particulars of the 10-wheel locomotives which the C.P.R. is building at its Angus shops, Montreal, as mentioned in our last issue.

Weight on drivers	141,000 lbs.
Weight, total	190,000 lbs.
Cylinders, diam. and stroke	22½" by 28"
Drivers, diam.	63"
Boiler, type	Wagon top, radial stayed.
Boiler, pressure	180 lbs.
Heating surface, tubes	2,263 sq. ft.
Heating surface, superheater	408 sq. ft.
Tubes, no. and diam.	24, 5"; 244. 2"
Tubes, length	14' 6"
Firebox, length	8' 4⅞"
Firebox, width	5' 9¾"
Firebox, heating surface	190 sq. ft.
Grate area	49 sq. ft.
Capacity, water	5,000 gals.
Capacity, coal	10 tons.
Air brakes	Westinghouse E. T. 6
Axles	C.P.R.
Brake beams	Simplex, diamond inside hung.
Brake shoes	C.P.R.
Couplers	Tower.
Headlight	Pyle National Electric.
Journal bearings	C.P.R. standard.
Springs	C.P.R. crucible steel.
Steam gauges	Star.
Wheel centres	Cast steel.
Tractive effort	34,400 lbs.

Weight on drivers÷tractive effort=5.5.
Tractive effort×di. drivers÷heating surface=96.1.
Heating surface÷grate area=46.1.
Heating surface, firebox÷heating surface without superheater=11.9.
Weight on drivers÷total heating surface=52.8.
Total weight÷heating surface=84.
Heating surface÷vol. cylinders=175.

	Pacific.	Consolidation (236).	Consolidation (274).
Weight in working order	245,500 lbs.	236,000 lbs.	274,000 lbs.
Weight on drivers	154,500 lbs.	211,000 lbs.	....
Weight on engine truck	44,000 lbs.	25,000 lbs.	....
Weight on trailer	47,000 lbs.	....	....
Wheel base, driving	13' 0"	17' 6"	19' 0"
Wheel base, engine	33' 7½"	26' 5"	....
Wheel base, engine and tender	65' 8½"	60' 11"	54' 5½"
Cylinders	22" by 26"	23" by 32"	24" by 28"
Driving wheels, diam.	75"	63"	51"
Boilers, type	Straight top, extended stay.	Straight top, extended stay.	Extended wagon top, radial stay.
Boilers, diam.	75"	63"	51"
Boilers, pressure	200 lbs.	200 lbs.	210 lbs.
Tubes, no. and diam.	394; 2"	446; 2"	447; 2"
Tubes, length	21' 0"	15' 0½"	19' 0"
Valve gear	Walschaert.	Walschaert.	Walschaert.
Brakes	Westinghouse.	Westinghouse.	Westinghouse.
Capacity, water	7,000 U.S. gals.	7,500 U.S. gals.	8,000 U.S. gals.
Capacity, coal	12 tons.	12 tons.	12 tons.

The Intercolonial Ry. has ordered a Pacific type passenger locomotive from the Montreal Locomotive Works, of which the following are the chief particulars:

Weight on drivers	126,000 lbs.
Weight, total	187,000 lbs.
Cylinders	21" by 28"
Drivers, outside diameter	72"
Boiler pressure	200 lbs.
Heating surface, tubes	2,584 sq. ft.
Heating surface, firebox	162 sq. ft.
Tubes, no. and diam.	232; 2¼"
Tubes, length	19 ft.
Firebox	96" by 70"
Capacity, water	5,000 imp. gals.
Capacity, coal	10 tons.
Axles	Open hearth steel.
Brakes	Westinghouse.
Brake beams	Simplex.
Brake shoes	American Brake Shoe & Fdry. Co.
Couplers	M.C.B. or other.
Headlight	Pyle National Electric.
Journal bearings	McCord. 5½" by 10"
Steam heat equipment	Safety Car Htg. & Ltg. Co.

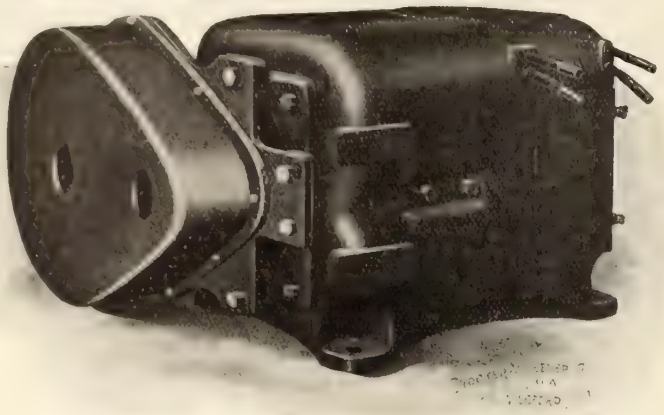
Following are the chief particulars of the 10 consolidated locomotives, which the Canadian Locomotive Co., Kingston, Ont., is building for the Intercolonial Ry., as mentioned in our last issue.

Weight on drivers	148,300 lbs.
Weight, total	164,850 lbs.
Cylinders	21" by 28"
Drivers, diam.	56"
Boiler, type	Straight top.
Boiler, pressure	200 lbs.
Heating surface, tubes	1,934.6 sq. ft.
Heating surface, firebox	161.1 sq. ft.
Heating surface, total	2,095.7 sq. ft.
Tubes, no. and diam.	236; 2¼"
Tubes, length	14 ft.
Firebox	114" by 41"
Grate area	32.5 sq. ft.
Capacity, water	5,000 imp. gals.
Capacity, coal	10 tons.
Axles	Open hearth steel
Brakes	Westinghouse.
Couplers	Janney.
Headlight	Pyle National Electric.
Steam heat equipment	Safety Car Htg. & Ltg. Co.

Following are chief particulars of the 10 consolidation locomotives which the Intercolonial Ry. has ordered from the Canadian Locomotive Co.:—

Weight on drivers	148,300 lbs.
Weight, total	164,850 lbs.
Wheel base of engine, rigid	15' 3"
Wheel base of engine, total	23' 6"
Wheel base of engine and tender	54' 5"
Length over all, engine and tender	65' 1"
Width over all, engine and tender	10' 2"
Height over all, engine and tender	14' 6¾"
Driving wheels, diar.	56"
Driving wheel centres	Main, cast steel; others, cast iron.
Driving journals	8" by 12"
Cylinders	21" by 28"
Boiler, type	Radial stayed.
Boiler pressure	200 lbs.
Tubes, no. and diar.	236—2¼"
Tubes, length	9' 6"
Brakes	Westinghouse
Weight of tender loaded	120,000 lbs.
Capacity, water	5,000 gals.
Capacity, coal	10 tons.
Truck	Diamond, all steel.
Wheel, diar.	34"
Wheels	W.I. centres, steel tired.
Journal	5½" by 10"
Brake beam	Steel.

C.P.R. Land Settlement.—Press dispatches from England say that Sir Thos. G. Shaughnessy, President C.P.R., stated in the course of an interview the company's intentions as to the future land settlement in Western Canada, as follows:—"Recently, when 1,600 small holdings were offered in England there were 35,000 applicants. All these could be accommodated in Canada. We propose to prepare land for this class of small holder, build his house and fence holding, break part of the soil and sow it, so that he can come and find all ready to settle down. This will be within reach of an English countryman, who has £100 capital to make a start."



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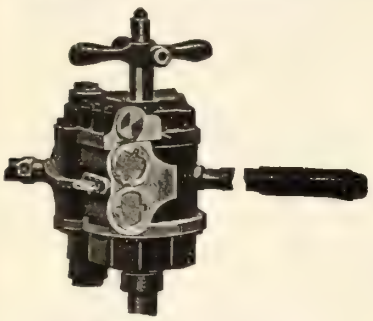

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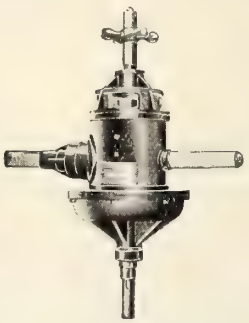

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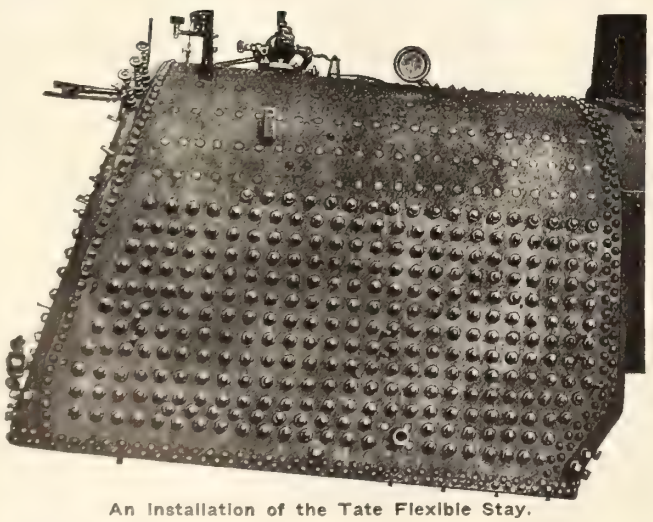

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Railway Finance, Meetings, Etc.

Alberta Ry. and Irrigation Co.—Approximate net profits from all sources, exclusive of land sales for Oct., 1909, $52,722, against $32,544 for Oct., 1908. Cumulative net profits for four months ended Oct., 31, 1909, $161,278. Traffic receipts for Nov., 1909, $40,860, against $39,424 for Nov., 1908. Aggregate traffic receipts for five months ended Nov. 30, 1909, $175,554.

Atlantic and Lake Superior Ry.—A meeting has been called to be held in London, Eng., Jan. 11, for the purpose of aproving an agreement of sale of the railway.

We were advised Dec. 11 that the Baie des Chaleurs Ry. (Atlantic and Lake Superior Ry.) had not then been taken over, but it is expected that the transfer will be formally made at the end of Jan.

Columbia and Western Ry.—The Supreme Court gave judgment Dec. 13 in the action brought by R. B. Angus and Sir Thomas G. Shaughnessy, against A. Heinze for a partition of the lands forming the C. and W. R. land grant. When this line was acquired for the C.P.R. it was agreed that the lands granted by the B. C. Legislature should be divided in certain proportions. The lower courts held that the agreement obliged the purchasers to hold the title in the lands until Heinze asked for a conveyance of his share. This decision has been upheld by the Supreme Court.

Dominion Atlantic Ry.—Gross earnings for Oct., 1909, $136,400, against $130,515 for Oct., 1908. Aggregate earnings for four months ended Oct. 31, 1909, $610,400, against $469,067 for same period 1908.

Duluth, Rainy Lake and Winnipeg Ry.—A block of the authorized and outstanding $2,000,000 first mortgage sinking fund 5% bonds of 1906-1916, is being offered at Milwaukee, Wis., at 101 to 101½. These bonds are prior in lien to an outstanding issue of $1,525,000 Duluth, Winnipeg and Pacific Ry. second mortgage bonds, guaranteed principal and interest by the Canadian Northern Ry.

Grand Trunk Railway.—Application is being made to the Dominion Parliament for an act authorizing the company to acquire, and dispose of the bonds, debentures or other securities issued by the Ottawa Terminals Ry., and by the G.T. Pacific Terminal Elevator Co.

Grand Trunk Western Ry.—The property of the Pontiac, Oxford and Northern Ry., which has been in the hands of a receiver for about two years, has been acquired by the G.T.R., and will be operated as a part of the G. T. Western Ry. The P.O. & N.R. is 100.2 miles long, and connects Pontiac, Mich., with Imlay City, on the Detroit, Grand Haven and Milwaukee Ry., also controlled by the G.T.R. It owns seven locomotives, 11 pasenger cars and 81 freight cars.

Quebec and Lake St. John Ry.—Traffic receipts for Nov., 1909, $53,251.05, against $57,742.65 for Nov., 1908. Aggregate traffic receipts for 11 months ended Nov. 30, 1909, $550,984.11, against $588,075.37 for same period 1908.

Quebec and New Brunswick Ry.—A meeting has been called to be held at Edmundston, N.B., Jan. 19, for the election of directors; to re-affirm all past resolutions and bylaws, as far as possible, and generally to settle on what shall constitute the records, books and other papers of the company, all of which were destroyed by fire in Apr., 1909; to ratify all past acts of the directors and President; to declare forfeited all shares on which default has been made, and to transact other business.

St. Lawrence & Adirondack Ry.—Quarter ended September 30, 1909, gross earnings $155,893 against $141,247 previous year; net earnings $43,642 against $60,040 previous year, deficit after charges of $8,169 as compared with surplus previous year of $22,329.

Temiscouata Ry.—Net profit on operation for Sept., 1909, $4,566, and for nine months ended Sept. 30, $40,099.

Railway Commissioners' Traffic Orders.

Summaries of other traffic orders are given on another page under "Orders by Railway Commissioners":—

8860. Dec. 10.—Re complaint of Grain Growers' Grain Co. of Winnipeg, alleging long delay on the part of railway companies in repayment to shippers of grain for lumber supplied for car doors; and re complaint of J. J. Denman and others of the Province of Alberta, complaining of unjust treatment afforded them by the Canadian Northern and Canadian Pacific Ry. Cos. in compelling complainants to furnish doors or boards for the interior of cars supplied to them for shipments of coal; upon hearing the above complaints in the presence of counsel for the applicants, in so far as the former orders hereinafter referred to are concerned, as well as of counsel for the C.P.R., the C.N.R. and the G.T. Pacific Ry. Cos., and upon counsel representing that serious difficulty is likely to arise in connection with the operation of the orders in these matters, made Feb. 2 and 19, 1909, in so far as they direct at the time of shipment payment to the shipper out of funds of the railway company in the hands of its agent, it is ordered:

1. That the orders of Feb. 2 and 19, 1909, be hereby rescinded.

2. That where shippers upon all or any railways subject to the jurisdiction of the Dominion Parliament are compelled to furnish car doors to enable cars to be used for traffic, allowance therefor to such shippers be made upon the following basis: At and west of Fort William, lower car door, $1; upper car door, 50c.. East of Fort William, upper or lower car door, each, 50c. And that adjustment between the said shipper and the railway company shall be made by the agent of the railway company at or nearest to the point of shipment, by permitting the shipper to deduct from the freight charges, if any, payable by him upon the shipment in such car for which the said door or doors were so supplied, the amount of such bill upon the foregoing basis, the said shipper receipting the same for the amount so allowed and turning the account in to such agent as so much cash.

3. In the event of the shipper not prepaying the freight upon the shipment with reference to which such car door or doors are so furnished, then the railway company shall, within 30 days from the date of such shipment, reimburse to the shipper the sums payable upon the above basis for the door or doors so furnished by him.

Regulations re Locomotives.

The Board of Railway Commissioners passed the following order 8903 Dec. 15. Re order 3245, dated July 4, 1907 (published in the Railway and Marine World Aug., 1907, pg. 577), and re application of Michigan Central Rd. to amend said order, the said order is hereby amended by striking out clause (b) in the second paragraph and substituting therefore the following:

"(b) Overflow pipes from lifting injectors or water pipes from injector delivery pipe or boiler to be put into the front and back part of the ash pans and used during the months of April, May, June, July, Aug., Sept. and Oct. for wetting ash pans."

G.T.R. Betterments, Construction, Etc.

Sherbrooke, Que.—The G.T.R. is reported to be acquiring land at Sherbrooke for yard extensions, with a view, it is said of making a divisional point there. The present divisional point between Montreal and Portland, Me., is at Island Pond, Vt., and the report further states that this divisional point is to be abandoned, and another one established at Groveton, N.H. This would mean two divisional points where there is now one.

Turcot and St. Lambert Improvements.—We are advised that the only work being done at Turcot yards is in connection with the diversion of the Montreal Park and Island Ry., and that there is no other work contemplated at either Turcot or St. Lambert at present.

Sunnyside Crossing, Toronto. — The Board of Railway Commissioners made an order Dec. 10, in regard to the proportionate cost to be borne by the various parties interested in the separation of the grades at the Sunnyside crossing, Toronto. For the crossing at the Humber in Etobicoke tp., the Dominion Government will pay out of the level crossings fund $5,000, and the township $8,000; in York tp. there are three crossings to be eliminated towards which the Dominion will pay $15,000, and the township a like amount; for the work in the city of Toronto the Dominion will contribute $15,000. The balance of the cost is to be divided and paid, one-third by the City of Toronto (so far as the work is in the city) and the remaining two-thirds by the G.T.R. The cost is to be figured out on the basis of a two-track viaduct, and the work has to be completed within two years. The G.T.R. desired to have a proportion of the cost assessed upon the C.P.R. which has running rights over the line, but the Commissioners declined to take any action thereon. The City Engineer of Toronto said the carrying out of the order would mean the doing away of ten level crossings within the limits of the city's authority, for the protection of which it was now paying $3,000 a year.

Bridge at Weston Road.—The City Engineer of Toronto recommends that the bridge over the C.P.R. tracks at Weston Road, West Toronto, be extended so as to cross the G.T.R. tracks also, and proposes to ask for an appropriation to cover the cost of a new bridge.

Waterloo, Ont.—The company proposes to erect an improved station at Waterloo, Ont., during the year.

Electrification of Branch Lines.—The Mayor of Berlin, Ont., had an interview with U. E. Gillen, Superintendent, Middle Division, at Toronto, Dec. 3, with reference to the proposal to electrify the branches from Berlin to Galt and Elmira. Mr. Gillen said the cost of operation proved an obstacle when the matter was under consideration a few years ago. The advent of the Hydro-Electric Power Commission's plant might affect the question. The residents of Berlin are preparing to organize a deputation from the district to wait on the management at Montreal to urge consideration of the matter.

Relaying Track.—The tracks on the lines running into Palmerston, Ont., from Stratford, and other points, was relaid with heavier steel during 1909. It is intended during 1910 to continue the work on the three lines running out of Palmerston northerly and westerly.

London Track Elevation.—The Mayor of London received a communication from the Chairman of the Railway Commission to the effect that the question of the elevation of the G.T.R. tracks in London had been taken up by the Commissioners. It was expected that the question would be fully gone into early in the New Year, and a meeting of all parties arranged for in London. (Dec., 1909, pg. 891.)

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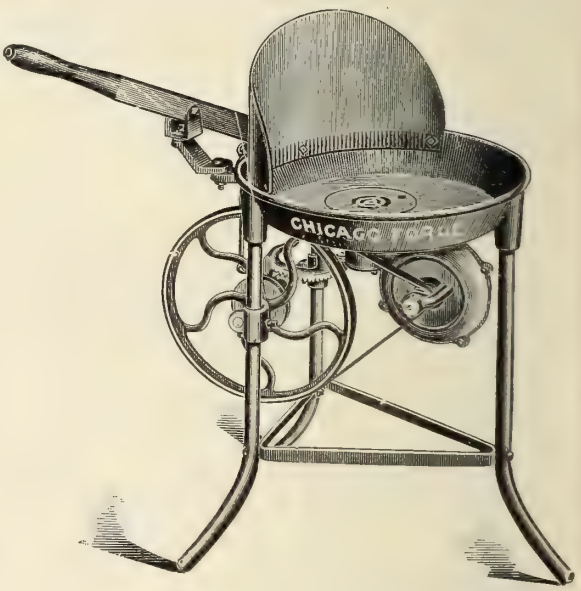

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TRANSPORTATION APPOINTMENTS.

The information under this head, which is almost entirely gathered from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian Northern Quebec Ry., Canadian Northern Ontario Ry. (Ottawa Section), Quebec and Lake St. John Ry.—S. J. Montgomery has been appointed City Freight and Passenger Agent, Ottawa. He was heretofore chief clerk C.P.R. Ticket Office, Ottawa.

Canadian Northern Ry.—A. Wilcox, heretofore Superintendent Division 3, Dauphin, Man., has been appointed Superintendent Division 1, succeeding M. A. Murphy, resigned. Office, Port Arthur, Ont.

C. D. Fisher, heretofore Chief Dispatcher Division 3, Dauphin, Man., has been appointed Superintendent Division 3, vice A. Wilcox, transferred. Office, Dauphin, Man.

W. E. Roberts, heretofore Trainmaster, Dauphin, Man., has been appointed Chief Train Dispatcher there, vice C. D. Fisher, promoted.

J. C. O'Donnell, heretofore conductor, North Battleford, Sask., has been appointed Trainmaster District 3, with headquarters at Dauphin, Man.

Canadian Northern Ry., Duluth, Rainy Lake and Winnipeg Ry.—W. E. Dunn has been appointed Travelling Passenger Agent, St. Paul, Minn.

G. R. Hall has resigned the position of Commercial Agent at Chicago, Ill., to become Secretary of the Traffic Commission of the Commercial Club of Duluth.

See also Duluth, Rainy Lake & Winnipeg Ry.

Canadian Pacific Ry.—In consequence of the removal of the division point from Woodstock, N.B., to Aroostook Jct., N.B., Locomotive Foreman McInnich will be transferred from Woodstock to Aroostook Jct. in January.

W. A. Cowan, heretofore Resident Engineer, London, Ont., has been appointed Resident Engineer at Farnham, Que., vice A. C. MacKenzie, transferred to Assistant Chief Engineer's office, Montreal.

H. Frawley has been appointed Locomotive Foreman at Three Rivers, Que., vice J. Gregoire, deceased.

L. S. Rudder, heretofore on the Resident Engineer's staff, Toronto, has been appointed acting Resident Engineer there, vice F. W. Cooper, transferred to London, Ont.

F. W. Cooper, heretofore Resident Engineer, Toronto, has been appointed Resident Engineer at London, Ont., vice W. A. Cowan, transferred to Farnham, Que.

R. Armstrong, heretofore General Agent, Fort William, Ont., has been appointed Superintendent of Terminals, Fort William, vice G. E. Graham, transferred to Vancouver, B.C.

J. H. Wilson was on Dec. 18 appointed Locomotive Foreman at Kenora, Ont., vice T. F. Patterson, transferred.

W. A. James has been appointed Division Engineer of Construction Western Lines, vice J. Callaghan, resigned. Office, Winnipeg.

G. Twist, heretofore Locomotive Foreman, Sutherland, Sask., was on Nov. 24 appointed Locomotive Foreman at Minnedosa, Man., vice W. F. Lowe, transferred to the Winnipeg shops. On Dec. 18 A. Crawford was appointed acting Locomotive Foreman at Minnedosa.

J. H. Wilson, heretofore Locomotive Foreman at Moose Jaw, Sask., was on Nov. 24 appointed Locomotive Foreman at Sutherland, Sask., vice G. Twist, transferred to Minnedosa, Man. On Dec. 21 A. Morrison was appointed Locomotive Foreman at Sutherland, Sask., vice J. H. Wilson, transferred to Kenora, Ont.

R. Anthony, has been appointed acting Locomotive Foreman, Moose Jaw, Sask., vice J. H. Wilson, transferred.

W. Price, heretofore Car Inspector at Macleod, Alta., has been appointed Car Foreman, Swift Current, Sask., vice J. A. Jenson, transferred.

J. A. Jenson, heretofore Car Foreman at Swift Current, Sask., has been appointed Car Inspector at Red Deer, Alta.

H. McDonald has been appointed Locomotive Foreman, Macleod, Alta., vice H. Stevenson, assigned to other duties.

G. E. Graham, heretofore Superintendent of Terminals, Fort William, Ont., has been appointed Superintendent District 2, Pacific Division, vice W. O. Miller, on leave of absence. Office, Vancouver, B.C. W. O. Miller will, on his return, be transferred to another district.

J. G. McNab, heretofore Travelling Freight Agent B.C. and Pacific Coast Steamship Service, has been appointed Contracting Freight Agent C.P.R., Vancouver, B.C., vice W. H. Gardiner.

A. Davidson has been appointed Travelling Freight Agent, B.C. and Pacific Coast Steamship Service, Vancouver, B.C., vice J. G. McNab.

Duluth, Rainy Lake & Winnipeg Ry.—D. T. Murphy, heretofore Trainmaster, has been appointed acting Superintendent, succeeding M. A. Murphy, resigned. Office, Virginia, Minn. (See also Canadian Northern Ry.)

Grand Trunk Pacific Ry.—C. H. Nicholson, heretofore Traffic Manager Northern Navigation Co., Sarnia, Ont., has been appointed Manager G.T.P.R. Steamship Lines on the Pacific Coast. He will have supervision of all matters pertaining to marine and steamship business for the company on the Pacific coast, the operation and maintenance of steamers, docks, etc., with such other duties as may be assigned to him from time to time. Office, Vancouver, B.C.

Grand Trunk Ry.—C. M. Hays, heretofore Second Vice President and General Manager, has been elected President, and will also continue to act as General Manager, effective Jan. 1, as announced in our Nov., 1909, issue. We are officially advised that there will be no changes of importance in the official staff as a consequence.

W. Sealy, heretofore machinist charge hand, Stratford shops, has been appointed erecting shop foreman there, vice A. J. Roberts, who has left the service.

W. Davis, heretofore in the Stratford shops, has been appointed machinist charge hand there, vice W. Sealy, promoted.

H. F. Sausser has been appointed General Yardmaster at Black Rock, N.Y., vice G. F. Sullivan, assigned to other duties.

J. Ehrke, heretofore Trainmaster 25th District, Durand, Mich., has been appointed Assistant Superintendent 25th and 26th Districts, Main Line. Office, Battle Creek, Mich.

R. Doyle has been appointed Master of Transportation, Western Division, Durand, Mich., vice X. H. Cornell, resigned to become Manager Michigan Car Service Bureau.

O. F. Clark has been appointed Trainmaster 25th District, Durand, Mich., vice J. Ehrke, promoted.

The following agents have been appointed:—Woodville, Ont., W. R. Dickson; Kirkfield, Ont., H. F. Parks; Thornbury, Ont., T. E. Lord; Harley, Ont., W. G. Baker; St. Polycarpe, Que., L. G. LaBatt (temporary); Carlsbad Spring, Ont., J. A. Marchand.

Grand Trunk Western Ry.—C. M. Hays, President, issued the following circular Dec. 1:—"The Pontiac, Oxford and Northern Rd., having passed under the control of this company, the jurisdiction of all officers of the respective departments of this company are hereby extended over that railway. Their instructions will be obeyed accordingly."

Intercolonial Ry.—N. McNeil has been appointed Foreman of Car Department at Sydney, N.S., vice R. Dunlap.

Northern Navigation Co.—H. H. Gildersleeve, Manager, has assumed the duties hitherto discharged by C. H. Nicholson, Traffic Manager, the latter having resigned to enter G.T.P.R. service. The Manager's office will be changed from Collingwood to Sarnia, Ont.

Toronto, Hamilton and Buffalo Ry.—G. C. Martin, heretofore chief clerk, has been appointed Assistant General Freight and Passenger Agent. Office, Hamilton, Ont.

Trade and Supply Notes

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers to distinctly understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Large and useful wall calendars have been received from Mussens Limited, Montreal, and the B. Greening Wire Co., Ltd., Hamilton, Ont.

Taylor & Arnold, 404 St. James St., Montreal, have been appointed general sales agents of the Ontario Iron & Steel Co. and the Canadian Railway Equipment Co., whose works are at Welland, Ont. L. S. Hough, heretofore sales agent for the two companies, is now on Taylor & Arnold's staff, and will devote his attention to sales.

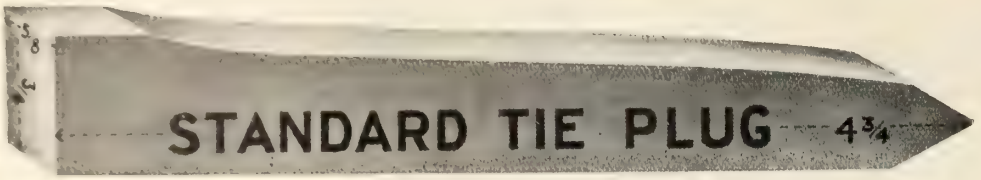
The Tallman Brass and Metal Co., Hamilton, Ont., after being located on Wellington St. North for 13 years, have removed to a new factory and foundry on Wilson St., east of Sanford Ave., which are well equipped with the most up-to-date machinery and appliances. They manufacture "Arctic metal" and brass castings and also handle pig tin and lead.

The Canadian Fairbanks Co., Ltd., has been appointed exclusive sales agent for Canada for Dicks' Balata Belting and has purchased J. S. Young's business. Orders should be sent direct to the nearest branch house. Large stocks are carried at present at Montreal and Vancouver, and stocks are on the way to the branches at St. John, N.B., Toronto and Winnipeg.

A powerful self-propelling grab dredge has just been completed to the order of the Egyptian Government for the Upper Nile. This is the third dredge which the Sudan Irrigation Department is placing upon the work of rectification of the Upper Nile upon which it is engaged and by means of which the potentiality of the river for irrigation purposes will be greatly increased. The first dredge is of the dipper type for embanking purposes and is already in service. The second is of the hydraulic type and is now being erected at Khartoum, while the third dredge is intended to deal with the sudd and will be provided with appliances for cutting the sudd as well as removing it. This vessel is built in the form of a light draft river steamer, 160 ft. long by 32 ft. beam and 2 ft. 9 ins. draft. The three dredges have been built to the designs and specifications of A. W. Robinson, M. Can. Soc. C.E., of Montreal, Consulting Engineer to the Sudan Irrigation Department.

An order in council has been passed providing for the imposition of a fine of $20 in the case of anyone found guilty of spitting in any passenger car, on any railway platform or other premises of the Government railways, and for the imposition of a similar penalty for smoking elsewhere than in places or compartments, in stations or cars, designated for that purpose.

"Note the Size and Shape"



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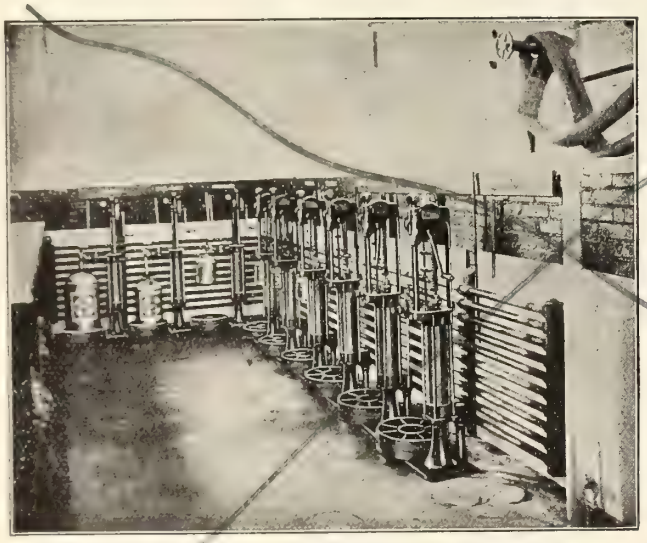

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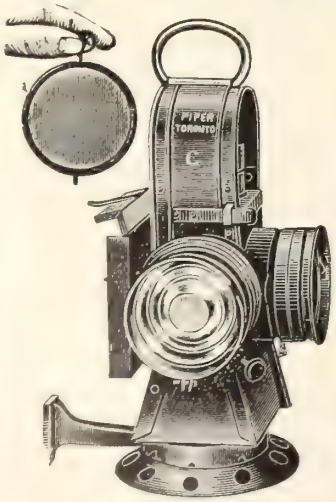

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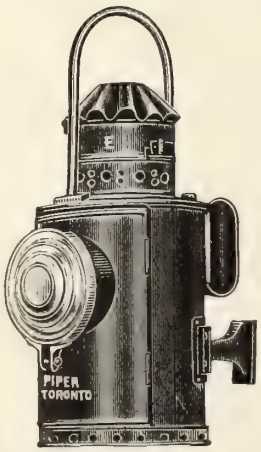

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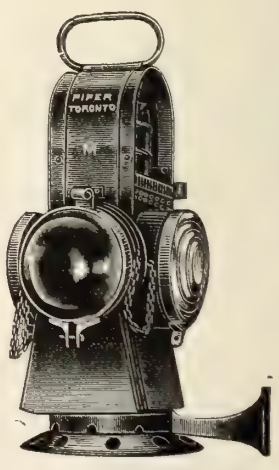

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Steam Railway Track Laid in 1909.

In accordance with our annual custom, circulars were sent in November to all railway companies in Canada, asking particulars of new track laid during 1909, the circulars being sent out some time earlier than formerly in order to ensure an earlier publication of the figures. The following table has been compiled from returns received to Dec. 20, the mileage given in some cases being estimated, as track-laying had not been completed for the season when the return was made up. The figures show that the total length of new track, exclusive of second track and sidings, laid during the year on the steam railways from which reports have been received was 1,507.02, against 1,505.95 miles in 1908.

	Miles.	Miles.
ALBERTA RY. AND IRRIGATION CO.		
From Raley to Wolford		8.00
ATLANTIC, QUEBEC AND WESTERN RY.		
From Port Daniel to Grand Pabos	20.00	
From Grand Pabos to Grand River	10.00	
From Gaspe to Douglastown	6.00	
		36.00
**CANADIAN NORTHERN ONTARIO RY.		
Hawkesbury to Ottawa	57.08	
Udney to Orillia	2.39	
Parry Sound spur	1.00	
Sellwood Jct. northerly	30.02	
		90.49
CANADIAN NORTHERN QUEBEC RY.		
Garneau-Quebec cut off, Quebec end	17.10	
St. Jacques to Rawdon	11.00	
		28.10
CANADIAN NORTHERN RY.		
Maryfield branch, from Maryfield on Brandon-Regina line, westerly	90.00	
Vegreville-Red Deer branch, from main line near Vegreville, southwesterly	20.00	
Goose Lake branch, from mileage 75 west of Saskatoon	55.00	
Rossburn extension, from mileage 115 northwesterly	50.00	
Rapid City line, from Hallboro, Man., westerly	70.00	
St. Rose du Lac branch, Manitoba	15.00	
Dundee branch, Manitoba	5.00	
		305.00
***CANADIAN PACIFIC RY.		
From mileage 31.6 to Duhamel	3.14	
From Mowbray to Windygates	7.00	
From Broomhill to Tilton	8.40	
From Wynyard to Lanigan Jct.	40.70	
From Wilkie to Hardisty	136.60	
From Weyburn to Forward	26.00	
*From Lethbridge to Old Man River	20.40	
‖From Hector to Field	8.20	
		250.44
CENTRAL ONTARIO RY.		
From end of steel, near Maynooth, north		1.00
DIAMOND RY. COAL CO.		
From Kipp to Diamond City		6.00
ESQUIMALT AND NANAIMO RY.		
From Wellington to Parksville		18.00
GRAND TRUNK PACIFIC RY. AND BRANCHES.		
From Irmar to Clover Bar	102.00	
From Edmonton to Wolfe Creek	122.00	
From Melville to Balcarres	34.00	
From Melville to Yorkton	25.00	
From Tofield to Camrose	26.00	
		309.00
GREAT NORTHERN RY.		
From Cloverdale to Sumas	2.00	
Burrard Inlet line	1.93	
From Keremeos to Princeton (est.)	42.00	
		45.93
HA HA BAY RY.		
From Waterside to Jonquieres		2.00
INTERNATIONAL RY. OF N. B.		
From mileage 62 to 85		23.00
MANITOULIN AND NORTH SHORE RY.		
From mileage 13 west of Sudbury to mileage 14.14		1.14
NATIONAL TRANSCONTINENTAL RY.		
Moncton westerly	13.00	
Chipman westerly	5.00	
Intercolonial crossing, e. and w.	27.00	
Quebec-N.B. boundary e. and w.	30.00	
Quebec bridge, e. and w.	49.00	
T. & N. O. Jct., e. and w.	44.00	
Ontario and Man. boundary, east	144.00	
		312.00
NORTHERN NEW BRUNSWICK & SEABOARD RY.		
Between Nipisiquit Jct. and Drummond Mines	4.00	
From Newcastle Jct. to ore dock	1.00	
		5.00
PACIFIC COAST MINES (LTD‖).		
From Boat Harbor to Fiddicks Jct.		5.67
QUEBEC CENTRAL RY.		
From St. George to St. Justine		27.00
SUPERIOR AND WESTERN ONTARIO RY.		
From Superior Jct. to O'Brien		8.00
WINNIPEG CITY POWER PLANT LINE.		
From Lac du Bonnet to Point du Boise	24.00	
From Station 1187 to gravel pit	1.25	
		25.25

*The length of line which the C.P.R. grade revision between Hector and Field supersedes was 4.1 miles, so that the revision adds 4.1 miles to the length of the line.

**On the Canadian Northern Ontario Ry.'s Hawkesbury-Ottawa line 53 miles were laid in 1908 and the balance, 4.08 miles, in 1909. The 53 miles were not included in the figures received from the company a year ago, so the whole mileage is now included in the 1909 returns.

***The figures given of the C.P.R. western lines are subject to revision, as there is a discrepancy in the returns received from two different officials.

‖The C.P.R. Lethbridge-Macleod cut-off has a total length of 35.24 miles, and supersedes the original line of 38.66 miles. Track was laid on 14.83 miles in 1908, and on the remaining 20.40 miles in 1909.

The C.P.R. subsidiary lines in the United States laid track as follows:

	Miles.	Miles.
MINNEAPOLIS, ST. PAUL AND S. S. MARIE RY.		
From Moose Lake to Superior and Duluth	49.20	
From Moose Lake west on extension	45.00	
		94.20
DULUTH, SOUTH SHORE AND ATLANTIC RY.		
Three spur lines to mines		7.10
MINERAL RANGE RD.		
Three spur lines to mines		2.87
		104.17

The Great Northern Ry. U.S., constructed extensions of its lines in the U.S. to connect, or with a view to connect with, its Canadian lines, as follows:

	Miles.	Miles.
Blaine, Wash., to International boundary	2.96	
Columbia River to Mansfield, Wash.	60.62	
Nashwana to Grand Rapids, Minn.	20.00	
		83.58

Canadian Northern Ry. Earnings, Etc.

Gross earnings, working expenses, net profits, increases or decreases from 1908-09, from July 1, 1909:

	Earnings.	Expenses.	Net Earnings.	Net Increase or Decrease.
July	$ 843,500	$613,900	$229,600	$26,700+
Aug.	807,100	602,700	204,400	18,300+
Sept.	1,076,800	765,300	311,500	60,400+
Oct.	1,384,200	903,500	480,700	60,600+
Nov.	1,517,600	970,100	547,500	134,000+
	$5,629,100	$3,855,500	$1,773,600	$300,800+
Inc.	$ 921,000	$ 621,100	$300,800	.....

Approximate gross earnings for three weeks ended Dec. 21, 1909, $834,400, against 673,300, for same period 1908.

C.P.R. Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits, increases or decreases over 1908-9, from July 1, 1909:

	Earnings.	Expenses.	Net Profits.	Net Increase or Decrease.
July	7,140,029.93	4,660,159.20	2,479,870.73	205,297.48+
Aug.	7,426,984.62	4,462,926.75	2,964,057.87	385,159.16+
Sept.	8,323,178.03	4,891,288.86	3,431,889.17	1,317,281.40+
Oct.	9,744,596.87	5,358,290.68	4,386,297.19	1,731,030.48+
	$32,634,789.45	$19,372,674.49	$13,262,114.96	$3,638,768.52+
Inc.	$6,182,309.05	$2,543,540.53	$3,638,768.52	.....

Approxtmate gross earnings for Nov., 8,918,000, and for 2 weeks ended Dec. 14, 3,657,000; against $7,156,000 and $3,071,000 for same periods 1908.

DULUTH, SOUTH SHORE AND ATLANTIC RY.—Operating revenue for Oct., $308,233.87; expenses, $200,500.67; net revenue, $107,733.20, against $252,057.12 operating revenue; $171,419.46 expenses; $80,637.88 net revenue for Oct., 1908. Aggregate operating revenue for four months ended Oct. 31, $1,212,410.17; expenses, $791,793.98; net revenue, $420,616.19, against $938,438.30 aggregate operating revenue; $665,169.34 expenses; $273,268.96 net operating revenue for same period 1908. Approximate earnings for Nov., $263,784, and for two weeks ended Dec. 14, 1909, $101,180, against $233,059 and $102,538 for same periods 1908.

MINERAL RANGE RD.—Operating revenue for Oct., $73,725.1; expenses, $65,842.15; net revenue, $7,883|01, against $77,294.63 operating revenue; $56,384.97 expenses; $20,909.66 net revenue for Oct., 1908. Aggregate operating revenue for four months ended Oct. 31, $298,657.05; expenses, $248,482.65; net revenue, $50,174.40, against $296,176.68 aggregate operating revenue; $230,252.25 expenses; $65,924.43 nt revenue for same period 1908. Approximate earnings for Nov., $70,603, and for two weeks ended Dec. 14, 1909, $30,522, against $70,021 and $31,500 for same periods 1908.

Grand Trunk Ry. Earnings, Expenses Etc.

The following figures give the earnings of the G.T.R., the C.A.R., the G.T. Western Ry., and the D.G.H. & M. Ry., separately, for Oct., as compared with Oct,, 1908:

GRAND TRUNK RAILWAY.

	1909.	1908.
Earnings	$3,130,000	$3,012,095
Expenses	2,181,000	2,073,159
Net earnings	$949,000	$938,936

CANADA ATLANTIC RAILWAY.

	1909.	1908.
Earnings	$203,000	$153,405
Expenses	149,000	170,937
Net earnings	$54,000	*$17,532

GRAND TRUNK WESTERN RY.

	1909.	1908.
Earnings	$526,000	$473,364
Expenses	421,500	356,484
Net earnings	$104,500	$116,880

DETROIT, GRAND HAVEN & MILWAUKEE RY.

	1909.	1908.
Earnings	$184,700	$149,996
Expenses	140,200	117,367
Net earnings	$44,500	$32,629

*Deficit.

TRAFFIC RECEIPTS OF THE SYSTEM

Aggregate from July 1, to Nov. 30, 1909:

	1909	1908	Inc.	Decr.
Grand Trunk	£3,043,937	£2,813,038	£230,899	...
Canada Atlantic	193,362	174,748	18,614	...
G. T. Western	531,609	488,461	43,148	...
D.G.H. & M.	176,856	154,645	22,211	...
Total	£3,945,764	£3,630,892	£314,872	

No Canadian Car Shortage.

In its December issue Canadian Machinery said:—"There is such a shortage of cars on the Canadian railroads that manufacturers and shippers find it difficult to make deliveries. It has been reported to Canadian Machinery that orders placed early this year have not been delivered through lack of rolling stock."

We think our contemporary has been altogether misinformed, and that there is no foundation for the report that orders for goods placed early in 1909 had not been delivered at the end of the year owing to shortage of cars. In the early part of the year, as undeniable statistics show, there was a considerable surplus supply of cars on nearly all Canadian lines. As business improved and as grain began to move there was of course a greater demand for cars, but certainly there has been no general car shortage, although there may have been a few local cases of shortages of equipment for perishable freight, and the highest authority in Canada on car service advises us that Canadian Machinery's statement is not founded on facts. The movement of freight during October and November was very heavy, probably the heaviest in the history of the country, more cars being reported to the Canadian Car Service Bureau than during any previous two months.

As a matter of fact the railway companies made excellent provision for the increased business which they expected during this fall and winter, and how well they succeeded is shown by the report of the directors of the Grain Growers' Association, presented at a meeting at Brandon, Dec. 15, which was attended by 1,500 delegates. The report said: "We are glad to bear testimony to the very satisfactory service the railways supplied this season for the moving of the crops. In former years we had reason to complain not only of the shortage of cars, but of the distribution of cars, and of obstacles placed in the way of farmers loading their grain direct into cars. This year, notwithstanding there was very large increase in the amount of grain offered for shipment as compared to former years, there was no lack of cars in Manitoba and we heard of no complaints as to the facilities offered farmers for loading their grain direct."

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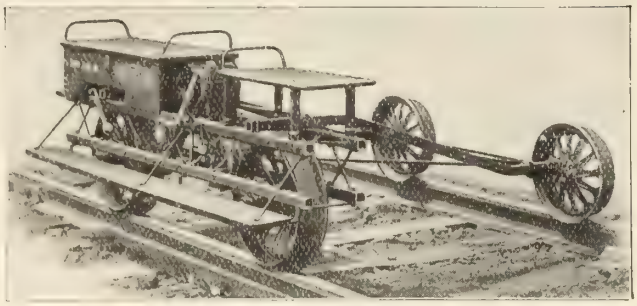

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CHICAGO, DETROIT AND CANADA GRAND TRUNK JCT. RD.—President and General Manager, C. M. Hays; Vice-President, E. H. Fitzhugh; other directors, W. H. Biggar, J. W. Loud, A. B. Atwater; Treasurer, F. Scott; Secretary, G. W. Alexander.

DETROIT, GRAND HAVEN AND MILWAUKEE RY.—President and General Manager, C. M. Hays; Vice-President, E. H. Fitzhugh; other directors, W. G. Brownlee, Jos. Hobson, J. W. Loud, A. B. Atwater, F. W. Egan, J. Pridgeon, jr., A. P. Sherrill; Secretary-Treasurer, G. W. Alexander.

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Alberta and Great Waterways Ry.

The Alberta and Great Waterways Ry. Co. was incorporated by the Alberta Legislature in 1909, with power to construct and operate a railway from Edmonton to Fort McMurray, and from near the western end of Lac la Biche to the eastern end of the same, with suitable terminals in Edmonton. The Legislature at the same time confirmed an agreement made with the company for the construction of the line and guaranteeing the payment of the principal and interest on the company's bonds to the amount of $7,400,000, or at the rate of $20,000 a mile for 350 miles of railway and $400,000 for the terminals in Edmonton. The security to be taken by the Government is a first mortgage of the line and terminals. The Standard Trust Co., Winnipeg, is trustee for the bonds, which are of the denomination of $1,000, bearing interest at the rate of 5%, each bond being endorsed with the Government guarantee, as provided by the agreement. An arrangement was made with J. P. Morgan & Co., New York, to place the bonds on the London, Eng., market, through its British house, J. S. Morgan & Co. The issue price was 110%, at which the bonds will yield 4½%, allowing for redemption at par on maturity Jan. 1, 1959. The company, however, reserves the right to redeem any or all of the bonds, at any time after Jan. 1, 1919, upon giving six months notice, at the rate of 112½% or £231 3s. 3d. for each $1,000 bond. The subscription list was opened Nov. 10, and closed two days later, the applications received being for an amount considerably in excess of that offered.

W. R. Clarke, President, and E. A. James, General Manager, were in Montreal Dec. 8 arranging for the purchase of rails, etc. for construction. Mr. Clarke stated that the financing had been completed and that contracts for the grading of the whole line, a distance of 350 miles, would be let early in Jan. The contract would call for the completion of 150 miles, which would carry the line as far as Lac la Biche, by the fall, and it was hoped to have a train service in operation over it at that time. The company will do the tracklaying itself, the contract to be let, being for the grading, bridging and structures. Mr. James in an interview, stated that the line will have its northerly terminal at Fort McMurray, 350 miles north-east of Edmonton, and will open out a stretch of country equal to the Edmonton district for farming purposes. At Fort McMurray it will connect with the Peace, Athabaska and Mackenzie Rivers, which together have 3,500 miles of waterway navigable by steamers, stretching to the Arctic Ocean. The road will thus connect the Arctic Ocean by water and rail with the transcontinental railways at Edmonton. As soon as location surveys have been completed, the right-of-way will be cut out on the first 150 miles to Lac la Biche. Ties will be got out this winter.

J. A. L. Waddell, Chief Engineer, while in Winnipeg recently, to secure engineers for surveys on this line, stated that one party was then in the field; that two more would be sent out immediately, and a fourth as soon as engineers could be found. He further stated that construction was commenced Oct. 1, 1909, that 10 miles of grading had been done, and the work would be pushed forward as surveys were completed.

The officials are: President, W. R. Clark, President, United States Trust Co., Kansas City Mo.; Vice-President, Bertrand Clark, Kansas City, Mo.; General Manager, E. A. James, Edmonton, Alta.; Chief Engineer, J. A. L. Waddell, Kansas City, Mo.

Railway Commissioners' Proposed Orders.

At its sittings on Jan. 18 the Board will consider the making of a general order establishing the places at which inspection of carload freight should be made.

The Board has notified all railway companies under its jurisdiction to appear at its sittings in Ottawa, Jan. 4, to show cause why an order should not be made prohibiting brakemen from riding on the top of freight cars and reducing the height of bridges to 17 ft., or to a height sufficient to permit the highest freight car passing thereunder.

On Jan. 4, at Ottawa, the Board will consider a draft order which has been framed on the complaint of the Winnipeg Jobbers and Shippers Association. It proposes to direct that all railways within six months from the passing of the order provide at all flag stations suitable shelters or waiting rooms for freight and passengers, the shelters to be provided with doors and windows and up to the standard of a specification attached to the order. Platforms and approaches to be also provided. Freight to be delivered to such points to be placed in the shelters. At all stations and shipping places where the average earnings are not less than $15,000 a year, stations to be erected and permanent agents to be appointed. At points where the business consists principally of grain shipments which amounted to at least 50,000 bushels in the previous year, temporary agents to be employed during the grain shipping season. Telegraph operators located for the handling of trains to be provided with equipment to enable them to take care of all traffic at their respective points.

Victorian State Railways Report.

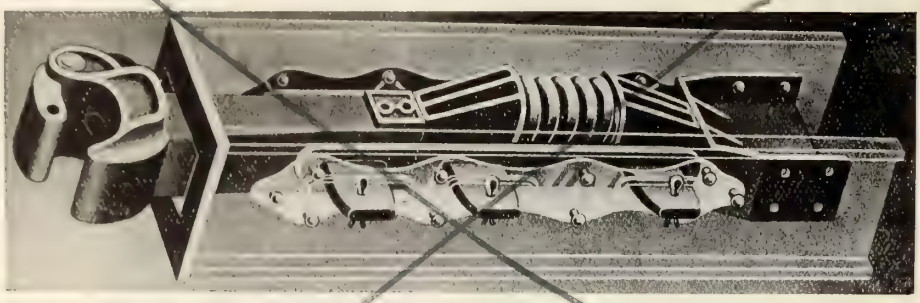
The annual report of the Victorian State Railways, Australia, signed by the Commission of which T. Tait, formerly Manager of Transportation C.P.R., is Chairman, for the year ended June 30, 1909, has been received. The gross revenue for the year was $20,532,840, and the working expenses (including a special payment of $340,519, into the railway accident and fire insurance fund) were $11,725,535; the net revenue from the St. Kilda and Brighton Electric St. Ry. was $9,081, making a total net revenue of $8,616,386. The interest charges and expenses were $6,959,547, and pensions and gratuities $513,002, which amounts deducted from the total net revenue leave a surplus of $1,143,837 to be credited to the consolidated revenues of the State.

The special feature of the report is a statement showing the results for the six years operation of the lines to June 30. 1903, compared with the six years to June 30, 1909, during which period the present Commissioners have been in charge. It shows an increase in the gross revenue of $22,443,685, an increase in the working expenses of $7,394,866, and an increase in the net revenue of $15,048,819. Out of net revenue $3,398,715 has been expended on special objects and charges in liquidation of extraordinary liabilities, against $787,706 in the preceding six years. The interest charges and expenses (pensions and gratuities being an addition in the year 1908-09 only) show an increase of $885,226 in the six years. The surplus credited to Consolidated Revenue amounted in the six years to $3,779,047, while in the six years preceding June 30, 1903, the Consolidated Revenue was called upon for $7,767,537 to meet deficits. With a decrease of 2,400,-758 train miles run, 99,974,678 passengers, 4,053,817 tons of goods and 480,879 tons of live stock have been carried in excess of the traffic in the six years prior to 1903. The percentage of working expenses to gross revenue has decreased from 59.83% to 54.41%.

Quebec Public Utilities Commission.—Sir Lomer Gouin, Premier of Quebec, when in Toronto recently, announced that his Government had decided to appoint a Public Utilities Commission, the members thereof to be appointed for ten years, which would have jurisdiction over power matters and all corporations operating public utilities under provincial franchise. It would have, in addition, powers similar to those exercised by the Ontario Railway and Municipal Board.

C.N.R. Quebec-Ottawa Line.—The Canadian Northern Quebec Ry. announces the establishment of "the only through passenger service between Ottawa and Quebec, also the improvement of its already excellent trains between Montreal and Quebec. Trains leave Ottawa 8.30 p.m. and Montreal 11.45 p.m., arriving in Quebec 7.20 a.m. daily, and leave Quebec at 11 p.m., reaching Montreal at 6.20 a.m. and Ottawa at 9.45 a.m. The opening of the new Quebec-Ottawa line also provides a short route to the Dominion capital through the Eastern Townships and the lower St. Lawrence via Levis.

Representatives of the New Brunswick Government, the Grand Falls Power Co., and of various industries in the province met the National Transcontinental Ry. Commissioners in Ottawa, Dec. 16, and discussed the question of the operation of the line through the forest region in Quebec and New Brunswick by electricity to be generated at Grand Falls, on the St. John River.



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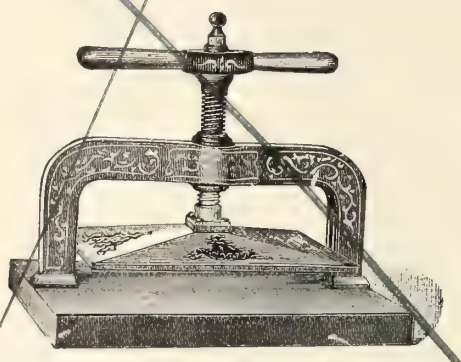

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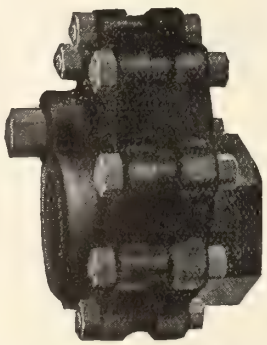

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ASSISTANT SECRETARY, Aubrey Acton Burrows, Secretary and Business Manager, Railway and Marine World.

The Winnipeg Electric Ry. Co.'s Power Plant Accident.

The recent accident at the Lac du Bonnet water power plant which is situated on the Winnipeg River about 64 miles from Winnipeg, was remarkable for two features; first, the rapidity with which normal conditions were restored in the face of the damage done, and secondly, as showing the extreme dependence of modern cities upon electrical current not only for mechanical and manufacturing energy, but for all the ordinary comforts of civilized life. On the evening of Nov. 23, the bursting of no. 7 penstock, just as the load was reaching its peak for lighting and extra car service during the rush hours, resulted in a tie up of the system and considerable damage to the apparatus. At about 4.38 p.m. everything was running smoothly as usual, no accident tying up the plant having occurred since it was started in Aug., 1906. The generating station was under a load of about 12,700 kilowatts. No. 7 unit had been put in service at 4.32 p.m., parallel with the other eight units in the plant, and was carrying a load of about 1,500 kilowatts. The switchboard operator had called for more gate on no. 7 as the evening load was coming on. When the load on this unit had reached about 2,000 kilowatts, or about seven-eighths full gate, the penstock burst on the south side, two plates giving way, 12 ft. in length, and opening up about 9 ft. high. The cradle or bed casting of the draft chest on the down stream set of turbines cracked the entire distance through the line of rivet holes where these penstock plates were attached.

The volume of water which immediately issued from this great opening burst in the door and made a huge breach through the wall of the building between wheel units 7 and 8, and flowed directly on to no. 8 generator, filling that end of the generator room above the doors to a depth of about 8 to 10 ft. The force of the water was tremendous, and it spread, flooding the entire building and reaching a depth of from 2 to 4 ft. in the most distant parts of it. The men at the gates of no. 7 at the time of the occurrence had barely time to escape with their lives, one of them in fact being swept out the door at the north end of the building by the rush of water. Very much credit is due to the employes for their foresight and promptness in throwing the current off the machines instantly and preventing the entire destruction of the whole of the machinery in the building. The rush of water was so great that it was impossible for the employes to reach the governor hand wheels to close down the turbines by way of the floor, but they were lowered down by ropes from the windows from the wheelhouse roof and in about 4 or 5 ft. of water managed to stop all wheels except units 8 and 9, which could not be reached owing to the tremendous volume of water which rushed through and completely over them. These two machines were running under water for a couple of days. A staff of men under Superintendent J. Smeaton immediately undertook to lower the headgates, but the flow of water through the burst penstock made such a pressure against the gates that in spite of cranks, props and pries, the gates refused to budge.

Meanwhile at headquarters in Winnipeg the first intimation of trouble was the loss of juice. Cars were just filling up for the evening rush and were left stranded on the street, some of the passengers patiently sitting for over an hour waiting for them to move. All lights and power were, of course, off, and, at first, the general public were under the impression that there had been a serious fire, as a few weeks earlier, a fire near the principal sub-station had caused the firemen to cut the wires and temporarily inconvenience a large portion of the city. For some time Manager Wilford Phillips was as much in the dark as anyone else as to the cause of the trouble. The company has a private telephone to Lac du Bonnet, but owing to everyone of the staff being rushed to the head gates to try and stop the flow of water there was no one left to answer the telephone. As soon as it was realized that the interruption of the service was more than trifling the Manager issued instructions to have the old steam plant, used to generate power before the Lac du Bonnet was built, put into commission at once. Three years previously this plant had worked up to an overload of 8,000 h.p., but although the precaution had been taken of keeping up steam sufficient to turn the wheels over once a day, things there were naturally not in condition to get back to former efficiency, and in any case the power at full capacity was far below the present requirements of Winnipeg. The best that could be done that night was to furnish a partial lighting service, and in the early hours of the morning to take in the cars.

Two hours after the news of the serious nature of the accident reached him, Manager Phillips with C. R. Ross, and D. Ross, the company's Chief Electrician and Civil Engineer, was on his way to the scene of the disaster in a special train. The condition of affairs on arrival late that night (nine miles having to be driven from the station over a corduroy road) was found to be most serious, the attempts to shut off the water having entirely failed. The only means which could be devised for stopping it was driving piles in front of the headgates, and sheeting these in front with brush and canvas and bags of sand, by which means the water was eventually checked sufficiently to enable the headgates to be lowered. The water was closed out of the power house sufficiently by the evening of Nov. 26 to allow examination of the machinery, and work was at once started to get some of the generators again in operation. On the evening of Nov. 29, less than six days after the accident, one generator was sufficiently dried out so that with temporary wiring which was arranged, about 1,500 kilowatts of power was supplied to Winnipeg to assist the overburdened steam plant where one or two minor accidents had been caused by the extraordinary strain on boilers, engines, and generators alike.

The system following in the city was to furnish as full a car service as possible from 6 to 8.30 a.m., and a light service on as many circuits as possible. From 8.30 a.m. to 4.30 p.m., the available juice was placed at the disposition of users of commercial power. From 4.30 to 7.30 p.m., cars and light; from 7 p.m. to midnight a full lighting service, and from midnight to 5 a.m., commercial power. This system was adopted at the request of the Board of Trade and City Council, as it was represented that this would allow the factories to run on practically full time. The public generally took the accident most good humoredly and appeared to realize that the Company was doing its best under the circumstances, but one of the newspapers which had a supposed mechanical expert on its staff created some amusement by a violent tirade against the company with regard to the steam plant, the capacity of which the reporter judged in true expert fashion by the rating on the name plates on the machines that he saw.

At Lac du Bonnet, Manager Phillips stayed with the work of repairs. All the cables in the building, from the generators and switchboard to the transformers and the switch cells, being in ducts below the floor, were found to be entirely soaked with water, and temporary wiring had to be installed to get the generators into operation after they had been dried. Operations were also hampered by the force of the water having broken the steam connections and done other damage of this character. In inspecting and testing the generators it was found that the most serious damage was near the point where the break occurred. Those furthest away were the least damaged. One generator had to be partially rewound on one side where it took the full force of the water and tore up the insulation. So far as the public was concerned, with a three-quarters car service and a full lighting and power service within a week of the accident, by the steam plant helped out from two generators at Lac du Bonnet, the accident was all over, but the staff still had a very anxious time for another five or six days, and it was not until a fortnight after the trouble occurred that Manager Phillips thought it wise to return to Winnipeg. Great credit is due to everyone concerned for the remarkable recovery which they affected under very adverse conditions in an isolated district where everything had to be brought in by special train. Particular credit is due to J. H. Smeaton, superintendent of the plant, and C. R. Ross, Chief Electrician, for the ability they showed and the rapidity with which they got the plant into operation considering that the cables on the floor were soaked with water and lying under water for three or four days. One generator was started delivering power to Winnipeg on the sixth day after the accident, two inside of a week, and after that the progress was at the rate of one a day. Both from experts and business men, the Manager, Mr. Phillips, has received deservedly high praise for the energy and perseverance he showed in the emergency, and the Winnipeg Electric Ry. Co. is to congratulated on the efficiency of its staff in coping with such an emergency. The company spared neither expense nor trouble to meet the demands of the situation, and to anyone who saw the damage immediately after the break it is hard to understand how everything was practically restored in a fortnight.

The Lac du Bonnet plant has a somewhat unique record, as with this single exception its previous record was that there had been only a total shut down of 25 minutes duration in the three years since it commenced operations, which it is believed cannot be beaten by any other water plant.

As to the cause of the accident, on examination of the gate rigging of no. 7 turbine, it was found that five teeth had been stripped from the hand wheel pinion on the governor, and in the opinion of experts when these teeth stripped the turbine gates were allowed to close very suddenly, and this caused the bursting of the penstock. Mention should be made of the work of Wilson Phillips, brother of the Manager, who was in charge of the Winnipeg end of the works during the crisis. Some assistance was given him by the city's steam plant, but

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added to the other anxieties of the acting Manager, was the fact that on several occasions this assistance failed, necessitating the Company's plant being called upon to carry the entire load. The whole circumstances connected with the emergency reflect great credit on all concerned.

Projects, Construction, Betterments, Etc.

The Berlin and Waterloo St. Ry. has under consideration a proposal to construct an extension of its line in Berlin, Ont., from Albert St. to Water St., 7,400 ft. (Oct., 1909, pg. 769.)

Brandon, Man.—Application has been made to the City Council by E. J. Gifford and H. J. Skynner for a franchise for an electric street railway and a power, light and heating plant in the city. (Sept., 1909, pg. 683.)

British Columbia Electric Ry.—General Manager Sperling on his return to Vancouver, B.C., from England, Dec. 7, stated that the directors had authorized expenditures on the company's various projects to the amount of $6,000,000. One of the large new works to be undertaken will be the erection of a 10,000 h.p. steam auxiliary plant in Vancouver.

The company has agreed with the New Westminster City Council to construct a second track on Columbus St. as far as the Boulevard.

The new line between New Westminster and Cloverdale was put in operation Dec. 20. A gang of men went to work Dec. 7 laying tracks on Eighth St. for the switching of cars from the Vancouver-New Westminster line to the Cloverdale line.

A proposal is under consideration for the construction of a new line from Vancouver through Mission City as far east as Hatzic following the Dewdney trunk road. The line would be about 10 miles long. (Dec., 1909, pg. 929.)

Calgary, Alta.—A bylaw has been approved by the taxpayers authorizing an expenditure of $40,000 for the improvement of the municipally owned street railway. Plans for the extension of the line are being prepared by the City Engineer. They involve the extension of the existing lines to some of the residential sub-divisions. (Sept., 1909, pg. 683.)

Calgary Southwesterly.—Application is being made to the Dominion Parliament to incorporate a company to construct a railway from Calgary southwesterly to Sheep Creek, thence southerly to connect with the railway running through Crow's Nest Pass; to erect telegraph and telephone lines, and to utilize water and steam power for generating electricity. W. L. Walsh, Calgary, Alta., is solicitor for applicants.

Chatham, Wallaceburg and Lake Erie Ry.—During 1909 the company laid four miles of new track, from Plain Court Jct. to Plain Court, Ont. It has under survey an extension of six miles from Cedar Springs to Blenheim. (Dec., 1909, pg. 929.)

Cornwall Electric St. Ry.—An agreement has been signed between the company and the Cornwall township council under which the company receives a franchise to extend its line up the West Front road, over Wood's Hill to the Ottawa and New York Ry. station.

Edmonton Radial Ry.—The city council, owning the E.R.R., laid track on 5.17 miles of its streets during 1909, distributed as follows:—from Alberta Ave. to packing plant, 2.52 miles; from Ninth St. and Jasper Ave. to 21st St., 0.50 mile; from First St. to Eighth St. and Vermillion Ave., one mile; from Syndicate St. to Namayo and Jasper Ave., 1.15 miles. No further construction is contemplated at present. (Oct., 1909, pg. 769.)

Grand Valley Ry.—With a view of improving the line between Brantford and Paris, Ont., the company proposes to do away with its present track at the entrance to the town, where there is a steep hill, and locate it some distance westerly and along the G.T.R. This alteration will effect a saving of about a mile in distance. It is also proposed to erect a new and commodious station in Paris, on the site of the present building. With reference to the projected line from Brantford to Port Dover, the Manager stated Dec. 8 that the company intended to start construction in the spring and to have the line completed by the fall. (Dec., 1909, pg. 929.)

The Guelph Radial Ry., which is owned by the City of Guelph, has been directed by the Ontario Railway and Municipal Board to construct a steel bridge over the Speed River, on the Dundas Road. The work will be done during the winter if the necessary steel can be obtained. (Nov., 1909, pg. 847.)

The Hull Electric Co. laid 2.25 miles of new track during 1909, between Laurier Ave. and Main St. (Dec., 1909, pg. 929.)

The International Transit Co. during 1909 laid new track from Upton Road to Pine St., Sault Ste. Marie, Ont., bringing its total to 4.01 miles.

The Kingston, Portsmouth and Cataraqui Ry. ceased running its cars in the city Nov. 23, following a resolution of the City Council not to enter into a contract for the supply of power for longer than three years, except it had power to cancel the agreement on giving six months' notice in the fourth and fifth year. On the following day the company commenced to take up the tracks at the car barn, with the result that negotiations as to power were resumed. An agreement was finally arrived at on the basis of the city's terms, the new clause providing that the company will pay $500 interest and depreciation if two new boilers are needed in the power house. The car service was renewed Nov. 27. (Dec., 1909, pg. 929.)

Lake Erie to Owen Sound.—A proposition has been laid before the Brantford, Ont., city council for the construction of an electric railway to Lake Erie points and Owen Sound. J. S. Clark, who is interested in the scheme, addressed the council recently, but owing to remarks in his address concerning another railway the matter was adjourned to Dec. 28.

Lethbridge, Alta.—A proposition has been submitted to the city council by the Lethbridge Radial Ry., for a franchise giving it an entrance into the city for its lines. The points to be connected up are Diamond City, Raymond and the Royal Collieries. The company submitted its proposition in the form of a bylaw, among the provisions of which was one under which the council could acquire the lines at cost, less depreciation, at the end of the term. At a meeting of ratepayers, Nov. 27, the bylaw came up for discussion. The general feeling was in favor of the construction of a line in the city by the council, but it was stated that such a line would not pay unless there were radial lines connected with it, which the city could not construct. No decision was reached, but it was decided to hold another meeting to consider the question. (Dec., 1909, pg. 929.)

London and Lake Erie Ry. and Transportation Co.—The bill to incorporate a company with this title for the purpose of taking over the rights of the South Western Traction Co. and extending its lines, has been under consideration by the St. Thomas City Council. The company is asking power to construct its lines through the city of St. Thomas, and to sell or lease electric power, etc. The council decided to oppose the bill, with the object of having clauses inserted protecting the city's rights, as the owner of a street railway line and an electric power plant. (Dec., 1909, pg. 931.)

London and Lake Erie Ry. and Transportation Co.—The transfer of the South Western Traction Co.'s property in accordance with the terms of the recent purchase was completed Dec. 15. It is stated that $150,000 will be spent during the year in correcting grades, improving curves and purchasing additional rolling stock. The following committee of directors has been appointed to manage the line: M. A. Verner, Brantford; W. S. Dinnick, W. K. George, G. B. Wood, S. C. Smoke, Toronto; T. H. Purdom and J. Milne, London, Ont. It is not intended to make any immediate change in the staff, S. H. Mower being retained as Manager. (Dec., 1909, pg. 931.)

Moncton Electric Ry., Heat and Power Co., Moncton Electric Tramway.—At a meeting of the directors, Dec. 2, Dr. Henderson of the New Brunswick Oilfields Co. took up the option he secured a short time previously on the charter for a street railway. The price paid for the charter is said to have been $10,000. It is said that Dr. Henderson is acting for a British company. He left Moncton Dec. 4 for England, and it is said that he will arrange for starting construction in the spring. (Oct., 1909, pg. 769.)

Montreal and Southern Counties Ry.—Five miles of track have been laid to date upon this railway, which mileage is now being operated. Of this 3.5 miles represents the line from Montreal to and over the Victoria Jubilee Bridge to the St. Lambert boundary, and the remaining 1.5 miles the distance from St. Lambert to Montreal South. The company has under construction an extension from St. Lambert to Longueuil, four miles. The contractors for the extension are Bremner and Carriere, Montreal.

The company received notification Dec. 7 that the Lieut.-Governor had signed the bylaw recently passed by Montreal South giving permission for the line to be constructed through that municipality. The work has already been done and cars are being operated.

Application is being made to the Dominion Parliament to extend the time for the completion of the lines authorized by chap. 56 of the statutes of 1897 and acts amending same. (Dec., 1909, pg. 931.)

Montreal Central Terminal Co.—Application is being made to the Dominion Parliament for an extension of time for the construction of the authorized works, and to authorize agreements or amalgamation with other railway, light, heat, power, telegraph and telephone companies, and with municipalities.

The Montreal Park and Island Ry. added 5.33 miles of new tracks during 1909, distributed as follows:—from Henderson's to St. Vincent de Paul, 2.55 miles; on St. Denis, 1.39 miles; on Pie IX., 0.43 mile; and in Cote la Visitation, 0.96 mile. (Dec., 1908, pg. 891.)

The Montreal St. Ry. during 1909 laid 1.60 miles of new track in short lengths on different streets.

The company has been directed to contribute $15,000 towards the construction of a subway under the C.P.R. at St. Lawrence Boulevard, St. Louis de Mile End.

Press reports stated recently that plans had been completed for the construction of shops in the northern part of the city at a cost of $1,000,000, the buildings to consist of car-building, machine, electrical and winding, blacksmith and paint shops, and a large building for stores and material. These reports have not been confirmed. (May, 1909, pg. 367.)

The Nelson Street Ry. Co. was incorporated Sept. 9, 1909, with an authorized capital of $50,000 to carry on a street railway, light and power business in Nelson, B.C. It has secured running powers over the line formerly in existence but which has not been operated for over a year. The line is about two miles long, and it is proposed to extend it about a

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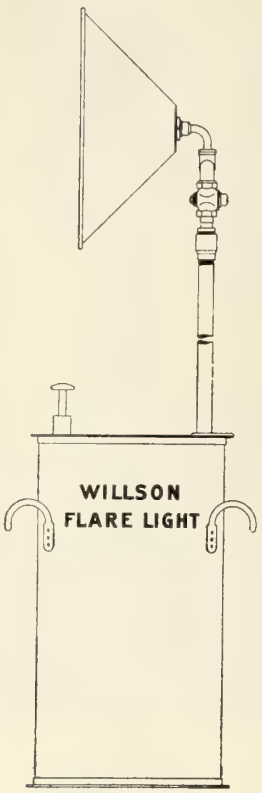

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mile and a half. The company is to raise $25,000 by common stock, and $25,000 by 6% bonds, which are to be guaranteed by the city, in return for which the city will hold a mortgage on the line and all the company's property. A bylaw confirming the agreement has not yet been submitted to the taxpayers. The directors are:—G. W. McBride, W. G. McMorris, W. Waldie, J. E. Taylor, H. Selous, A. Jeffs, W. P. Tierney, R. A. Brown, A. S. Horswell, H. Wright, and E. B. McDermid, the Secretary-Treasurer. (Dec., 1909, pg. 931.)

Niagara Falls to Dunnville, Etc.—Application is being made to the Ontario Legislature to incorporate a company to construct an electric railway from Niagara Falls, through Stamford, Thorold, and Crowland tps., Welland, Humberstone, Wainfleet, Moncton and Sherbrooke tps., to Dunnville, and a branch from the main line through Wainfleet and Pelham tps. to Fenwick village, and through Pelham and Thorold tps. to the main line at Thorold; to manufacture electric power; to erect telegraph and telephone lines, etc. H. A. Rose, Welland, Ont., is solicitor for applicants.

The Niagara, St. Catharines and Toronto Ry.'s new line between Welland and Port Colborne, Ont., is expected to be completed early in the year. The steel rails were received from Sault Ste. Marie, Dec. 17. Surveys are being made for an extension to Fort Erie. The company has changed the schedule on the run between Falls View and Montrose, the cars being now run every hour instead of every 20 minutes as formerly. In consequence of this the Stamford township council has informed the company that unless it restores the former service the tracks must be taken up. (Dec., 1909, pg. 931.)

Ottawa and St. Lawrence Ry.—We are advised that J. McFarlane, referred to in our last issue as being a director of this company promoting the construction of an electric railway from Ottawa to Morrisburg, Ont., is not connected with the O. and St. L. Ry., but with another company. The O. and St. L. Ry. has a charter for the construction of a belt line of railway from Ottawa to the St. Lawrence River through Morrisburg and back to Ottawa, a total distance of about 255 miles. Surveys have been made for about 45 miles from Ottawa South to Arnprior, but no surveys have been made between Ottawa and the St. Lawrence. It is this company for which it is said that the capital has been subscribed in London, England. (Dec., 1909, pg. 931.)

Ottawa, Rideau Valley and Brockville Ry.—Application is being made to the Dominion Parliament to incorporate a company with this title with power to construct a railway, to be operated by electricity or other motive power, from Ottawa to Brockville; to operate a steam ferry across the St. Lawrence River to Morristown, N.Y.; and a branch line or extension of the railway from Ottawa to High Falls, Que. The promoters are also asking authority to generate electrical power and to distribute the same. The bill declares the works authorized to be for the general advantage of Canada. D. H. McLean, Ottawa, is solicitor for the applicants. (See, also Ottawa, Brockville and St. Lawrence Ry., Nov., pg. 829).

People's Ry.—The Strafford, Ont., City Council decided Dec. 6 to defer the further consideration of the proposed bylaw to aid in the construction of this projected electric railway by taking preferred stock to the amount of $90,000. A resolution was passed by the Waterloo, Ont., Board of Trade, Nov. 30, favoring the granting of concessions and financial assistance to the company for an extension of the line from Baden to Waterloo. (Dec., 1909, pg. 931.)

Port Arthur and Fort William Electric Ry.—The commission having charge of this railway laid 2.5 miles of new track during 1909. One mile was laid in Port Arthur, from Cumberland St. to Dawson Ave., and 1.5 miles in Fort William, being the West Fort loop to the Canada Iron Corporation's works. The commissioners have under consideration the construction of an extension from West Fort to the G.T.P.R. terminals. (Dec., 1909, pg. 931.)

Quebec and Saguenay Ry.—Instructions are said to have been given for the revision of the plans for the construction of the projected electric railway from St. Joachim, the terminus of the Quebec Ry. Light, Heat and Power Company's line to Murray Bay. The work will be done by E. A. Evans, General Manager and Chief Engineer of the Q.R.L. and P. Co. The route of the proposed line, for the greater part of its course, is along the bank of the St. Lawrence, and as this is steep and mountainous rock, the ledge for the railway track is to be made on the side of the mountains by blasting off the rock, instead of by tunnelling, if it is found that the ice in winter will not interfere with such a track. For the purpose of ascertaining this, cribwork will be erected in certain localities, upon which the action of the ice can be tested. It is said that the work of constructing the permanent line will be started in the spring. (Sept., 1909, pg. 683.)

The St. John Ry. has under consideration the construction of an extension from the north end of St. John, N.B., to Milledgeville, three miles. In conjunction with the Dominion Engineer, W. Z. Earle, Manager, made an inspection of the suspension bridge, Nov. 24, on which it is desired to lay tracks. It is stated that they found the bridge in rather bad shape, and that considerable repairs will have to be made on it before tracks can be laid. (Sept., 1908, pg. 665.)

St. Thomas Street Ry.—The St. Thomas, Ont., City Council passed a bylaw Dec. 7 asking the taxpayers to vote, at the municipal elections, $25,000 for the improvement of the street railway. Of this it is proposed to spend $12,000 on extensions and improvements. (Dec., 1909, pg. 931.)

The Sarnia St. Ry. during 1909 laid a second track on Front St., and constructed an extension of 1,800 ft. from George St. to Wellington St. (June, 1908, pg. 431.)

Sherbrooke Street Ry.—The city council of Shebrooke, Que., is considering a proposition for granting a new franchise to a new company. The proposition was submitted by B. W. Hibbard, representing a company which is being formed to take over the rights and franchises of the present company, to improve the existing lines and to extend the line to Magog, Bromptonville and Windsor Mills. The new lines in the city would have a length of from eight to 10 miles. A franchise extending over 60 years was asked, the company to be free from taxation for 30 years. The council offered to sell to the proposed company its right over the Westbury power for $22,200. The matter is still under consideration.

Toronto Eastern Ry.—The names of the applicants to the Dominion Parliament for a charter of incorporation with this title to construct an electric railway from Port Hope to Toronto are:—T. E. Kaiser, W. F. Cowan, R. McLaughlin, Oshawa; C. H. Downey, Whitby; R. R. Mowbray, Kinsale. The Toronto City Council has decided to oppose the bill. (Nov., 1909, pg. 831.)

Toronto Tube Railway Plans.—In connection with the plans for the construction of a system of tube railways in Toronto a proposal was made to the City Council Nov. 29 to construct and maintain subway and radial lines according to the plans accompanying the report of the special committee of the council which investigated the matter. The term of the franchise would not be for longer than the term of the franchise of the Toronto Ry. Co. At the expiration of that company's franchise the city would have the option of taking over the property of the tube company at the actual cost with a percentage to the contractors. If the city did not take over the lines the undertaking would be continued by the company. (Dec., 1909, pg. 929.)

The Winnipeg Electric Ry. during 1909 laid 4.037 miles of track as follows:—Dufferin Ave., 13,672 ft.; Academy Road, 2,452 ft.; Osborne St., 1,600 ft.; Marion St., 2,778 ft.; Notre Dame Ave. West, 818 ft.; all double tracks. (Dec., 1909,

Air Brakes for Electric Cars

On Nov. 25 the Board of Railway Commissioners' Secretary notified companies under the Board's jurisdiction that the Board would on Dec. 7 consider the question of air brake equipment on the Hamilton & Brantford Ry. and the Hamilton Radial Electric Ry. and also a proposed order requiring all electric railways subject to the Board's jurisdiction to equip their cars with automatic air brakes as well as hand brakes as an additional safeguard in case of damage or breakage to the air brake equipment. The President of the Canadian Street Rys. Association, Mr. McDonald, wrote the Board's Secretary suggesting that the hearing be deferred and that the question be taken up by one of the Board's officials with the Association, so that it might be thoroughly gone into and some conclusion recommended to the Board. The Board's Secretary replied that the request would be considered when the case came up for hearing.

At the Board's sitting on Dec. 7, Col. H. H. McLean, K.C., M.P., one of the Association's counsel, requested that the hearing be adjourned on account of the short notice given to companies, and that the whole question be referred to the Board's Chief Operating Officer to hold a conference with the Association's Executive Committee, so that it might be fully discussed. The Board granted an adjournment of the hearing to Feb. 4, and in the meantime the Association's Executive Committee will meet the Chief Operating Officer and go into the whole question. The Association believes that air brakes are unnecessary and impractical on single truck cars.

Electric Ry., Finance, Meetings, Etc.

British Columbia Electric Ry.—Gross earnings for Oct., 1909, $264,306; operating expenses, $131,679; net operating earnings, $132,627; renewal funds, $16,394; net earnings, $116,233; approximate income from investments, $16,500; net income, $132,733, against $197,630 gross earnings; $96,075 operating expenses; $101,555 net operating earnings; $14,443 renewal funds; $87,112 net earnings; $13,550 approximate income from investments; $100,662 net income for Oct., 1908. Aggregate gross earnings for four months ended Oct. 31, 1909, $967,172; net earnings, $454,296, against $735,211 gross and $356,210 net for same period 1908.

A dividend at the rate of 8% for the year was paid, Dec. 9, 1909, on the deferred ordinary stock, for the half year ended June 30, 1909.

Edmonton Radial Ry.—Traffic receipts for Nov., 1909, $9,570.31, against $1,613 for Nov., 1908. The number of passengers carried in Nov., 1909, was 229,798 against 37,362 in Nov., 1908.

Halifax Electric Tramway.—Traffic receipts for Nov., 1909, $14,603.57, and for two weeks ended Dec. 14, $6,900.92, against $12,929.44 and $6,400.40 for same periods 1908.

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The Ontario Government received $416,936 from taxes levied on railways in the province during the last financial year, against $400,227 in the previous year. Of this $30,000 is applied towards the expenses of the Ontario Railway and Municipal Board.

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The Hamilton, Waterloo and Guelph Ry. Co. has given notice that in addition to the other powers for which it is applying to the Dominion Parliament, it will ask for powers to increase its capital stock.

London St. Ry.—Gross earnings for Nov., 1909, $18,964.07; expenses, $14,-211.51; net earnings, $4,752.56; deductions, $2,363.05; net income, $2,389.51, against $17,618.26 gross earnings; $13,-414.73 expenses; $4,203.53 net earnings for Nov., 1908. Aggregate gross earnings for 11 months ended Nov. 30, 1909, $221,685.18; expenses, $154,361.38; net earnings, $67,323.80; deductions, $26,-445.81; net income, $40,877.99, against $214,474.24 aggregate gross earnings; $152,718.06 expenses; $61,756.18 net earnings for same period 1908.

Montreal St. Ry.—Passenger earnings for Nov., 1909, $323,446.50; miscellaneous earnings, $11,424.77; total earnings, $334,-871.27; operating expenses, $200,137.56; net earnings, $134,733.71; city percentage on earnings, $11,814.27; interest on bonds and loans, $14,471.85; rent leased lines, $498.67; taxes, $4,000; total charges, $30,784.79; surplus, $103,948.92; expenses per cent. of earnings, 59.76, against $292,848.63 passenger earnings; $8,729.51 miscellaneous earnings; $301,578.14 total earnings; $180,682.03 operating expenses; $120,896.11 net earnings; $10,404.42 city percentage on earnings; $16,113.30 interest on bonds and loans; $444.43 rent leased lines; $2,700 taxes; $29,662.15 total charges; $91,233.96 surplus; 59.91 expenses per cent. of earnings, for Nov., 1908. Aggregate total earnings for two months ended Nov. 30, $688,878.22; operating expenses, $374,872.53; net earnings, $314,005.69; total charges, $61,864.27; surplus, $252,141.42; expenses per cent. of earnings, 54.42; against $630,186.26 aggregate total earnings; $346,106.05 operating expenses; $284,080.21 net earnings; $59,842.43 total charges; $224,237.78 surplus; 54.92 expenses per cent. of earnings; for same period 1908.

Ottawa, Brockville and St. Lawrence Ry.—A new call of 5%, in lieu of a second call of 2% and a third call of 3% improperly made upon the shares of the company, has been made by the directors, to be paid by Jan. 2. The offices of the company are 38 Sparks St., Ottawa, and the Secretary is N. Belanger. (Nov., 1909, pg. 829.)

The Quebec Railway, Light, Heat and Power Co., the incorporation of which was announced in our Dec. issue, has an authorized capital of $10,000,000 with head office at Montreal. In it are merged the Quebec Ry. Light and Power Co., Jacques Cartier Power Co., Quebec Gas Co., Frontenac Gas Co., and the Canadian Electric Co. The President is W. G. Ross, Managing Director Montreal St. Ry., and the Vice President, Frank Ross, of Quebec. The new company will have a substantial amount of cash at its credit to carry out proposed extentions and also a reserve of bonds for future development.

South Western Traction Co.—under the terms of the judgment respecting the sale of the property, bondholders and others claiming to have encumbrances on the S.W.T. Co. were required to produce their bonds or debentures with all unpaid coupons, and any other securities at the offices of the London and Western Trusts Co. by Dec. 31, 1909, for adjudication. The claims will be adjudicated by the Local Master of the High Court at London, Jan. 7. The formal transfer of the property was made Dec. 15 to the recent purchasers, who paid the balance of the purchase money into court. (See also London and Lake Erie Ry. and Transportation Co.)

Toronto Ry.—Gross earnings for Oct., 1909, $332,976; operating expenses, maintenance, etc., $169,067; net earnings, $163,909, against $306,857 gross earnings; $166,027 operating expenses, maintenance, etc.; $140,830 net earnings for Oct., 1908.

Gross earnings for Nov., 1909, $325,-416.70; expenses, $168,112.30; net earnings, $157,304.40, against $286,957.43 gross earnings; $146,643.99 expenses; $140,-313.44 net earnings for Nov., 1908. Aggregate gross earnings for 11 months ended Nov. 30, 1909, $3,515,684.40; expenses, $1,789,199.24; net earnings, $1,726,485.16, against $3,223,036.57 aggregate gross earnings; $1,708,838.23 expenses; $1,514,198.34 net earnings for same period 1908.

Winnipeg Electric Ry.—Gross earnings for Oct., 1909, $247,000; operating expenses, $123,800; net earnings, $123,-200, against $207,100 gross earnings; $102,000 operating expenses; $105,100 net earnings for Oct., 1908. Aggregate gross earnings for 10 months ended Oct. 31, 1909, $2,087,900; net earnings, $1,044,900, against $1,735,400 gross and $869,800 net for same period 1908.

Electric Railway Notes.

W. Murray has been elected President Toronto Street Railwaymen's Union for the current year.

The Hull Electric Co. has ordered two 21 ft. closed vestibule cars from the Ottawa Car Co., Ottawa.

The Nelson, B.C., St. Ry. Co. is asking tenders for two semi-convertible cars. and for station switching equipment.

The B.C. Electric Ry. is reported to have ordered five semi-convertible, pay-as-you-enter cars, 28 ft. long, in the U.S.

The Montreal and Southern Counties Ry. has received two 40 ft. centre aisle interurban cars from the Ottawa Car Co.

J. F. Goodwin has been appointed Superintendent Sherbrooke St. Ry., Sherbrooke, Que., vice P. J. Slattery resigned.

The Dominion Power and Transmission Co. is reported to contemplate purchasing 10 cars for service on the Hamilton St. Ry.

The Port Arthur and Fort William Electric Ry. commissioners have refused the demand of the motormen and conductors for increases in wages for the first and second year men.

The North Toronto town council passed a resolution, Dec. 16, to take a plebiscite on Jan. 1 on the question of a Sunday car service on the Metropolitan Division of the Toronto & York Radial Ry.

The Supreme Court dismissed the appeals of the Ottawa Electric Ry., Dec. 14, in two cases arising out of the accident on its Britannia line in May, 1908.

The London and Lake Erie Ry. and Transportation Co., formerly the South Western Traction Co., is reported to have decided to purchase four additional interurban cars during this year.

The Hull Electric Ry. has ordered three open cars, with centre aisles, walk-over seats, slat construction, air and hand brakes, white ash finish, with bodies 38 ft. long, vestibule at each end, 5 ft. 2 ins. long; wheel base, 6 ft.

The St. Thomas, Ont., Street Ry. Commissioners contemplate the purchase of two new cars, the installation of new motors, and the alteration of some cars, for which a bylaw to provide $13,000 is to be submitted to the taxpayers.

A. J. Macdonald, at one time in the Montreal St. Ry. service, and latterly Superintendent Mexico Tramway Co., has been appointed Superintendent City Division Quebec Railway, Light and Power Co., vice H. L. Bartlett, resigned.

The Board of Railway Commissioners decided Dec. 7 to postpone until Feb. 4 the consideration of the question as to whether electric railways coming under its jurisdiction should be compelled to fit cars with air brakes in addition to hand brakes.

L. Stevens, conductor, and J. Damlancourt, motorman, Montreal St. Ry., were arrested Dec. 3, charged with theft from, and damages to, fare boxes, while in charge of the fare box collecting car, between divisional centres and headquarters.

The Quebec courts refused, Nov. 24, to grant an injunction applied for by the Montreal city council to prevent the Montreal St. Ry. carrying freight on its lines other than for the city. Justice Fortin held that everyone as well as the city was profiting by the street railway carrying freight.

Three consulting engineers from New York spent some time in Montreal early in Dec., and it is said that the object of their visit was to obtain information upon which to prepare plans and estimates either for an elevated or an underground electric railway system in the centre of the city.

W. N. Warburton, ex-manager Windsor, Essex & Lake Shore Rapid Ry., sued the company recently for two months' pay, $250, and for $75 for additional board. The Local Master at Windsor disallowed the claim for board and allowed the company $110 on a counter claim.

Wilford Phillips, Manager Winnipeg Electric Ry., is reported to have stated, Dec. 15, that a satisfactory agreement had been arrived at with the city regarding the erection of poles on Hespeler Ave., and that the company would, in due course, make an arrangement for the use of the conduits now under construction.

During the recent suspension of power production at the Winnipeg Electric Ry.'s power plant at Lac du Bonnet, caused by the breaking of one of the penstocks, a service was operated on the Winnipeg, Selkirk and Lake Winnipeg Electric Ry., by means of the old locomotive, which was retired when the road was electrified.

The Montreal city council has been complaining of the overcrowding of the Montreal St. Ry. cars, and the company in reply states that this overcrowding is aggravated, if not largely caused by the obstruction to traffic by vehicles getting on the tracks. The company asks the council to direct the police to see that its cars have the right-of-way as provided for in the contract.

The Montreal city council finance committee reported recently that all outstanding accounts with the Montreal Street Ry., except the snow cleaning account, had been settled. The last matter to be settled was the tax account, which had been in dispute for six or seven years. The amount paid in settlement was about $100,000, and the amount outstanding on the snow clearing account is about $60,000.

A Vancouver dispatch of Dec. 16 says "Two years ago Maynard and Sharman, foremen of the British Columbia Electric Ry., were charged with padding the pay roll list with dead men's names. Both left, and Maynard implicated James Milne, Superintendent of the company. The latter was accused and served 18 months. Yesterday Maynard was re-arrested and confessed, exonerating Milne."

The British Columbia Electric Ry., in pursuance of its bonus scheme for employes, by which an amount equal to one-third of the amount available for dividend, after 4% has been made on the common stock, is distributed among employes who have been in the continuous service of the company, from July 1, of the year previous to the distribution, has this year distributed about $50,000, the number of men participating being

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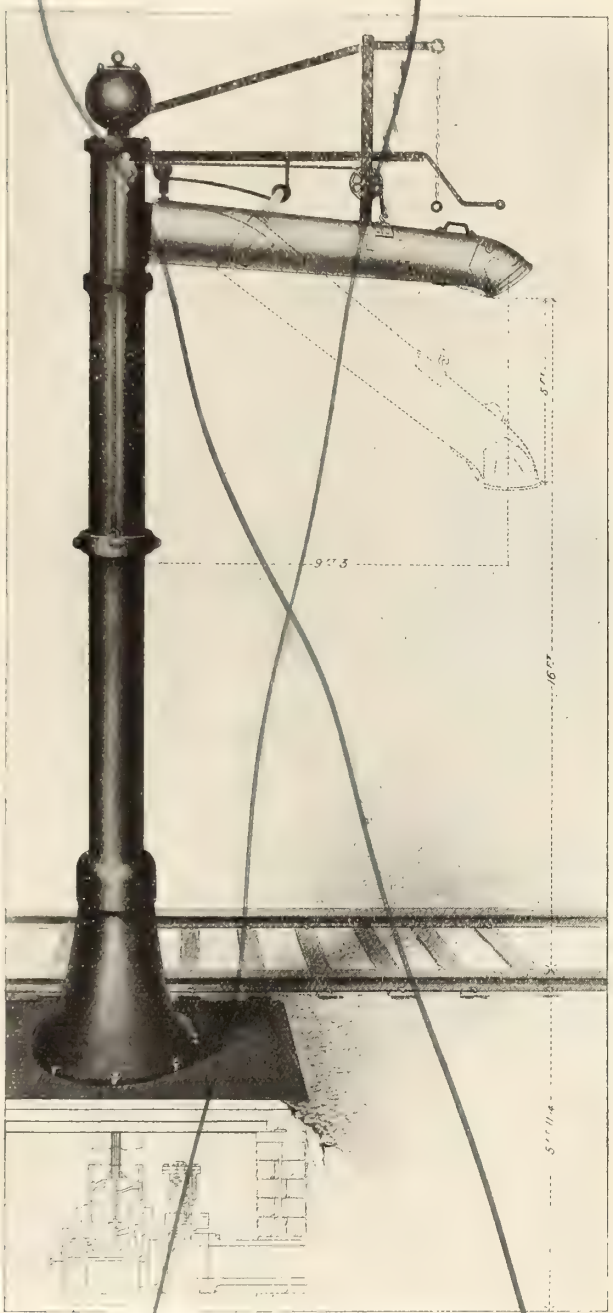

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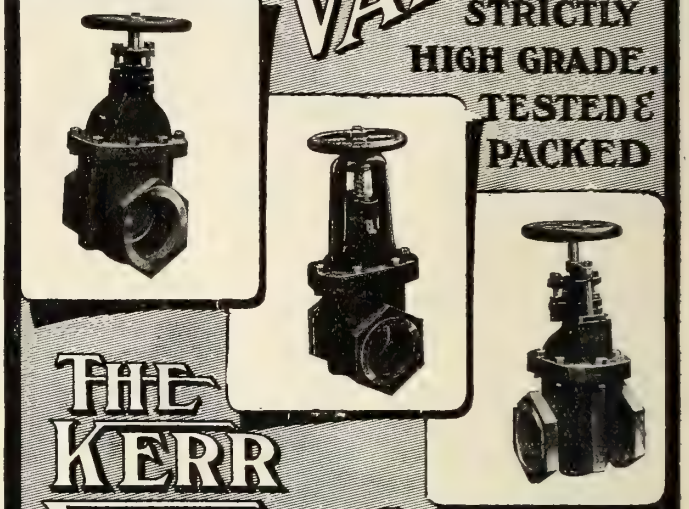

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nearly 900, the individual amounts received being $58.10.

The enquiry into the cause of the disaster on the British Columbia Electric Ry., whereby 15 passengers lost their lives recently, was concluded, Dec. 5, 1909, the verdict of the jury declaring that there was no criminal neglect on the part of the train crew, and suggesting that the company adopt increased safeguards until a method is found of keeping the tracks free from freight cars at night, and also that traffic on interurban lines should be governed by standard rules approved by the Board of Railway Commissioners.

The Supreme Court of Montreal recently awarded $57.59 damages against the Montreal St. Ry., for injury to a horse, which was frightened by a band being played on one of the company's cars, and which ran into a plate glass window. The claim was for $115.17, but it was found that there was contributory negligence. In delivering judgment, Justice Bruneau stated that there was no clause in the company's franchise which gave it the right or allows it to operate an electric band car through the streets for advertising purposes.

Electric Railway Track Laid in 1909.

Official reports received by us to Dec. 20, as to new track laid on electric railways during 1909, in several of which the figures were estimates, show that 48.50 miles were laid by 12 companies. The figures for the Winnipeg Electric Ry. represent double track replacing temporary single track.

	Miles.	Miles.
BRITISH COLUMBIA ELECTRIC RY.		
Extensions in Vancouver, etc., est.	5.00	
New Westminster to Cloverdale, est.	12.00	17.00
CALGARY (MUNICIPAL) ELECTRIC RY.		
Various lines (estimated)		5.00
CHATHAM, WALLACEBURG & LAKE ERIE RY.		
Pain Court Jct. to Pain Court		4.00
EDMONTON RADIAL RY.		
Alberta ave. to packing plant	2.52	
9th and Jasper to 21st street	.50	
1st st. to 8th and Vermillion	1.00	
Syndicate to Namayo and Jasper	1.15	5.17
HULL ELECTRIC CO.		
Laurier ave. to Main st.		2.25
INTERNATIONAL TRANSIT CO.		
Upton rd. to Pine st., S. S. Marie		0.31
MONTREAL & SOUTHERN COUNTIES RY.		
Montreal to St. Lambert	3.50	
St. Lambert to Montreal South	1.50	5.00
MONTREAL ST. RY.		
Short extensions on various streets		1.60
MONTREAL PARK & ISLAND RY.		
Henderson to St. Vincent de Paul	2.55	
St. Denis	1.39	
Pie IX.	.43	
Cote La Visitation	.96	5.33
PORT ARTHUR & FT. WILLIAM E. RY.		
Extension in Port Arthur	1.00	
Extension to Canada Iron Corp.	1.50	2.50
SARNIA ST. RY.		
George st. to Wellington st.		0.34
Total (in part estimated)		48.50
WINNIPEG ELECTRIC RY.		
Dufferin ave.	2.59	
Academy road	0.46	
Osborne st.	0.33	
Marion st.	0.52	
Notre Dame ave. west	0.17	4.07

DIVIDEND NOTICE.

The Northern Navigation Company of Ontario, Limited

The Board of Directors have to-day declared a yearly dividend at the rate of 8 per cent. per annum, payable January 15th, 1910, to shareholders of record as of January 10th, 1910.

Transfer books will be closed from the 11th day of January, 1910, until the 25th day of January, 1910.

The Annual General Meeting and a Special General Meeting will be held in the Board Room of the Traders Bank of Canada in the City of Toronto on Tuesday, the 25th day of January, 1910, at 2.30 o'clock in the afternoon.

H. H. GILDERSLEEVE,
Manager.

Toronto, December 29th, 1909.

Telegraph and Cable Matters.

W. M. Manchester, formerly C.N.R. telegraph operator at Rainy River, Ont., has been sentenced to two years imprisonment, for manipulating tickets and cash.

The Michigan Central Rd. is reported to have granted a 14% increase in wages to its telegraph employes, and the Pere Marquette Rd., is stated to be following suit.

D. G. Sturrock, Manager C.P.R. Telegraphs, Toronto, accompanied by his wife and family, left Toronto at the end of Nov., for a trip to the Pacific coast for the benefit of his health.

The Illinois Central Rd., has declined to increase the wages of its telegraph operators, and by consent, the matter is being submitted to the Chairman of the Interstate Commerce Commission and the Federal Labor Commissioner.

The C.P.R. Telegraph Department has opened offices at Deleau, Kélloe, Melbourne, Niverville, Purvis, Man.; Beaucage, Delamere, Moffat, Ont.; Adanac, Keeler, Kelso, Killaley, Phippen, Rokeby, Stockholm, Vandura and Wynyard, Sask.

The Temiskaming and Northern Ontario Ry. telegraphers have been granted increases in wages, for the current year, amounting to from 10 to 15%. Negotiations between the Commissioners and the employes have been in progress during the past six months.

A board of conciliation has been appointed, consisting of J. E. Atkinson, Chairman, W. Nesbitt, K.C., and W. T. J. Lee, all of Toronto, to enquire into the differences between the G.T.R. and its telegraphers and station agents stationed east of Detroit.

The Board of Railway Commissioners has dismissed the appeal against the telegraph rates which go into effect July 1, providing that code words used in messages of more than five letters shall be charged at an increased rate. Under the present rates, the limit is 10 letters.

Wireless telegraph messages were exchanged between the dual ports, Fort William and Port Arthur, Ont., and Duluth, Minn., Dec. 2, communication being established with the latter city's station by means of the steamboat H. P. Bope. It is stated that negotiations are in progress for the establishment of wireless telegraph stations at the head of the lakes.

The British and Colonial Press Service, Ltd., has been incorporated under the Dominion Companies Act, with a capital of $100,000 and office at Montreal, to receive and transmit news from, and to, all points in the British Empire. For this purpose, it is stated, a contract has been entered into with the Marconi Wireless Telegraph Co., covering a number of years.

The Dominion Government wireless telegraph station at Ikeda, B.C., is being operated regularly, and with success, transmission to Victoria being made, for the most part, over land. Material is being assembled at Triangle Island for the construction of another station, similar to those at Pachena and Gonzales Hill. The Prince Rupert station was expected to be ready and in operation by the end of 1909.

The Marine Department report for the year ended March 31, 1909, which has been issued recently, shows that 20 wireless telegraph stations were operated by the Department. They are situated at Cape Race and Cape Ray, Nfld.; Heath Point, Anticosti; Whittle Rocks, Point Amour, Belle Isle, Point Rich, in the Gulf of St. Lawrence; Father Point, Clarke City, Fame Point, in the River St. Lawrence; Sydney, Cape Sable, Pictou, N.S.; Cape Bear, P.E.I.; Partridge Island, N.B.; Point Grey, Victoria, Pachena, Estevan and Cape Lazo, B.C.

Grain Elevator Notes.

The Vancouver Milling Co. has commenced work on the construction of an elevator of 50,000 bush. capacity at Granum, Alta. This will make five elevators at that point.

A bill to amend the Inspection and Sale Act by striking out the words "or cargo" in sections 98 and 99, and by reconstituting the Grain Survey Board, was given a first reading in the House of Commons, on Nov. 29, but the Minister of Agriculture announced its withdrawal.

The Dominion Millers' Association is applying to Parliament for amendments to its charter, to add to its powers for holding real estate; to enable it to manufacture and deal in grain products, own and operate grain elevators, vessels, wharves and shares in vessels in connection with its business, and for other purposes.

The Goderich Elevator and Transit Co., proposes to construct a cement and steel annex to its present elevator at Goderich, Ont., thus increasing its capacity by 500,000 bush. A by-law is being submitted to the ratepayers for the exemption of the company's present plant and the proposed additions, from all municipal taxation for ten years from Jan., 1911.

The Grand Trunk Pacific Elevator Co.'s elevator at Tiffin, Ont., which was fully described in our Dec., 1908, issue, has made some exceedingly good records. During Nov., 1909, the Chicago and St. Lawrence Steam Navigation Co.'s steamboat, E. B. Osler, with 528,000 bush. was unloaded in 21 hrs., an average of 25,143 bush an hour. This is stated to be a record for unloading at any Canadian elevator, and also the largest load of grain ever carried on a Canadian vessel. Several other quick unloadings took place throughout the season, averaging from 21,000 to 25,000 bush. an hour. The figures quoted include the cleaning up of all grain in the holds. From figures given on another page, it will be seen that over 10,000,000 bush. of grain were received at this point, from the head of the lakes. The elevator was constructed by the John S. Metcalf Co., of Montreal and Chicago.

Among the Express Companies.

The Dominion Ex. Co., is suing the city of Brandon, Man., in respect of the local business tax, claiming that as it pays the provincial corporation tax, it should not be called upon to pay a local business tax in addition.

W. L. Rutledge and W. J. Burgess, the latter formerly a Canadian Ex. Co. employe, are being charged with complicity in the recent robbery at the company's office at Truro Station, N.S., when money and money orders to the value of $15,000 were stolen.

The United States Ex. Co., has issued writs against R. W. Hulbert and O. J. B. Yearsle, Toronto, to recover $622.91, freight on certain goods, or for the return of the goods, and for damages for wrongful conversion, and also to set aside as fraudulent, a bill of sale on the goods made by the former in favor of the latter.

An application by the city of Chatham, Ont., to commit E. Fremlin, Agent Dominion Ex. Co., there, for his refusal to produce books and records of the company in his custody, under a subpœna, in relation to the sending of large sums of money to China by Chinese laundry keepers who are attacking the by-law fixing taxation for such laundries, was dismissed at Toronto, Dec. 7, 1909.

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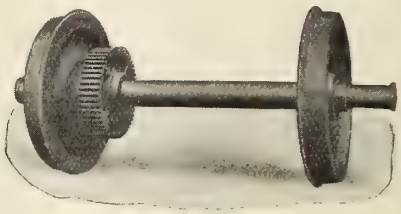

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The Shipping Federation of Canada.

PRESIDENT, H. A. Allan, Montreal; MANAGER, AND SECRETARY, T. Robb, 526 Board of Trade, Montreal.

Dominion Marine Association.

PRESIDENT, C. J. Smith, Montreal; COUNSEL, F. King, Kingston, Ont.

Canadian Association of Masters and Mates.

GRAND MASTER, Capt. F. Scott, Collingwood, Ont.; GRAND SECRETARY-TREASURER, Capt. H. O. Jackson, 376 Huron St., Toronto.

Dominion Marine Association.

Many matters of deep importance to marine interests were considered at the meeting of the Executive Committee of the Dominion Marine Association in Toronto, Dec. 14. It was decided to send a strong deputation to appear before the Senate Committee on Banking and Commerce to oppose the provisions of the insurance bill in so far as it relates to marine interests. It is held that the bill would render it impossible for ship owners to secure insurance, as it is not possible to secure it in licensed companies in Canada. The association maintains that if the bill becomes effective it will mean that all grain would be sent from Duluth to Buffalo. The view of the association as set forth in the Montreal resolution maintained the right of the individual to insure in any quarter he desired, and this, it was held, should be the first principle of any legislation. It was also held that in any insurance the party to be penalized should be only the company soliciting insurance or carrying on business through an established agency in Canada without license.

For many years Ontario boats entering Montreal have been discriminated against in respect to pilotage dues. Any boat from this province entering Montreal has to pay a pilotage charge of $5, and this irrespective of the fact that the pilot's services are never brought into requisition. In regard to boats arriving from any port in Quebec or the Maritime Provinces no such charge is exacted, and the Ontario marine men urge the passing of legislation that will place Ontario in the list of the exempted provinces in respect to pilotage dues. A bill to this end has been introduced in the House of Commons by Mr. Edwards.

Opposition is urged to the tonnage tax imposed this year by U.S. Congress on all boats entering the United States, starting from a Canadian port. For some years the United States Department of Commerce and Labor has been endeavoring to have some such legislation enacted with special reference to ocean-going vessels. Failing in this a clause was slipped in the new tariff and the provisions now apply to lake vessels as well as ocean liners. F. King, Counsel for the Association, has had the matter in hand with counsel for the lake carriers of the U. S., and has had interviews with the Commissioner of Navigation at Washington. Legislation is expected at this session of Congress to exempt the Great Lakes from this law. It is realized that retaliation by Canada would come hard on the heavy U. S. tonnage on the lakes.

The committee considered at length the pending legislation now before the Dominion Government. The association is not opposed to Mr. Sinclair's bill regarding steamboat inspection certificates, and Mr. Brodeur's bill in regard to water carriage of goods also finds favor. This bill corresponds with the Harter Act of the United States, and results from a conference of all interests in the Senate at a previous session of Parliament.

In respect to bill 10, requiring load lines on vessels, the association is not opposed to the measure but to the method of application. If some uniform system of rules for fixing the location of the "Plimsoll mark" is adopted, it would meet with the approval of vessel owners. The proposal to require all steamers to furnish a list of passengers and crew to the Customs officer before leaving port was condemned as impracticable, as was the suggestion in the same bill that two-thirds of the cargo should be in the lower hold.

Bill 11, requiring wireless telegraph installation on lake steamers over 400 tonnage, was opposed, it being held that lake navigation should be exempt from this exaction, as the trips are short and the ships close together. In similar legislation introduced in the U.S. Congress recently, it was held that lake vessels should be exempt.

Bill 54, introduced by Mr. Fisher abolishes the official weighing of grain into vessels at Upper Lake ports. This accords with previous resolutions of the Association, faulty certificates being found more embarrassing than useful.

It was decided to continue to oppose the building of the Long Sault dam near Cornwall, and to require the complete plans and specifications to be submitted in accordance with the undertaking given by the promoters at the last session of the International Waterways Commission on this subject.

Resolutions were adopted thanking the authorities and officials and men for the excellent services given vessels this season on the Lachine Canal—asking for men to handle lines on the following additional locks—the paper mill lock in the Cornwall Canal—the lower entrance of the Morrisburg and Farran's Point Canals, and the head of the Soulanges Canal. Asking for signal lights on Lachine Canal lock gates to indicate whether gates open or closed. Asking for better protection against bad weather at the head of the Soulanges Canal.

The association commends the use of pointed and square top buoys to assist in distinguishing starboard and port painted spar buoys in bad lights; and recommends the method of lighting the Williamsburg Canals on the St. Lawrence, the Morrisburg, Farran's Point and Rapide Plat.

The Empress of Ireland's Disaster.

The cause responsible for the damage sustained by the C.P.R. steamship Empress of Ireland near Ste. Felicite, on the south shore of the Gulf of St. Lawrence, on Oct. 14, while en route to Quebec, has been investigated by Capt. L. A. Demers, acting Wreck Commissioner, with Capt. Jas. Bain and C. Von Koenig as assessors. At the first sitting on Oct. 26 the Captain, Second and Third officers, Quarter Master and Chief Engineer were examined, as well as Capt. Walsh of the C.P.R. Marine Service, and Diver Begin. The evidence showed that the ship's draft at the time of the casualty was 25 ft. forward and 26½ ft. aft, while her speed of 18½ knots an hour, after taking into consideration the strong head wind effect, was estimated to have actually been reduced to 16½ knots over the water. Hazy and foggy weather prevailed from the Straits to Anticosti, but thence forward to the happening it was clear and fine. Cape Magdalen was passed at a distance of 4½ miles, ascertained through a four point bearing, and a course was then set which brought the vessel two miles off Martin River, which distance was also authenticated through a four point bearing, but from Martin River to Cape Chatte the Captain declared that courses steered necessarily varied in accordance with bend of the river and that a distance of two miles from shore was maintained. Off Cape Chatte, however, the distance was found to be 1¾ miles, and as the vessel proceeded, cross bearings were taken on points of land in the vicinity of Les Mechins.

When off Ste. Felicite at 11.04 a.m. a shock was experienced, followed by a rumbling and a grating sound, the vessel heeling slightly to starboard under effect of impact, which listing remains, however, uncorroborated by testimony of some of the witnesses. Although the shock was insufficient to cause serious apprehension the Captain nevertheless ordered helm put hard to port, but immediately countermanded it by the order "Keep your course," the vessel having, it is estimated, in the meantime, swung three points to starboard. Simultaneously with alteration to helm, the speed of ship was reduced to slow, and cross bearings off Matane lighthouse and Ste. Felicite fog station placed the vessel two miles from shore and one mile from Roix Rock, while "no bottom" was reported following a cast of the lead at 17 fathoms. An examination of the ship after she had cleared the obstruction disclosed the fact that leakage was confined to one compartment, and she therefore proceeded on her journey to Quebec harbor, where she was berthed without further mishap. The evidence elicited was unanimous in setting forth that the vessel was navigated with customary skill and precaution, while it was the consensus of opinion in declarations made that the nature of the shock justified the belief that the vessel struck a submerged object—presumably wreckage. Diver Begin, who made a thorough examination of the ship's bottom, and who has had 20 years' experience in similar work, emphatically stated that the damage sustained was not caused by rock but by the vessel coming in contact with submerged wreckage. Taking into consideration the nature of evidence adduced, the Minister of Marine directed that a survey be made of the place where the ship struck, and Commander Miles, R.N., under whose immediate supervision the survey was conducted, submitted a plan indicating soundings taken as well as a report wherein he states that soundings made within a radius of two miles from Roix Rock, embracing position of ship at time of mishap, are exactly as represented on the chart, and furthermore that he has failed to trace even the slightest vestige of a submerged or sunken wreck.

At a second sitting, Oct. 23, counsel representing the owners produced documents and affidavits from experts who had examined in England the nature of the damage to ship, and reported thereon, as follows: Geo. Hepburn & Son, consulting engineers, naval architects and technical referees; Flannery & Given, consulting engineers; H. Smith of H. & C. Grayson, shipbuilders and engineers. These gentlemen after a thorough examination of the ship's bottom, unanimously assert that damage was caused by vessel coming in contact with or passing over a submerged wreck, held in suspension, or some object other than rock. H. Mowatt, Marine Superintendent C.P.R., and H. Butterworth, C.P.R. Supt. Engineer, both made declarations that upon making an examination of the vessel's bottom a small piece of old wood measuring 5 or 5½ inches long was found jammed hard in one of the butt straps on the port side. R. Fayle and W. Braine, who were waiters on the Empress at the time of the mishap, testified to having seen floating wreckage near the ship's side a minute or so subsequent to the shock, which wreckage consisted of a spar approximating 20 ft. long seen on the starboard side, as well as several pieces on the port side, one of which appeared to be part of a deck. J. Lepage, foreman of repair for G. T. Davie & Sons,

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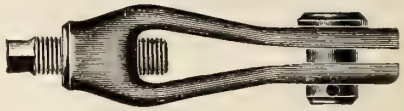

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Maps, as enumerated below, showing these lands in detail, will be sent free on application.

Map No. 1—Winnipeg to Second Meridian	$ 8.00 to $15.00 per acre.
Map No. 2—South-Eastern Saskatchewan, 2nd to 3rd Meridians	10.00 to 25.00 per acre.
Map No. 3—Main Line, 3rd Meridian to Range 10, W. 4th Meridian (generally)	8.00 to per acre.
Map No. 5 South-Western Alberta	8.00 to 15.00 per acre.
Map No. 6—Part of Alberta, Edmonton, Battle and Saskatchewan Rivers Districts—4th Meridian to Range 7, West 5th Meridian	10.00 to 25.00 per acre.
Map No. 7—Part of Western Saskatchewan, 3rd to 4th Meridians	10.00 to 25.00 per acre

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160	Acres at	$ 8.00	per acre,	cash payment	$191.70	first year's interest	$ 65.28	and nine instalments of	$160.00
"	"	9.00	"	"	213.70	" " "	73.46	" "	180.00
"	"	10.00	"	"	239.70	" " "	81 62	" "	200.00
"	"	11.00	"	"	263.60	" " "	89.78	" "	220.00
"	"	12.00	"	"	287.60	" " "	97.96	" "	240.00
"	"	13.00	"	"	311.55	" " "	106.10	" "	260.00
"	"	14.00	"	"	335.60	" " "	114.32	" "	280.00
"	"	15.00	"	"	359.50	" " "	122.44	" "	300.00

Purchasers who do not undertake to go into residence on the land are required to pay one-sixth of the purchase money down, balance in five equal annual instalments with interest at the rate of six per cent. per annum. Interest at six per cent. will be charged on overdue instalments.

F. T. GRIFFIN, Land Commissioner, Winnipeg.

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testified that he had superintended the temporary repairs made to the Empress, and it was his opinion, after a lengthy service in similar work, that the nature of the damage justified him in reaching the conclusion that it could only have been caused by a submerged wreck.

On Nov. 5 the Minister of Marine cabled the High Commissioner for Canada, requesting that the Board of Trade have an examination made of the vessel's hull. T. Miller, Principal Officer of the Board of Trade Surveyor's Office, expresses some doubt as to the nature of the object which caused the damage, and it does not appear to him that the injuries sustained could have been inflicted by the vessel passing over a submerged derelict, but he states that the damage may have been caused by the vessel passing over a very smooth boulder like surface. A. H. F. Young, Principal Officer, states that he failed to detect the slightest indication that the object struck was of a rocky nature. W. Archer, Principal Ship Surveyor of Liverpool, declares that the result of his inspection is not conclusive either way, but he is inclined to the belief that the Empress struck a waterlogged iron vessel. W. Howell, Assistant Secretary of the Board of Trade, states that in accordance with instructions from the Board of Trade the examination of the Empress had been made by the Surveyor of the Department, and as it appeared difficult to form a really definite opinion as to cause responsible for damage sustained, the services of the Principal District Officer as well as those of the Principal Ship Surveyor were called into requisition, and extracts from their individual reports have been cited above.

At a third sitting on Dec. 18 the court decided that in view of the almost unanimous opinion of various experts who thoroughly examined the damaged hull, setting forth that the injuries were incurred by vessel coming in contact with the submerged hull of a derelict probably held in suspension, the Court is of opinion that no blame can be attached to any one for the casualty.

Notices to Mariners.

The Department of Marine has issued the following:—

No. 112. Nov. 17. 292.—Ontario, Lake Huron, entrance to Georgian Bay, Devil Island channel, day beacons established. 293.—Ontario, Georgian Bay, northeast end chart of Key Harbor and its approaches issued. 294.—Ontario, Lake Superior, Otter Island, hand fog horn at light station.

No. 113. Nov. 18. 295.—Ontario, River St. Lawrence, Galops Canal to North Channel, changes in buoyage. 296.—Ontario, Georgian Bay, south end, Mary Ward ledges, intended change in position of westerly buoy. 297.—United States of America, Lake Erie, Detroit River mouth, Bar Point shoal, light vessel moved.

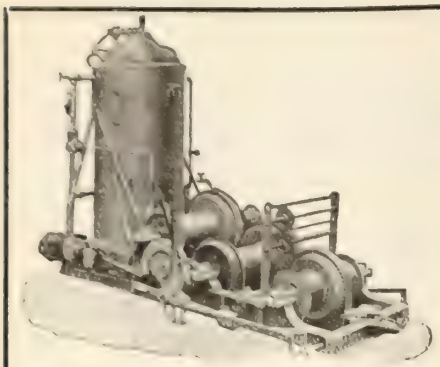
No. 114. Nov. 22. 298.—Ontario, Georgian Bay, south side, Collingwood harbor, shoal spots in dredged channel, caution. 299.—Ontario, Georgian Bay, east side, Victoria harbor, hydrographic information.

LIST OF STEAM VESSELS REGISTERED IN CANADA DURING OCT. AND NOV., 1909.

Name	No.	Where and When Built.	Engines, etc.	Length	Breadth	Depth	Gross Tons	Reg. Tons	Port of Registry	Owners
Amisk	122,275	Selkirk, Man., 1909	Screw 10 n. h. p.	64.0	13.0	4.5	32	21	Winnipeg	Beaver Lumber Co., Winnipeg.
Amigo	122,438	Walkerville, Ont., 1907	" 6 "	41.0	10.3	3.8	19	17	Sault Ste. Marie, Ont.	C. L. D. Sims, Manitowaning, Ont.
Anamoose	126,508	Kaslo, B.C., 1909	" 4 "	70.3	23 0	5.8	68	46	Victoria	E. Cooke, Kaslo, B.C.
A. R. Hellen	126,632	Adams Lake, B.C., 1909	Paddle 9 "	123.5	26.8	4.9	33		Vancouver, B.C.	Adams River Lumber Co , Chase, B.C.
Corinthia	126,289	New York, 1903	Screw 31 "	80.1	16.0	6.6	57	39	St. John, N.B.	R. Thomson, St. John, N.B
Earl Grey	126,525	Barrow-in-Furness, Eng., 1909		265.0	47.7	24.1	2357	930	Ottawa	Department of Marine and Fisheries.
Equal Rights	126,417	Birkendale, Ont., 1909	Screw 1 n. h. p.	42.3	11.2	4.0	14	6	Toronto	R. A. Robertson, Birkendale, Ont.
Exota	126,287	Springfield, N.B., 1909	" 7 "	34.2	9.7	3.3	14	9	St. John, N.B.	W. E. Vaughan, Fredericton, N.B.
F. E. C.	126,522	Sturgeon Falls, Ont., 1907	Paddles 2 "	37.8	12.0	3.3	22	18	Ottawa	F. E. Clark, Sturgeon Falls, Ont.
Frances Martin	126,651	Penetang, Ont., 1909	Screw 3 "	50.3	12.4	5.1	27	13	Midland, Ont	W. Martin, Penetanguishene, Ont.
Francois C.	126,454	Sorel, Que., 1909	" 13 "	86.0	17.1	5.8	126	49	Sorel, Que.	F. Crepeau, Sorel, Que.
Gow Ganda	126,521	Sturgeon Falls, Ont., 1907	" 6 "	46.4	11.3	4.2	25	20	Ottawa	F. E. Clark, Sturgeon Falls, Ont.
Island Lassie	116,632	Lindsay, Ont., 1907	" 6 "	37.0	6.0	3.0	7	5	Lindsay, Ont.	W. E. Austin, Fenelon Falls, Ont.
vy Clark	126,523	Sturgeon Falls, Ont., 1907	" 2 "	46.8	14.2	7.5	28	20	Ottawa	C. W. Clark, Sturgeon Falls, Ont.
Kingsway	122,938	Lytham, Eng., 1906	" 55 "	125 9	22.1	11.6	247	85	Vancouver, B. C.	W. Johnston, Vancouver, B.C.
Maxwell A.	126,001	Bay City, Mich., 1909	" 24 "	80 0	21.0	7.3	107	72	Southampton, Ont.	D. MacAuley, Southampton, Ont.
Muskrat	126,524	Simcoe, Ont., 1908	Paddle 2 "	52.5	16.0	3.2	35	19	Ottawa	Upper Ottawa Improvement Co., Ottawa.
Navarch	126,194	Boston, Mass., 1892	Screw 5 "	51.8	10.5	5.4	20	14	Windsor, Ont	Ontario Public Works Department,
Peel	126,683	Sorel, Que., 1909	" 46 "	91.5	22.1	10.7	205	117	Montreal	Public Works Department, Ottawa.
Prince Olaf	126,611	Port Essington, B.C., 1909	" 1 "	28.8	9.0	3.0	4	3	Prince Rupert, B.C	T. M. Orwig, Port Essington, B.C.
Ride A. Wee	126,641	Long Point, Ont., 1909	" 1 "	27.0	10.0	3.0	6	4	Port Dover, Ont.	S. B. Cook, Long Point, Ont.
R. J. Skinner	126,630	Vancouver, B.C., 1909	" 5 "	48.0	11.5	5.4	27	18	Vancouver, B.C	B. C. Commissioner of Lands, Victoria.
Sir Hector	122,277	Selkirk, Man., 1908	" 19 "	72.0	16.0	8.0	70	48	Winnipeg	Public Works Department, Ottawa.
T. R	126,629	Retreat Cove, B.C., 1908	" 3 "	33.0	9.5	4.0	13	9	Vancouver, B.C.	T. R. McLay, Nanaimo, B.C.
Teign	126,625	Vancouver, B.C., 1909	" 3 "	33 0	9.4	3.3	13	9	Vancouver, B.C.	S. A. Harris, M.O., Vancouver, B.C.
Tenno	107,430	Detroit, Mich., 1892	" 13 "	64.0	12.6	4.4	25	17	Brockville, Ont.	W. R. Travers, Toronto.
Un me	126,684	West Lynn, Mass., 1907	" 4 "	36.7	9.9	6.0	14	9	Montreal	J. P. Black, Montreal.
Vermillion	126,387	Grand Piles, Que., 1909	Paddle 3 "	56.5	14.6	3.2	87	52	Quebec, Que.	W. Ritchie, Three Rivers, Que.
Victoria	122,276	Selkirk, Man., 1905	Screw 10 "	55.0	11.0	4.0	28	19	Winnipeg	Public Works Department, Ottawa.
Vital Spark	126,627	United States	" 2 "	36 2	10.5	3.5	10	7	Vancouver, B.C.	J. Wallace, Vancouver, B.C.
West Vancouver	126,631	Vancouver, B.C., 1909	" 4 "	41.5	9.5	4.0	15	10	Vancouver, B.C	J. Lawson, North Vancouver, B.C.
Yoshino	126,634	Steveston, B.C., 1909	" 2 "	30.0	7.7	3.5	6	4	Vancouver, B.C	M. M. Hashimoto, Vancouver, B.C.

LIST OF SAILING VESSELS AND BARGES REGISTERED IN CANADA DURING OCT. AND NOV., 1909.

Name	No.	Where and When Built	Rig	Length	Breadth	Depth	Reg. Tons	Port of Registry	Owners
A. Yergeau	126,682	Notre Dame de Pierreville, Que., 190	Sloop	108.0	23.2	7.5	132	Montreal	A. Yergeau, Pierreville, Que.
C. J. B	126,385	Escoumains, Que., 1909	Schr.	67.5	21.0	5.7	51	Quebec, Que.	C. J. Belanger, Escoumains, Que.
Dianthus	77,607	Petite Riviere, N.S., 1878	"	58.0	18.8	7.0	49	Charlottetown, P.E.I.	M. McKinnon, Montague Bridge, P.E.I.
Dorothy Duff	117,164	Montague Bridge, P.E.I., 1909 Hantsport, N.S., 1909	"	98.0	26.7	10.6	152	Sydney, N.S.	W. Duff, Carbonear, Newfoundland.
Eneau	126,681	Notre Dame de Pierreville, Que., 1909	Sloop	108.9	23.2	7.3	145	Montreal	E. L. Daneau, Notre Dame de Pierreville, Que.
Eskimo	126,591	Apple River, N.S., 1909	Schr.	79.2	27.6	6.8	99	Parrsboro, N.S.	C. T. White & Son, East Apple River, N.S.
F. G. No. 1	126,686	Cardinal, Ont., 1909	Scow	40.0	20.1	4.7	92	Montreal	F. Gilbert, Montreal.
Frank H Adams	126,581	Lunenburg, N.S., 1909	Schr	108.4	25.8	10.5	93	Lunenburg, N.S.	F. Anderson, M.O., Lunenburg, N.S.
General Meade	112,192	Toledo, Ohio	Dred.	72.5	28.5	7.0	244	Chatham, Ont.	C. S. Boone, Toronto.
Horman Lee	126,294	New Harbour, N.S., 1909	Schr.	41.2	12.9	6.8	17	Canso, N.S.	Whitman Fish Co., Canso, N.S.
Irbessa	126,292	Tancook, N.S., 1908	"	41.6	12.4	6.5	17	"	J. Sampson, M.O., Dover, N.S.
Jeanne A. Pickles	126,016	Bridgetown, N.S., 1909	"	139.0	33.0	11.6	300	Annapolis Royal, N.S.	F. Pickels, M.O., Annapolis Royal, N.S.
Kimprose	126,685	Yamaska, Que., 1909	Sloop	109.3	23.2	8.0	146	Montreal	M. Robidoux, Yamaska, Que.
Laurin and Leitch No. 1	126,687	Montreal, 1909	Dred.	74.0	40.0	5.9	297	"	T. Bastien, J. Laurin & W. C. Leitch, Montreal.
Lavengro	126,189	Shelburne, N.S., 1909	Schr.	127.0	30.4	12.9	269	Shelburne, N.S.	G. A. Cox, M.O., Shelburne, N.S.
Little Lake	122,569	Peterboro, Ont., 1909	Scow.	71.0	21.0	4.0	50	Peterboro, Ont.	W. Irwin, & D. Conroy, Peterboro, Ont.
Neree Harvey No. 1	126,690	Isle aux Coudres, Que., 1909	Schr.	64 6	20.0	7.4	50	Montreal	N. Harvey, Isle aux Coudres, Que.
Ponhook	126,038	Liverpool, N.S., 1909	"	116.3	29.5	11.4	199	Liverpool, N.S.	A. W. Hendry, Liverpool, N.S.
Sesame	126,582	La Have, N.S., 1909	"	37.2	11.2	6.2	15	Lunenburg, N.S.	J. Ernst, La Have, N.S.
V. T. B. 7	126,628	North Vancouver, B.C., 1909	Barge	82.7	30.1	7.5	178	Vancouver, B.C.	Vancouver Tug & Barge Co., Vancouver, B.C.
Winnie May	126,293	Cole Harbor, N.S., 1909	Schr.	35.0	11.0	5.0	10	Canso, N.S.	G. C. Jamieson, M.O., Cole Harbor, N.S.



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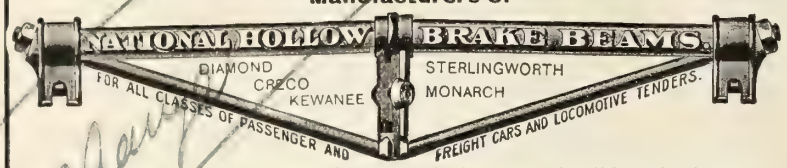

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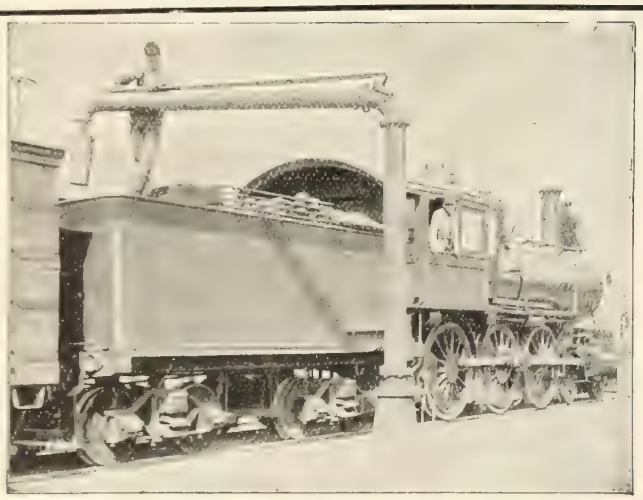

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No. 115. Nov. 23. 300.—Quebec, Gulf of St. Lawrence, Gaspe coast, Grand River, description of light on wharf. 301.—Quebec, Gulf of St. Lawrence, Gaspe coast, Barachois de Malbaie, hand foghorn at light station. 302.—Quebec, River St. Lawrence, Chat River, range lights established. 303.—Quebec, River St. Lawrence, Father Point, use of explosive fog signals discontinued.

No. 116. Nov. 24. 304.—Nova Scotia, south coast, Sheet rock, hand fog horn at light station. 305.—Nova Scotia, Cape Breton Island, east coast, Flint island, new lighthouse tower, change in character of light.

No. 117. Nov. 29. 306.—Quebec, lower St. Lawrence, off Matane and Ste. Felicite, soundings, currents, warning to mariners.

No. 118.—Nov. 30. 307.—British Columbia, Hecate Strait, Browning entrance, Beaver and Schooner passages, and approach from Hecate Strait, rocks located.

No. 119. Dec. 3. 308.—Nova Scotia, Bay of Fundy, Port George, light improved. 309.—New Brunswick, Shippigan Sound, Petite Lameque bay, buoys established. 310.—Quebec, Gulf of St. Lawrence, Anticosti Island, Bagot Bluff, light improved. 311.—Newfoundland, north end, Cape Bauld, change in appearance and color of lighthouse.

No. 120. Dec. 3. 312.—Quebec, Ottawa River, Lower Allumette Lake, Allumette Island, Supple point, lighthouse established. 313.—Ontario, Ottawa River, Lower Allumette Lake, Spence Island, light pole replaced by tower. 314.—Ontario, Georgian Bay, south side, Collingwood harbor, front range light improved. 315.—Ontario, Lake Huron, north channel, Cockburn Island, Tolsmaville, light discontinued. 316.—Manitoba, Lake Winnipeg, Gimli, lighthouse established.

No. 121. Dec. 7. 317.—Nova Scotia, Bay of Fundy, Minas Basin, Parrsboro, light improved. 318.—Nova Scotia, Bay of Fundy, Grand Passage, Peter Island, new lighthouse. 319.—Nova Scotia, Cape Breton Island, west coast, Port Hood, character of light.

No. 122. Dec. 15. 320.—British Columbia, Vancouver Island, southeast coast, Esquimalt harbor, electric cable crossing. 321.—British Columbia, Vancouver Island, Scotts Islands, Triangle Island, intended light and wireless telegraph station.

The Future of The Allan Line.

The Montreal Star's London, Eng., correspondent cabled, Dec. 9, in relation to the presence of Sir Thos. G. Shaughnessy, President C.P.R., in England, that it was understood that one object of his visit concerned the completion of arrangements, whereby the C.P.R. was to secure control of the Allan Line, the Glasgow interests of the firm, which held about three-quarters of the working capital, having been purchased with that end in view.

When interviewed in Montreal, Dec. 10, on the subject, Sir H. Montagu Allan, is reported to have said, "It seems perfectly useless to keep on denying these rumors, but there is absolutely no truth whatever in the story. Sir Thos. Shaughnessy's visit to England has nothing whatever to do with the completion of arrangements whereby the C.P.R. secures working control of the Allan Line. The new working arrangement between the two companies is of the most complete and satisfactory character, but everything was arranged before Sir Thos. Shaughnessy left. The control of the Allan Line is now on this side of the ocean, and this has enabled us to make arrangements with the C.P.R., under which we are able to greatly facilitate matters between ourselves and that company."

Grounding of the s s. Athabaska.

An investigation was held at Collingwood, Ont., Nov. 17, 1909, by Capt. L. A. Demers, acting Wreck Commissioner, assisted by Capts. Nash, Montreal, and C. Coles, Collingwood, to enquire into the causes of the grounding of the C.P.R. s.s. Athabaska, Oct. 13, 1909, at Flower Pot Island, near Owen Sound. Following are extracts from the judgment: It was shown that the Athabaska was fully and well equipped with all the necessary instruments for navigation, two good efficient compasses which had been adjusted in the spring, and that the officers all held appropriate certificates.

The Captain, A. Brown, deposed that on Oct. 13, he left Owen Sound for Fort William with general cargo; the weather at the time and up to the casualty was stormy and clear, but, at intervals, a little hazy by snow flurries and rain. It would appear, that after rounding Cove Island and entering Lake Huron, he found the sea so heavy, that he put back, passing again by Cove Island, to get under the lee of Flower Pot Island; that he never lost sight of the Cove Island light and saw the Flower Pot light a minute or so before the ship went ashore, it then becoming obscured. He did not express that his intention was to anchor, but to wait under the lee of Flower Pot Island to see if the weather would become more favorable. When a quarter of a mile or thereabout from Flower Pot Island, a squall came on, which obscured the light and the island partly. The vessel was going half speed, or, about six knots an hour, and shortly afterwards struck on the rocks one ship's length from the lighthouse. It is said that previous to her striking, the Captain ordered the man at the wheel to starboard the helm, but instead the helm was ported, but, the mistake was seen at once and with the help of the second mate, the helm was starboarded, but too late, and, at the same time the telegraph was rung full speed astern to no avail, the ship remaining fast on the rocks and sustaining serious damages. The second officer and the wheelsman corroborated this.

On the other hand, upon examining the Flower Pot lighthouse keeper, he emphatically stated that, at no time, from half past eight till after the ship stranded, was the light obscured, and, even the light at Cove Island, which is some 12 miles distant, was visible throughout. He remarked that the vessel appeared to be much closer to the island than usual and that he stood at the station watching its movements. Shortly afterwards he saw her coming ashore and grounding. He hailed the vessel, being at a short distance from her, asking if any assistance was required, but, no answer was vouchsafed, although he could see two men on the navigating bridge.

The evidence tended to show that the captain does not seem to understand the workings of the compass, and the only way he assured himself that his compass was correct, was, when in sight of ranges; moreover, he even ignored the name of the maker of the navigating compass, though he had been in command of the vessel for three years. The lead line was not resorted to, in fact it does not appear that the ordinary precautions were taken to avoid apparent dangers. The entries in the scrap log and the official log books, are written in lead pencil, and the Court noticed that, on the day of the mishap, some erasures were made and other observations and notes entered in the official log book. This fact alone, in the Court's view would be sufficient to condemn the master of the vessel, even if proofs of carelessness were wanting. The spelling in the official log book, is execrable. In fact, the way of keeping the logs may be considered as farcical and valueless. After weighing carefully the evidence adduced, the Court is of opinion that the casualty was due to careless navigation on the part of the master, and orders that his certificate be suspended for nine months from Nov. 17, 1909, to Aug. 17, 1910. The other officials are exonerated.

Lake Grain Shipments, 1909 Crop.

The following statement, prepared by F. E. Gibbs, Grain Inspector, Fort William, Ont., shows the bushels of grain shipped from the different elevators at Fort William and Port Arthur, of the 1909 crop, Sept. 1 to close of navigation, Dec. 10, with the ports of destination. The last two figures in each column represent lbs.

	Wheat	Oats	Barley	Flax
CANADIAN PORTS				
Collingwood	240,253.30	99,880.20	98,238.15	.....
Depot Harbor	2,808,738.20	326,605.07	.....	.....
Goderich	3,125,967.40	1,512,716.07	95,717.14	106,605.18
Kingston	3,917,378.30	1,016,544.28	229,581.33	57,419.09
Montreal	2,232,189.00	710,573.00	147,488.44	196,621.35
Midland	845,275.20	421,278.30	35,077.40	.....
Meaford	708,472.50	110,886.16	81,884.18	.....
Owen Sound	1,099,246.20	1,521,494.26	93,049.12	.....
Prescott	2,077.20	.....	.....	.....
Port Colborne	1,565,796.10	344,572.00	34,691.32	.....
Point Edward	1,267,122.10	722,187.27	69,923.08	63,305.50
Port Stanley	76,000.00	45,000.00	.....	.....
Tiffin	8,149,853.40	1,973,382.06	196,493.16	.....
Thorald	195,000.00	.....	.....	.....
Walkerville	172,410.30	206,210.02	.....	.....
Totals	26,405,741.30	9,011,332.09	1,122,148.40	423,952.00
FOREIGN PORTS				
Buffalo	15,082,864.20	482,360.20	205,678.26	1,506,252.13
Erie	110,000.00	.....	255,275.46	85,906.04
Port Huron	1,287,750.20	.....	164,472.42	.....
Totals	42,886,356.10	9,493,692.29	1,847,576.10	2,016,130.17
CANADIAN VESSELS	29,519,435.10	9,011,331.13	1,396,391.06	548,068.28
FOREIGN VESSELS	13,366,920.30	482,361.16	451,185.04	1,468,061.45
Totals	42,886,356.10	9,493,692.29	1,847,576.10	2,016,130.17
1908				
CANADIAN VESSELS	24,530,347.20	3,942,648.10	911,198.16	386,579.25
FOREIGN VESSELS	11,422,172.00	2,010,553.18	539,665.34	131,334.03
Totals	35,952,519.20	5,953,202.00	1,450,864.02	517,913.28

In addition to the figures quoted above, 1,150 bush. of rye were shipped to Kingston, and 330,630 50 bush. screenings to Chicago and Duluth, against 61,098.50 bush. screenings shipped to the last named ports in 1908.

Navigation opened Apr. 14, and closed Dec. 18, 1908, and opened Apr. 28, and closed Dec. 10, 1909.

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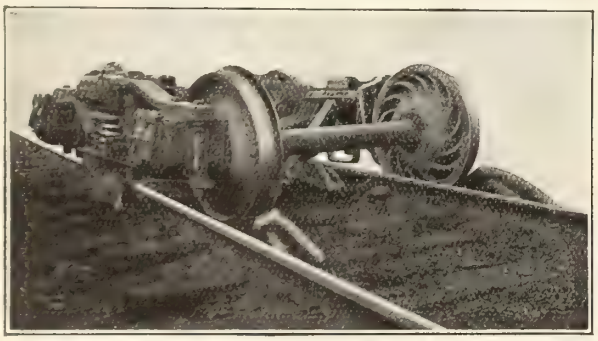

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Pending Marine Legislation.

A number of bills affecting the mercantile marine interests are under consideration by the Dominion Parliament. One bill provides for the fixing of a load-line on all vessels registered in Canada of 50 tons gross and over used in inland navigation. Every barge of 100 tons and over proceeding to sea from any Atlantic or Pacific port, as well as from inland ports, shall be similarly marked.

Another bill, provides that every seagoing and coasting passenger vessel over 400 tons gross, and every freight vessel over 1,200 tons gross shall be equipped with wireless telegraph apparatus. The penalty for noncompliance is fixed at not less than $100 and not exceeding $1,000 or imprisonment for not exceeding 12 months, or a fine and imprisonment.

Another bill provides for the repeal of sec. 588 of chap. 113 of the revised statutes, which regulates the inspection of vessels, and the substitution of a secdor of the saloon fittings and their quartion providing that where a vessel holds a certificate of inspection by Lloyds it shall not be required to be inspected by Canadian inspectors the same year.

Another bill affects the inspection of vessels. The first four sections make barges and vessels, not now inspected, subject to inspection; another section provides for the inspection of steam yachts under five tons; section six provides that fishing boats under a certain tonnage shall carry either a life boat, life raft or other appliance for the saving of human life; the last section provides that steamships towing other barges shall be provided with a rocket gun and a heaving line so that a derelict tow may be picked up.

The Minister of Marine has introduced a bill respecting the water carriage of goods. The object is to declare illegal, conditions put in bills of lading by which shipowners can free themselves from any liability arising out of their fault and negligence. The bill was before the Senate two years ago and made the subject of an investigation. It was passed through the Senate last session, but reached the House of Commons too late to be taken up. Other provisions concern losses in case of accidents or force majeure. It also provides that shipowners shall have the right to remove inflammable and explosive goods which may have gone on board without their consent.

Another bill, introduced in the Senate, provides for the protection of navigable waters by prohibiting the deposit of sewage, offal or refuse animal or vegetable matter therein.

Steamer Oscar, Ltd., has been incorporated under the B.C. Companies Act, with a capital of $8,000, to purchase the steamboat Oscar and the business of the Butler Freighting and Towing Co., Ltd., to acquire steam and other vessels, and carry on a general freighting and carrying business. The Oscar was built at Victoria in 1897, and is a screw driven vessel with engine of 8 n.h.p Her dimensions are: length, 81 ft.; breadth, 21 ft.; depth, 7 ft.; tonnage, 95 gross.

The A.B.C. Elevator and Wharf Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $3,000,000 and office at Vancouver, B.C., to carry on the businesses of grain growers and buyers, grain elevator and warehousemen, and in connection therewith to build, purchase or otherwise acquire steam and other vessels, to carry on a general transportation business and act as lightermen, stevedores, etc. The provisional directors are: E. H. Heaps, T. H. Worsnop, J. W. Heaps, R. L. Reid, Vancouver, B.C.; L. P. Strong, Calgary, Alta.

Grounding of the s.s. Montezuma.

An investigation into the causes of the grounding of the s.s. Montezuma at Cap a la Roche, Oct. 28, has been held at Montreal, before Capt. L. A. Demers, acting Wreck Commissioner, with Capt F. Nash and C. Gauthier of the Corporation of Pilots, as assessors. The court found that the pilot was guilty of an error of judgment, but taking in consideration his long and efficient service, reprimaneded him and warned him to be more careful in the future. It was also stated that in the court's opinion, the captain forgot for a moment the responsibility with which he is invested, by leaving his post when his vessel was entering one of the most intricate parts of the river, and admonished him to be more careful in the future.

Capt. Walsh, Superintendent C.P.R. steamships, asked to be allowed to place on record his protest against the system adopted by the pilots in taking the wheel themselves, pointing out that it is impossible in vessels of large width, with bridges a great height from the water line, for a person stationed amidships to estimate approximately the distance of an object or buoy from the bow, and in fact such object or buoy actually disappears from the range of visability of a person so placed, nor can he view any aids to navigation which may be astern, especially is such the case when the wheel is within a wheel house. The court partly agreed that it would be preferable for the pilots to request that the best quartermaster be given them, especially when entering intricate places, so that they would be free to go from one side of the bridge to the other and assure themselves of the exact position and bearing of the various aids to navigation.

Canadian Northern Steamships Ltd.

In our November issue we give full particulars of the incorporation under this title, with a capital of $2,000,000 and office at Toronto, of another subsidiary company of Mackenzie, Mann & Co. This company will enter the Atlantic steamship service in the spring, and has already acquired three steamships as the nucleus of a fleet. The two principal vessels which have been bought are the Heliopolis and the Cairo, which were built in 1908 at Glasgow, Scotland, for the Egyptian Mail S.S. Co.'s Marseilles-Alexandria service, and have the following dimensions: Length over all, 545 ft.; breadth, 60 ft. 3 in.; depth to shelter deck, 38 ft.; tonnage, 11,000; i.h.p., 18,000. They are fitted with the latest devices for the safety and comfort of passengers, having special regard for the high-class of traffic they were designed to handle. In addition to the features found only on the very latest transatlantic steamers, the Heliopolis and Cairo embody many new ideas in interior fittings, which will give them a quite distinct place when they begin service in the transatlantic trade. There are huge stores, hairdressers' shops, a dispensary, and ample room for passengers' spare baggage, so arranged that the passengers' access to their baggage is easy. Ventilation is regulated by means of thermo-tanks able to maintain the air at 60 deg. Fahr., with a surrounding atmosphere at zero. In addition to this, the ship has been furnished with scores of little electric exhaust fans. The refrigerating plant for the preservation of provisions is the best that can be got, while the electric light plant is so complete that every stateroom is fitted with ladies' electric curling tongs. To prevent fires a Clayton fire-extinguisher is installed on each of the two steamers and a constant supply of water, salt and fresh, hot and cold, has been laid on all over the vessels. The accommodation for officers and crew is on a scale commensurate with the splendor of the saloon fittings and other quarters provide a measure of comfort that are to be found on but few high-class liners. The machinery consists of three sets of Parsons' compound steam turbines, one h.p. turbine in the centre and two l.p. turbines on either side, having a collective power of 18,000 i.h.p. at 340 shaft revolutions. Vibration and noise have been reduced to a minimum and in spite of the enormous power developed, there is practically no throb or jerk whatever. In their trials they developed a speed of almost 21 knots an hour, and while running between Marseilles and Alexandria they maintained a speed of over 19 knots. Both vessels have been taken to Glasgow, where considerable alterations will be made. They already have splendid first-class accommodation and some second-class and large refrigerator accommodation. The latter feature will be retained; the second-class accommodation will be increased, and third-class accommodation will be provided. The two boats will be renamed.

The Canadian Northern Steamships, Ltd., has also bought the s.s. Volturno, which has been running between Rotterdam, Halifax and New York in the Northwest Transport Line, an enterprise in which Wm. Mackenzie is interested. The Volturno has accommodation for about 65 first-class passengers, 1,300 third-class, and 7,000 tons of freight. She will be placed on the same route as the Heliopolis and Cairo, and another freight boat will probably be bought in the near future. The ports of call have not been decided on, but it is probable that the Canadian ports will be Quebec in summer and Halifax in winter, and that Southampton and Cherbourg will be the European ports.

Capt. G. Gregory, R.N.R., who has been in command of the Heliopolis, was in Toronto recently in consultation with the management. He has been appointed acting Marine Superintendent, with headquarters for the present at the Canadian Northern Ry.'s London, Eng., office. He sailed from New York on the Mauretania, on Dec. 22, and will supervise the changes which are to be made in the boats.

D. D. Mann stated recently that before the C.N.R. line to the Pacific coast is completed the C.N.S. Co. will have a steamship line in operation on the Pacific ocean.

Atlantic and Pacific Ocean Marine.

The Allan Line s.s. Corinthian, in avoiding the running down of a schooner, ran aground on George's Island, near Halifax, N.S., Dec. 19.

The Quebec Steamship Co. has chartered the s.s. Oceana, for service in conjunction with its s.s. Bermudian in the West Indies service, commencing Jan. 15.

The reports for the St. Lawrence navigation season show that there was a falling off of export grain business, as compared with the previous year, of 3,461,678 bush. The total shipments of grain of all kinds were 27,959,396 bush.

A dispatch from Paris, France, states that the Compagnie Transatlantique will operate a special mail steamship line between France and Canada, for which it is to receive an annual subsidy of 3,000,000 francs from France and Canada jointly.

The s.s. Tropea sailed from Sydney, N.S., Dec. 4, 1909, for Prince Rupert, B.C., via Cape Horn, with 6,900 tons of steel rails, supplied by the Dominion Iron and Steel Co., for the G.T.P.R. This is stated to be the largest cargo yet shipped from that port.

The Elder-Dempster Co., is reported to have made an offer to operate eight vessels between St. John, N.B., and Sydney, Australia, in connection with its

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SOME
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The current issue of "Reactions" has just made its appearance and is brim full of interesting and helpful articles on marine and locomotive repairs. There is also an account of the welding of a 48-ton fly-wheel in the wilds of North Carolina, U.S.A. It illustrates what can be done nowadays when hard pressed for facilities. This paper is sent free of charge and it will be well worth your while to write for a copy.

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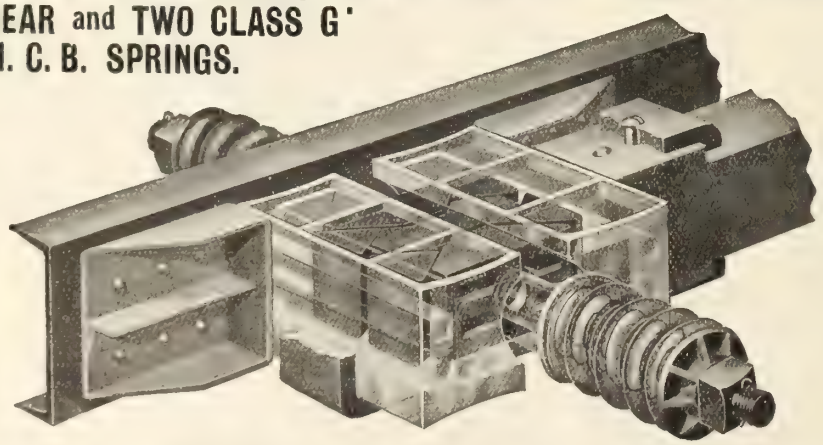

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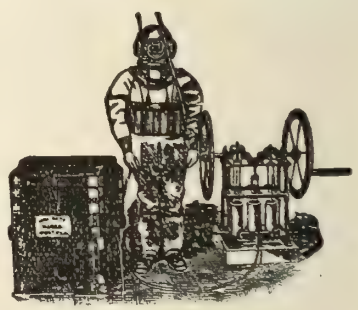

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The Steamship Mantinea Co.'s s.s. Mantinea, managed by W. Thomson and Co., St. John, N.B., has been sold to foreign purchasers. The vessel, no. 105,398, registered at St. John, N.B., was built at Glasgow, Scotland, in 1896, and is a screw driven steamer with engine of 250 n.h.p. Her dimensions are: length, 309 ft.; breadth, 42.6 ft.; depth, 23.1 ft.; tonnage, 2,372 gross, 1,737 register.

During the St. Lawrence navigation season of 1909, which was closed Dec. 16, 364 ocean going steamships were inspected at the Grosse Isle quarantine station, against 355 for the 1908 season, and 145,000 passengers from Europe were passed against 105,000. Of these, 553 were detained in quarantine, of which 11 died, against 250 detained, and no deaths for the previous year.

At the recent launching of the G.T.P.R. s.s. Prince Rupert, in England, F. B. Girdlestone of the Bristol Dock Committee, is reported to have said he hoped to have the co-operation of the Great Western Ry. of England and the G.T.R., for the provision of a service of high speed passenger steamers between Bristol and Montreal. He considered it would form the shortest route between London and Montreal.

In answer to a question in the House of Commons, Dec. 7, the Premier said that an application had been received from the Imperial Export Co. for assistance in establishing a fast freight service to Australia and New Zealand from Canada. Communications in regard to the matter had been received from Australia and New Zealand, and papers in connection with the proposal would be laid before the House at an early date. A deputation, which recently waited on the Premier, in this connection, included R. H. Dana, Toronto; W. McMaster, Montreal Rolling Mills Co., Montreal; J. P. McNaughton, Dominion Iron and Steel Co., Sydney, N.S.; J. Near, Guelph, Ont., and H. B. Smith, Owen Sound, Ont. A subsidy of $250,000 a year was asked for six trips, three to be made from Montreal, and three from St. John or Halifax.

In connection with the future of the C.P.R. Atlantic service, Sir Thos. G. Shaughnessy is reported to have said in England recently:—"There is really nothing to say about the rumors of building new C.P.R. liners for the Atlantic service. We are willing to do our part, the remainder depends on the support that will be given by the Governments. With 21-knot steamers we could make the Atlantic passage in the same time as the Cunard boats, with a 21-knot service we could equal the Lusitania, and with 22-knot boats we could beat her. With the assistance of the two Governments I hope to see such boats, but there are no definite plans final for them as yet. The idea of starting boats from Blacksod Bay, Ireland, does not seem practical. It would cost as much to carry emigrants from Liverpool to Blacksod as we now receive for the entire journey."

Maritime Provinces and Newfoundand.

T. G. Taylor has been appointed Agent for the Marine Department at Charlottetown, P.E.I.

The Dominion Iron and Steel Co., is reported to have decided to order two steamships of about 10,000 tons each, specially designed for the carriage of ore from its mines at Wabana to Sydney.

G. J. Desbarats, Deputy Minister of Marine, Rear-Admiral C. E. Kingsmill, Commander Canadian Fleet, and Col. Anderson, Chief Engineer, Department of Marine, were reported to have visited Halifax recently, to inspect the dockyard there, with a view to its utilization in connection with the projected naval programme.

The Dominion Government icebreaking steamship Earl Grey received the final touches to her equipment early in Dec., before taking up her service on the Northumberland Straits. She is in charge of Capt. Brown, formerly of the s.s. Stanley, with P. W. Lyon as chief engineer. Her equipment includes a Marconi wireless telegraph installation.

The ferry steamer Halifax was destroyed by fire at Halifax, N.S., Dec. 9. She was formerly known as Annex No. 2, was built at New Baltimore, Mich., in 1878, and was a paddle wheel steamer with engine of 48 n.h.p. Her dimensions were, length, 116.3 ft.; breadth, 30.9 ft.; depth, 11.5 ft.; tonnage, 338 gross, 169 register. She was operated by the Ferry Commission, Dartmouth, N.S., and had recently been renovated. She was valued at $25,000, and was insured for $5,000.

Province of Quebec Marine

The Quebec and Levis Ferry Co., is reported to have placed a contract for the construction of two summer boats for its service. It is stated that they are to be ready by May.

The Chairman of the Quebec Harbor Commission was in conference with the Dominion Premier, during Dec., in connection with the proposed improvements in Quebec harbor, a plan of which, on an extensive scale, is being prepared.

The Montreal Harbor Commission's revenue from local, export and import traffic for the season of 1909, was $350,883, against $333,123 for 1908. Of the former amount, imports realized $202,500; exports, $93,500; local traffic, $54,883.

The Montreal Harbor Commissioners waited on the Dominion Premier and the Minister of Marine, Dec. 6, to urge the continued co-operation of the Government by way of debenture guarantees to assist them in the carrying out of the plans of extension and betterment arranged for 1910. Assurance was given that the aid would be continued as formerly.

Ontario and the Great Lakes.

The St. Lawrence and Chicago Steam Navigation Co., Ltd., has declared a dividend of 8% for the year 1909.

The Pere Marquette Rd., is reported to have let a contract for the equipment of its car ferry steamboats with wireless telegraph apparatus.

The Richelieu and Ontario Navigation Co., has purchased 9-11 Victoria Sq., Montreal, for use as a city ticket office and general office building.

A press report states that the Richelieu and Ontario Navigation Co. will carry out its proposed operations on the south side of the great lakes, under the name of the International Inland Navigation Co.

The Welland Canal was officially closed for the season, Dec. 15, the steamboat Glen Allen being the last vessel to pass through. It was, however, expected that one or two grain vessels would come down later on.

In reply to a question in the House of Commons, Dec. 2, the Minister of Railways and Canals, said that the cost to the Government, of the break in the Canadian canal at Sault Ste. Marie, in Sept., 1909, was $867,000.

The Western Dry Dock and Shipbuilding Co., Ltd., is making application to the Governor in Council, for approval of plans for the construction of a dry dock at Port Arthur, which have been deposited with the Public Works Department, and duplicates at the District Registry, Port Arthur.

A meeting of the Ottawa Board of Trade was held Dec. 13, to consider a memorial to be presented to the Dominion Government emphasizing the prior claims of the Georgian Bay canal scheme over any other possible water route, and asking that the work be commenced at an early date.

The Pennsylvania and Ontario Transportation Co.'s car ferry steamboat Ashtabula ran ashore at Port Burwell, Ont., Dec. 12, during a storm. The crew were taken ashore safely, after remaining aboard for several days in the hope of being able to get her off by her own power. She was re-floated Dec. 23.

At the annual meeting of the Hamilton Steamboat Co., at Toronto, Dec. 18, the report showed that the past season was a prosperous one. Following are the officers and directors for the current year: President, J. C. Eaton; Vice President, R. Y. Eaton; Secretary Treasurer, J. J. Vaughan; Manager, W. E. Bishop; other directors, H. McGee, C. Booth and A. McCrea.

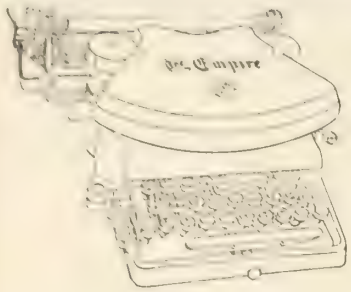
James Richardson and Sons, Ltd., has been incorporated under the Dominion Companies Act, with a capital of $750,000 and office at Kingston, Ont., to carry on a general elevator and warehouse business, to erect and operate grain elevators, and to own and operate steam and other vessels. The provisional directors are: H. W., J. A., G. T., A. M., A., and K. M. Richardson, Kingston.

The U. S. Lake Survey reports the levels of the Great Lakes for Nov., 1909, in feet above tidewater, as follows: Superior, 602.25; Michigan and Huron, 580.13; Erie, 571.60; Ontario, 245.35. It was anticipated that, during Dec., 1909, Superior would fall 0.3 ft., Michigan and Huron, 0.2 ft.; Erie, 0.1; Ontario, 0.1 ft. Compared with the average Nov. stage for 10 years, Superior was 0.73 ft. below; Michigan and Huron, 0.41 ft. below; Erie, 0.24 ft. below and Ontario, 0.04 ft. below.

Application is being made to the Dominion Parliament to incorporate The International Waterways, Canal and Construction Co. with power to construct a canal from Thunder Bay, on Lake Superior, or from the Pigeon River to the Lake of the Woods, thence to the Red River, or from the Lake of the Woods to the Winnipeg River, and thence by the said river to Lake Winnipeg; thence to Cross Lake, so as to create a navigable waterway to the head waters of the Saskatchewan River, and its branches, together with all subsidiary and necessary powers.

The Marquette and Bessemer Dock and Navigation Co.'s steam car ferry, M. & B. No. 2, was lost, together with the whole of the crew, on Lake Erie, during a storm in the early part of Dec. The ferry operated between Conneaut, Ohio, and Port Stanley, Ont., and had a capacity for 30 loaded cars. It is surmised that the cars broke loose during the storm, causing the vessel to sink immediately. It has not been definitely ascertained as to how many were on board, and only a few of the bodies have been recovered. The M. & B. No. 2, was 2,514 tons gross, 1,484 tons register, her dimensions were, length, 338 ft.; breadth, 54 ft., and she was equipped with triple expansion engines, with cylinders 19, 31 and 52" diar., by 36" stroke. She was built in 1905.

In answer to inquiries in the House of Commons, Dec. 7, in reference to the surveys for the construction of a channel from the Devil's Elbow on Holland River to Bradford station, the Minister of Railways and Canals said: "The Bradford survey was begun on the west branch



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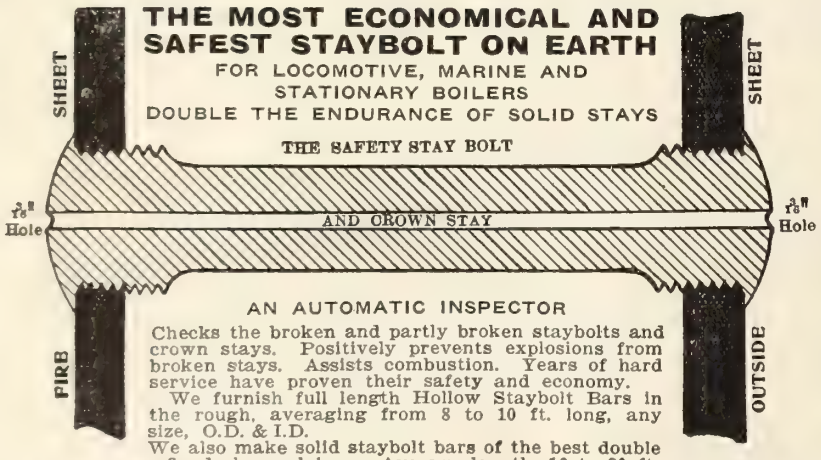

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of Holland river at the junction of the Newmarket canal, 4.9 miles from Cook's bay, and carried up the west branch of the river to about 3 miles above the Bradford and Holland Landing road. The channel leading to the proposed basin in front of the G.T.R. station, Bradford, would leave the west branch at the Devil's Elbow, 7 miles from Cook's bay, and the Bradford basin would be at 8.2 miles, or in other words the canal would be 1.2 miles long with a bottom width of 50 ft. The proposed Bradford basin is estimated for 200 ft. width, enclosed with concrete dock walls. No work is required in the 2.1 miles of river between the junction of the Newmarket canal and the Devil's Elbow. The estimated cost is $52,947."

Manitoba, Saskatchewan and Alberta.

The Winnipeg Fish Co., Ltd., has been incorporated under the Manitoba Companies Act, with a capital of $40,000, and office at Winnipeg, to carry on a general fishing business, and in connection therewith to own and operate steam and other vessels, and when same are not required for the carrying of the company's produce, to carry freight and passengers for hire. The provisional directors are: G. E. Richards, R. G. Affleck, J. Allen, W. P. Fillmore, Winnipeg, and T. J. Jones, Selkirk, Man.

The International Waterways Canal and Construction Co. is applying to the Dominion Parliament for incorporation, to construct a canal from Thunder Bay, Lake Superior, or from Pigeon River, to the Lake of the Woods, thence to the Red River, or from the Lake of the Woods to the Winnipeg River and thence to Lake Winnipeg, and on to Cross Lake, and so create a navigable waterway to the headwaters of the Saskatchewan River and its branches. Among other powers desired are: the erection of telegraph and telephone lines, electrical transmission lines, the carrying on of a general forwarding and manufacturing business, and for such purposes to exercise all the powers and rights as granted by the Railway Act, with power to amalgamate with other companies. Smith and Johnston, Ottawa, are solicitors for applicants.

B.C. and Pacific Coast Marine.

A report from Victoria states that debentures for $2,000,000 are being placed in England for the purpose of building a floating dock at Esquimalt.

Capt. J. W. Troup, Manager C.P.R. Pacific Coast Service, sailed from St. John, N.B., Dec. 4 on the s.s. Empress of Britain for Great Britain, where he will make arrangements for the construction of two vessels for the Pacific coast trade.

A stern wheel steamboat named Helen M. Scanlon was recently constructed at Vancouver for the Brooks-Scanlon Lumber Co., and is at Victoria having her machinery installed. She will be used for logging work on the Fraser River and Harrison Lake.

The G.T.P.R. is asking for tenders for the construction of wharves at Victoria, at an approximate cost of $100,000. It is also reported that the company has leased the Flyer dock, Seattle, Wash., and that it will erect a large pier there at a cost of $250,000.

The G.T.P.R. s.s. Prince Rupert was launched at Wallsend-on-Tyne, Eng., Dec. 19. This is the first of the company's vessels to be built for the Pacific Coast service. On completion, she will be sent to Prince Rupert, by way of Cape Horn, and it is anticipated, will be placed in service in the spring. A second vessel to be named Prince George is under construction.

The International Steamship Co., Victoria, is reported to have under consideration plans for the construction of a twin screw vessel to be named Sioux, which it proposes to have ready for service, either between Victoria and Seattle or Vancouver and Seattle, early in 1911. The plans provide for a vessel 215 ft. long, 36 ft. beam, and engines of 3,500 h.p. for a maximum speed of 20 knots an hour, with accommodation for about 1,500 passengers.

Steamer Forager, Ltd., has been incorporated under the B.C. Companies

APPLICATION TO PARLIAMENT

Notice is hereby given that application will be made to the Legislative Assembly of the Province of Ontario at its next session for an Act incorporating the Wahnapitae Railway Company, with power to construct a line of railway from a point on the line of the Canadian Northern Ontario Railway Company, in the Township of Hutton or Creelman, thence in a generally northerly direction, passing near Burwash and Welcome Lakes, to a point on the Wahnapitae River above the outlet from Welcome Lake, such line traversing one or both of the said Townships of Hutton and Creelman and unsurveyed territory in the District of Nipissing to the north, and also fixing the limit of securities which may be issued in respect of such line, and authorizing agreements for sale or amalgamation with other Companies, and with other usual and customary powers.

GERARD RUEL,
Solicitor for the Applicants.

NOTICE is hereby given that the Grand Trunk Pacific Branch Lines Company will apply to the Parliament of Canada, at its present session, for an Act further amending the Act incorporating the Company, chapter 99 of the statutes of 1906, as amended by chapter 86 of the statutes of 1909, by authorizing the construction of the following additional lines of railway:—

(1) From a point on the Western Division of the Grand Trunk Pacific Railway between the east limit of Range 12 and the west limit of Range 17, west of the third meridian, thence in a southwesterly and westerly direction to a point in the vicinity of Calgary, or to a point on the line which the Company is authorized, under paragraph 14 of clause 11 of said chapter 99, to construct to Calgary;

(2) From a point on the proposed line mentioned in paragraph (1) between the east limit of Range 20 and the west limit of Range 28, west of the third meridian, thence in an easterly and southeasterly direction to Regina or to a point in the vicinity thereof;

(3) From a point on the proposed line mentioned in paragraph (2) between the east limit of Range 24 and the west limit of Range 27, west of the Second Meridian, to Moose Jaw, or to a point in the vicinity thereof;

(4) From a point on the Western Division of the Grand Trunk Pacific Railway between Artland and Wainwright, thence in an easterly and southeasterly direction to a point on the line which the Company is authorized, under paragraph 13 of clause 11 of said chapter 99, to construct to Battleford;

(5) From Regina, or a point in the vicinity thereof, thence in a southwesterly and westerly direction to Lethbridge, or to a point in the vicinity of Lethbridge on the line which the Company is, under paragraph 14 of clause 11 of said chapter 99, authorized to construct from Calgary to the southern boundary of the Province of Alberta at or near Coutts.

(6) From a point on the main line of the Western Division between Moose Lake and Tete Jaune Cache, thence through the drainage of the Clearwater River, Bonaparte River, Seton and Anderson Lakes, and the Lilloet River or the Squamish River, or between the last two rivers, to Vancouver, British Columbia; authorizing an issue of bonds to the extent of $30,000.00 a mile of the said lines of railway, numbered (1) to (5) inclusive and comprising the said lines within what are defined by the said Act as the "Manitoba, Saskatchewan and Alberta Extensions"; authorizing an issue of bonds to the extent of $50,000.00 a mile of the said line of railway numbered (6), and comprising the said line within what is defined by the said Act as the "British Columbia extensions"; and also amending paragraph 11 of clause 11 of the said Act, as regards the southern terminus of the line thereby authorized.

Dated at Montreal this 29th day of November, 1909.

W. H. BIGGAR,
Solicitor for Applicants.

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Act, with a capital of $8,000, to purchase the steamboat Forager and the business carried on therewith, by the Butler Freighting and Towing Co., Ltd., to acquire steam and other vessels, and carry on a general freighting and carrying business. The Forager was built at Victoria in 1904, and is a screw driven vessel with engine of 13 n.h.p. Her dimensions are: length, 84 ft.; breadth, 18.8 ft.; depth, 6.6 ft.; tonnage, 90 gross, 57 net.

The New Columbia River Lumber Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $5,000,000 to carry on the general business of lumbermen, and in conection therewith to own and operate steam tugs and vessels of all descriptions.

Capt. C. H. Nicholson, heretofore Traffic Manager Northern Navigation Co., Sarnia, Ont., has been appointed Manager G.T.P.R. Pacific Coast Steamship Lines, with headquarters at Vancouver. He will have supervision of all matters pertaining to the company's marine and steamship business on the Pacific coast, the operation and maintenance of steamers, docks, etc., and such other duties as may be assigned to him.

A vessel is under construction at New Westminster for Anglican Church mission work in Northern British Columbia and along the Pacific coast. The dimensions of the vessel are given as: length, 100 ft.; breadth, 17 ft.; depth, 10 ft. It is being built of fir, with oak ribs and oak stern post, and will be equipped with two gasoline engines of 100 n.h.p. each, and carrying a small gasoline launch. It will be steam heated and lighted by electricity, and fitted up with all the requirements of a modern hospital.

We are advised that the contract which the Dominion Government has entered into with the G.T.P.R., for a steamboat service on the Pacific coast, calls for a fortnightly service from Nov. 1 to Mar. 31, and a weekly service from Apr. 1 to Oct. 31, each year, and that it expires Mar. 31, 1915. For this service, the G.T.P.R. has chartered Mackenzie Bros.' s.s. Henriette, which it hopes to replace by one of its own vessels about March. The Henriette, which was formerly a sailing vessel, has an engine of 32 n.h.p. driving a screw. Her dimensions are: length, 160 ft.; breadth, 30 ft.; depth, 18 ft. 9 ins.; tonnage, 763 gross, 518 net.

SAULT STE. MARIE CANALS TRAFFIC.

The following commerce passed through the Sault Ste. Marie Canals during 1909

ARTICLES.			CANADIAN CANAL	U. S. CANAL	TOTAL
Copper	Eastbound	Net tons	8,323	118,889	127,212
Grain	"	Bushels	28,528,222	17,984,646	46,512,868
Building stone	"	Net tons	.....	1,784	1,784
Flour	"	Barrels	2,508,392	4,580,473	7,088,865
Iron ore	"	Net tons	21,128,194	18,866,499	39,994,693
Pig iron	"	"	4,414	36,240	40, 654
Lumber	"	M. ft. B.M.	34,686	517,694	552,380
Wheat	"	Bushels	74,814,845	38,438,716	113,253,561
General merchandise	"	Net tons	65,060	98,099	163,159
Passengers	"	Number	14,751	15,126	29,877
Coal, hard	Westbound	Net tons	351,634	1,060,753	1,412,387
Coal, soft	"	"	2,377,099	6,150,540	8,527,639
Flour	"	Barrels	4,950	360	5,310
Grain	"	Bushels	833	5,750	6,583
Manufactured iron	"	Net tons	154,408	327,219	484,627
Iron ore	"	"	20,285	.....	20,285
Salt	"	Barrels	201,114	449,977	651,091
General merchandise	"	Net tons	479,720	497,465	977,185
Passengers	"	Number	17,461	12,610	30,071
Vessel passages		Number	6,401	12,803	19,204
Registered tonnage		Net	17,812,254	28,939,463	46,751,717
Freight—Eastbound		Net tons	24,350,318	22,028,768	46,379,086
" —Westbound		"	3,412,457	8,103,603	11,516,063
Total freight		"	27,762,775	30,132,374	57,895,149

COMPARATIVE STATEMENT FOR THE SEASONS OF 1908 AND 1909.

ITEMS.		1908	1909
Vessels:			
Steamers	Number	12,533	16,463
Sailing	"	1,355	1,787
Unregistered	"	1,273	954
Total	"	15,181	19,204
Lockages	"	10,685	13,571
Tonnage, Registered	Net	31,091,730	46,751,717
" Freight	"	41,390,557	57,895,149
Passengers	Number	53,287	59,948
Coal, hard	Net tons	1,384,743	1,412,387
" soft	"	8,517,717	8,527,639
Flour	Barrels	5,704,375	7,094,175
Wheat	Bushels	103,041,873	113,253,561
Grain	"	43,458,583	46,519,451
Manufactured and Pig Iron	Net tons	289,308	522,281
Salt	Barrels	547,223	651,091
Copper	Net tons	101,735	127,212
Iron Ore	"	24,650,340	40,014,978
Lumber	M. ft. B. M.	453,761	552,380
Building Stone	Net tons	1,019	1,784
General Merchandise	"	842,901	1,140,344

The U. S. canal was opened Apr. 20, and closed Dec. 11, 1909; season, 236 days.
The Canadian canal was opened Apr. 21, and closed Dec. 16, 1909; season, 240 days.

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Canadian Westinghouse Co. Hamilton, Ont.

Ales
E. L. Drewry.. .....Winnipeg.

Angle Bars
Hamilton Steel & Iron Co...Hamilton, Ont.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.

Anti Rail Creepers
The Holden Co., Ltd.....Montreal.

Axes
Hamilton Steel & Iron Co..Hamilton, Ont.
James Smart Mfg. Co.....Brockville, Ont.

Axles
James Hutton & Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Jas. W. Pyke & Co.....Montreal.
Rhodes, Curry Co., Ltd.....Amherst, N.S.

Beacons
International Marine Signal Co....Ottawa.

Bearings, Side
Chicago Railway Equipment Co...Chicago.
Dominion Car and Foundry Co...Montreal.
Union Draft Gear Co. .....Chicago, Ill.

Blankets and Bedding
The Hudson Bay Co.....

Boilers
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Boilers, Portable
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.
Robb Engineering Co, Ltd..Amherst, N.S.

Boilers, Stationary and Marine
Babcock & Wilcox, Ltd.....Montreal.
I. Matheson & Co. .....New Glasgow, N.S.
Polson Iron Works, Ltd. .....Toronto.
Robb Engineering Co., Ltd..Amherst, N. S.

Boiler Staybolt Iron or Steel Bars
Falls Hollow Staybolt Co..Cuyahoga Falls.

Boilers, Steam
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.
Robb Engineering Co., Ltd...Amherst, N.S.

Boilers, Water Tube
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.
Robb Engineering Co., Ltd...Amherst, N.S.

Bolsters
Dominion Car and Foundry Co..Montreal.

Bolts, Bridge
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.

Bolts, Carriage and Machine
Toronto Bolt and Forging Co.....Toronto.

Bolts, Track
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Toronto Bolt and Forging Co.....Toronto.

Books
Engineering News Book Dept...New York.
Renouf Publishing Co.....Montreal.

Borers, Car Wheel
John Bertram & Sons Co.....Dundas, Ont.

Braces, Cross Arm
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.

Brake Beams
Chicago Railway Equipment Co...Chicago.
Dominion Car and Foundry Co..Montreal.

Brake Shoes
Am. Brake Shoe & F'dry Co..Mahwah, N.J.
Canada Iron Corporation, Ltd....Montreal.
The Holden Co., Ltd.....Montreal

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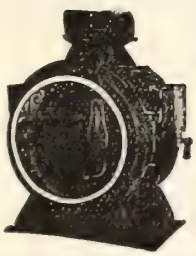

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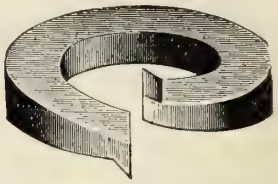

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The transfer books will be closed from the 17th of December to the 31st of December, 1909, both days inclusive.

The annual meeting of the shareholders will be held on Tuesday the 11th of January, 1910, at 12 o'clock noon, at the head office of the Company, Room 910, Traders Bank Building, Toronto.

B. W. FOLGER,
General Manager.

Toronto, December 10, 1909.

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American Vanadium Co.....Pittsburg, Pa.
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Crossen Car Mfg. Co.....Cobourg, Ont.
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Russell Wheel & Fdry. Co., Detroit, Mich.
Standard Steel Works Co..Philadelphia, Pa.
Castings, Brass
Canadian Bronze Co.....Montreal.
Canada Iron Corporation, Ltd....Montreal.
Kerr Engine Co.....Walkerville, Ont.
I. Matheson & Co. .....New Glasgow, N.S.
Tallman Brass & Metal Co., Ltd.Hamilton.
Castings, Car
American Brake Shoe & Fdry Co.Mahwah.
Canada Iron Corporation, Ltd....Montreal.
Russell Wheel & Fdry. Co., Detroit, Mich.
Castings, Iron
Allis-Chalmers-Bullock Ltd.....Montreal.
Canada Car Co., Ltd.....Montreal.
Canada Iron Corporation, Ltd....Montreal.
Kerr Engine Co.....Walkerville, Ont.
Russell Wheel & Fdry. Co., Detroit, Mich.
Castings, Iron and Steel
American Brake Shoe & F'dry Co.Mahwah.
Castings, Malleable
Taylor & Arnold.....Montreal.
Castings, Manganese Steel
Montreal Steel Works, Ltd.....Montreal.
Castings, Steel
Canada Iron Corporation, Ltd....Montreal.
Montreal Steel Works.....Montreal
Rhodes, Curry Co., Ltd.....Amherst, N.S.
American Vanadium Co.....Pittsburg, Pa.
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Toronto Pressed Steel Co.....Toronto.
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Couplers, Car and Locomotive
Dominion Car and Foundry Co..Montreal.
McConway & Torley Co....Pittsburgh, Pa.
Montreal Steel Works, Limited..Montreal.
Taylor & Arnold.....Montreal.
Cranes
Brown Hoisting Machinery Co..Cleveland.
Northern Engineering Works, Detroit, Mich.
Cranes, Electric
Babcock & Wilcox.....Montreal.
Dominion Bridge Co.....Montreal.
Mussens Limited.....Montreal.
Cranes, Locomotive
American Hoist and Derrick Co..St. Paul.
Cranes, Wrecking
Mussens Limited.....Montreal.
Crowbars
B. J. Coghlin & Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.
Curtains and Fixtures, Car
The Holden Co., Ltd.....Montreal.
Cuts
Acton Burrows, Limited.....Toronto.
Cylinders
American Vanadium Co.....Pittsburg, Pa.
Derailing Devices
General Railway Signal Co., Rochester, N.Y.
Derricks
American Hoist and Derrick Co..St. Paul.
M. Beatty & Sons.....Welland, Ont.
Mussens Limited.....Montreal.
Dies
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.
Ditchers
M. Beatty & Sons.....Welland, Ont.
Diving Outfits
John Date.....Montreal.
Mussens Limited.....Montreal.
Doors, Steel Rolling
Mussens Limited.....Montreal.
Door Signs
Acton Burrows Limited.....Toronto.
Draft Gear
Farlow Draft Gear Co.....Baltimore, Md.
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Standard Coupler Co.....New York City.
Union Draft Gear Co. .....Chicago, Ill.
Waugh Draft Gear Co.....Chicago, Ill.
Draughtsmen's Supplies
John A. Hart & Co.....Winnipeg.
Dredges
M. Beatty & Sons.....Welland, Ont.
Polson Iron Works, Ltd. .....Toronto.
Drills, Air
Canadian Rand Co.....Montreal.
Dry Goods
The Hudson's Bay Co.....
Dump Cars (Contractors')
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montre l.
Dump Cars, Hand
Meaford Wheelbarrow Co., Ltd..Meaford.
Dynamos
Northern Electric & Mfg. Co., Ld.Montreal.
Dynamo and Electric Castings
American Brake Shoe & F'dry Co.Mahwah.
Economizers
Babcock & Wilcox (Ltd.).....Montreal.
Electric Car Route Signs
Acton Burrows Limited.....Toronto.
Electric Apparatus
Allis-Chalmers-Bullock Ltd.....Montreal.
Northern Electric & Mfg. Co., Ld.Montreal.
Electric Light Plant
Allis-Chalmers-Bullock Ltd.....Montreal.
Elevators, Grain
John S. Metcalf Co.....Chicago, Ill.
Enameled Iron Signs
Acton Burrows Limited.....Toronto.
Engines, Automatic
Robb Engineering Co., Ltd..Amherst, N.S.
Polson Iron Works, Ltd. .....Toronto.
Russell Wheel & Fdry. Co., Detroit, Mich.
Engines, Corliss
Robb Engineering Co., Ltd..Amherst, N.S.
Allis-Chalmers-Bullock Ltd.....Montreal.
Engines, Gas
Allis-Chalmers-Bullock Ltd.....Montreal.
Engines, Gasolene
Canadian Fairbanks Co., Ltd.....Montreal.
Ontario Wind Engine & Pump Co.Toronto.
Engines, Hoisting
Allis-Chalmers-Bullock Ltd.....Montreal.
American Hoist and Derrick Co..St. Paul.
M. Beatty & Sons.....Welland, Ont.
Dominion Equip't & Supply Co., Winnipeg.
I. Matheson & Co. .....New Glasgow, N.S.
Polson Iron Works, Ltd. .....Toronto.
Russell Wheel & Fdry. Co., Detroit, Mich.
Engines, Stationary and Marine
I. Matheson & Co. .....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
Engines, Steam
Allis-Chalmers-Bullock Ltd. ....Montreal.
Explosives
Standard Explosives Limited ...Montreal.
Express Office Signs
Acton Burrows Limited.....Toronto.
Fencing
Owen Sound Wire Fence Co., Owen Sound.
Ferro-vanadium
American Vanadium Co.....Pittsburg, Pa.
Fire Appliances
Miller Chemical Engine Co., Chicago, Ill.
Fire Brick
Mussens Limited .....Montreal.
Flags
The Hudson's Bay Co. .....
Flour
The Hudson's Bay Co. .....
Forgings
American Vanadium Co.....Pittsburg, Pa.
Canada Car Co., Limited .....Montreal.
Cleveland City Forge & Iron Co., Cleveland.
Crossen Car Mfg. Co. .....Cobourg, Ont.
Hamilton Steel & Iron Co., Ltd., Hamilton.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Standard Steel Works Co., Philadelphia, Pa.
Foundry Appliances
Goldschmidt Thermit Co. .....Toronto.
Ont. Wind Eng. & Pump Co., Ltd., Toronto.
Frogs
Canadian Ramapo Iron Wks., Niagara Falls.
Furnaces, Corrugated
Continental Iron Works.....Brooklyn, N.Y.
Fuse Batteries
Standard Explosives Limited....Montreal.
Fuse Detonators
Standard Explosives Limited....Montreal.
Fuses, Electric
Standard Explosives Limited....Montreal.
Gaskets
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Gates
Owen Sound Wire Fence Co..Owen Sound.
Gates, Crossing
General Railway Signal Co. Rochester, N.Y.
The N. L. Piper Ry. Supply Co..Toronto.
Gauges, Locomotive
Taylor & Arnold.....Montreal.
Gears
American Vanadium Co.....Pittsburg, Pa.
Generators, Electric
Northern Electric & Mfg. Co., Ld.Montreal.
Grates, Shaking
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.
Groceries
The Hudson's Bay Company.....
Guides and Outfitters
Otto Bros. ..... Field, B.C.
Hammers, Cast Steel
American Brake Shoe & F'dry Co.Mahwah.
James Smart Mfg. Co....Brockville, Ont.
Handcars
Canadian Fairbanks Co., Ltd.....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Rice Lewis & Son.....Toronto.
Hardware
The Hudson's Bay Co.....
Rice Lewis & Son..'.....Toronto.
Hats
W. H. Coddington ..... Hamilton, Ont.
Headlights
Commercial Acetylene Co. ..... Toronto.
The N. L. Piper Ry. Supply Co..Toronto.
Pyle National Elec. Headlight Co..Chicago.
Headlinings
Crossen Car Mfg. Co.....Cobourg, Ont.
Heaters, Feedwater
Robb Engineering Co., Ltd..Amherst, N.S.
Heating, Car
Canadian Gold Car H'g & L'g Co.Montreal.
Safety Car Heating & L'ting Co.New York.
Hoists, Electric
American Hoist & Derrick Co....St. Paul.
Northern Engineering Works, Detroit, Mich.
Hoists (Pneumatic)
Taylor & Arnold.....Montreal.
Hollow Staybolt Iron and Steel Bars
Falls Hollow Staybolt Co.Cuyahoga Falls.
Hoppers, Car (Wet or Dry)
Duner Co.....Chicago, Ill.
Hydrants
Canadian Fairbanks Co., Ltd.....Montreal.
Kerr Engine Co.....Walkerville, Ont.
Illustrations
Acton Burrows Limited.....Toronto.
Injectors
T. McAvity & Sons .....St. John, N.B.
Inspections
R. W. Hunt & Co. .....Montreal
Insurance, Accident
Can. Casualty & Boiler Ins. Co., Toronto.
Canadian Ry. Accident Ins. Co....Ottawa.
Imperial Guarantee & Ac. Ins. Co.Toronto.
Insurance, Boiler
Canadian Casualty & Boil. Ins. Co.Toronto.
Interlocking Plant and Signals
General Railway Signal Co. Rochester, N.Y.
Montreal Steel Works.....Montreal.
Saxby and Farmer, Ltd.....Montreal.
Iron and Steel Bars
Hamilton Steel & Iron Co., Ltd..Hamilton.
Iron, Pig
Hamilton Steel & Iron Co., Ltd..Hamilton.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Iron Signs
Acton Burrows Limited.....Toronto.
Iron Staybolt Bars
Falls Hollow Staybolt Co..Cuyahoga Falls.

Jacks
Canadian Fairbanks Co., Ltd....Montreal.
Dominion Equip't & Supply Co., Winnipeg.
H and E Lifting Jack Co..Waterville, Que.
F. H. Hopkins & Co, Ltd.....Montreal.
Montreal Steel Works, Ltd.....Montreal.
Mussens Limited.....Montreal.
A. O. Norton.....Coaticook, Que.
James Smart Mfg. Co.....Brockville, Ont.
A. R. Williams Mchy. Co., Ltd....Toronto.

Japans
The Dougal Varnish Co. Ltd....Montreal.

Journal Bearings
Canadian Bronze Co.....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Kerr Engine Co.....Walkerville, Ont.
Jas. W. Pyke & Co.....Montreal.

Journal Boxes
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.

Journal Jacks
A. R. Williams Mchy. Co., Ltd....Toronto.

Lager Beer, &c.
E. L. Drewry..... .....Winnipeg.

Lagging and Covering, Locomotive
Taylor & Arnold.....Montreal.

Lamps, Arc
Northern Electric & Mfg. Co, Ltd.Montreal.

Lamps, Incandescent
Canadian Westinghouse Co..Hamilton, Ont.

Lamps and Lanterns
The Hudson's Bay Company.....
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.

Lamps, Switch
The N. L. Piper Ry. Supply Co..Toronto.

Lathes
John Bertram & Sons Co.....Dundas, Ont.

Laths
J. Harrison & Sons Co..Owen Sound, Ont.

Lighting, Car
Canadian Gold Car H'g & L'g Co.Montreal
Safety Car H't'g & L't'g Co..New York.

Lights, Contractors' and Wrecking
F. H. Hopkins & Co.....Montreal.
International Marine Signal Co. ..Ottawa.
Mussens Limited.....Montreal.

Locomotives (Compressed Air)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co...Kingston, Ont.
Montreal Locomotive W'ks (Ltd.).Montreal.

Locomotives (Electric)
Baldwin Locomotive Works..Philadelphia.
Montreal Locomotive W'ks (Ltd.).Montreal.

Locomotives (Logging)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co....Kingston, Ont.

Locomotives (Rack)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co....Kingston, Ont.
Montreal Locomotive Works.....Montreal.

Locomotives (Steam)
American Car & Equip. Co....Chicago, Ill.
Baldwin Locomotive Works..Philadelphia.
R. M. Burns & Co.....Chicago, Ill.
Canadian Fairbanks Co., Ltd.....Montreal.
Canadian Locomotive Co....Kingston, Ont.
Dominion Equip't & Supply Co., Winnipeg.
J. T. Gardner.....Chicago, Ill.
Hicks Locomotive & Car Works..Chicago.
Montreal Locomotive W'ks. .....Montreal.
Vulcan Iron Works.....Wilkesbarre, Pa.

Lorries, Tracklaying
Crossen Car Mfg. Co.....Cobourg, Ont.
F. H. Hopkins & Co.....Montreal.

Lubricators
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Taylor & Arnold.....Montreal.

Lumber
Parry Sound Lumber Co.....Toronto.
J. Harrison & Sons Co., Owen Sound, Ont.

Machinery, Cement
Jas. W. Pyke & Co.....Montreal.

Machinery and Plant, Contractors'
American Hoist & Derrick Co....St. Paul.
M. Beatty & Sons.....Welland, Ont.
R. M. Burns & Co.....Chicago, Ill.
Canadian Fairbanks Co., Ltd.....Montreal.
J. T. Gardner.....Chicago, Ill.
General Railway Signal Co., Rochester, N.Y.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Toronto Pressed Steel Co.....Toronto.

Machinery, Hoisting
American Hoist & Derrick Co....St. Paul.
Brown Hoisting Machinery Co..Cleveland.

Machinery, Tracklaying
F. H. Hopkins & Co.....Montreal.

Machinery, Logging
Russell Wheel & Fdry. Co., Detroit, Mich.

Machinery, Wood and Iron Working
Canadian Fairbanks Co., Ltd....Montreal.

Machines, Boring and Turning
John Bertram & Sons Co.....Dundas, Ont.

Machines, Drilling
John Bertram & Sons Co.....Dundas, Ont.

Machines, Milling
John Bertram & Sons Co.....Dundas, Ont.

Machines, Planing and Shaping
John Bertram & Sons Co.....Dundas, Ont.

Machines, Radial Drilling
John Bertram & Sons Co.....Dundas, Ont.

Machines, Shaping
John Bertram & Sons Co.....Dundas, Ont.

Machines, Slotting
John Bertram & Sons Co.....Dundas, Ont.

Machine Tools
John Bertram & Sons Co.....Dundas, Ont.

Manhole Frames and Covers
American Brake Shoe & F'dry Co.Mahwah.
Canada Iron Corporation, Ltd....Montreal.

Marine Repairs
Goldschmidt Thermit Co.....Toronto.

Marine Supplies
Rice Lewis & Son.....Toronto.

Metal, Anti-friction
W. Abbott.....Montreal.

Metal, Babbit
Tallman Brass & Metal Mfg. Co. Hamilton.

Metals
Goldschmidt Thermit Co.....Toronto.

Metal Work, Structural
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Montreal Locomotive W'ks (Ltd.).Montreal.
Jas. W. Pyke & Co.....Montreal.

Milepost Numbers
Acton Burrows Limited.....Toronto.

Motors
Canadian Fairbanks Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.

Motors, Electric
Allis-Chalmers-Bullock Ltd.....Montreal.
Canadian Crocker Wheeler Co., Montreal.
Northern Electric & Mfg. Co. Ld.Montreal.

Motor Generator Sets
Allis-Chalmers-Bullock Ltd.....Montreal.

Motors, Turntable
Taylor & Arnold.....Montreal.

Nickel
The Orford Copper Co.....New York.

Nickel for Nickel Steel
The Orford Copper Co.....New York.

Numbers
Acton Burrows Limited.....Toronto.

Nut Locks
Positive Lock Washer Co....Newark, N.J.

Nuts, Clevis
Cleveland City Forge & Iron Co., Cleveland.

Nuts, Square and Hexagon
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto

Oakum
The Hudson's Bay Company.....

Office Fittings
Can. Office & Sch'l Furniture Co..Preston.

Office Signs
Acton Burrows Limited.....Toronto.

Oils
Galena Signal Oil Co..Franklin & Toronto.

Packing
The N. L. Piper Ry. Supply Co..Toronto.

Paints
Standard Paint & Var. Co., Windsor, Ont.

Patterns
Hamilton Pattern Works....Hamilton, Ont.

Pile Drivers, Railway
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.

Pinch Bars
The N. L. Piper Ry. Supply Co..Toronto.

Pipe, Culvert (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Pipe, Gas (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Pipe, Sewer (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Pipe Stocks
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Pipe, Water (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Planers
John Bertram & Sons Co.....Dundas, Ont.

Platforms, Steel
Standard Coupler Co.....New York City.

Ploughs, Contractors'
Mussens Limited.....Montreal.

Ploughs, Grading
Meaford Wheelbarrow Co., Ltd ..Meaford.

Poles
J. Harrison & Sons Co., Owen Sound, Ont.

Porter
E. L. Drewry.....Winnipeg.

Posts
J. Harrison & Sons Co., Owen Sound, Ont

Powder, Blasting
Standard Explosives Limited.....Montreal.

Printing
Southam Press.....Toronto.

Pumps
Canadian Fairbanks Co., Ltd.....Montreal.
S. F. Bowser & Co., Limited.....Toronto.
Ontario Wind Engine & Pump Co..Toronto.
James Smart Mfg. Co.....Brockville, Ont.

Pumps (Centrifugal)
M. Beatty & Sons .....Welland, Ont.

Rail Benders, Roller
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works.....Montreal.

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Patent Water-Tube Boilers
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The Purchasing Agents' Guide—Continued.

Rail Drilling Machines
A. B. Jardine & Co.....Hespeler, Ont.
Rails (new)
Dominion Iron & Steel Co....Sydney, N.S.
Drummond, McCall & Co. .....Montreal.
J. T. Gardner.....Chicago, Ill.
J. J. Gartshore.....Toronto.
F. H. Hopkins & Co...'.....Montreal.
Rails (for relaying)
F. H. Hopkins & Co...'.....Montreal.
J. J. Gartshore.....Toronto.
Mussens Limited.....Montreal.
Jas. W. Pyke & Co.....Montreal.
Rail Joints
Goldschmidt Thermit Co.....Toronto.
The Rail Joint Co. of Canada....Montreal.
Railway Supplies
Canadian Fairbanks Co., Ltd.....Montreal.
T. McAvity & Sons .....St. John, N.B.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Rice Lewis & Son.....Toronto.
Russell Wheel & Fdry. Co., Detroit, Mich.
Reamers
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.
Replacers, Car and Locomotive
Alexander Car Replacer Mfg. Co..Scranton.
Dominion Equip't & Supply Co., Winnipeg.
The Holden Co., Ltd .....Montreal.
F. H. Hopkins & Co.....Montreal.
Rivets, Boiler, Bridge and Structural
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.
Rock Crushers
Allis-Chalmers-Bullock Ltd.....Montreal.
Roofing, Car
Drake & Wiers Co.....Cleveland, O.
Rope
F. H. Hopkins & Co.....Montreal.
The Hudson's Bay Company.....
Ropes, Coal Haulage
The B. Greening Wire Co..Hamilton, Ont.
Ropes, Derrick
Dominion Wire Rope Co.....Montreal.
The B. Greening Wire Co..Hamilton, Ont.
Ropes, Switch
The B. Greening Wire Co..Hamilton, Ont.
F. H. Hopkins & Co.....Montreal.
Scales
Canadian Fairbanks Co., Ltd.....Montreal.
Scows, Dump and Deck
M. Beatty & Sons.....Welland, Ont.
Scrapers (Wheel and Drag)
F. H. Hopkins & Co.....Montreal.
Meaford Wheelbarrow Co., Ltd...Meaford.
Mussens Limited.....Montreal.
Screw Plates
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.
Screws, Coach and Lag
Montreal Rolling Mills Co.....Montreal
Toronto Bolt and Forging Co.....Toronto.
Seats, Station
James Smart Mfg. Co....Brockville, Ont.
Semaphore Arms
Acton Burrows Limited.....Toronto.
Semaphores
General Railway Signal Co., Rochester, N.Y.
The N. L. Piper Ry. Supply Co..Toronto.
Saxby & Farmer, Ltd. .....Montreal.
Shafting, Hollow
Falls Hollow Staybolt Co..Cuyahoga Falls.
Shingles
J. Harrison & Sons C. .Owen Sound, Ont.
Ships
Polson Iron Works.....Toronto.
Shops
The Hudson's Bay Co.....
Signal House Numbers
Acton Burrows Limited.....Toronto.
Signals
General Railway Signal Co. Rochester, N.Y.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Saxby and Farmer, Limited.....Montreal.
Signals, Fog
International Marine Signal Co....Ottawa.
Signs
Acton Burrows Limited.....Toronto.
Skidders and Loaders
Russell Wheel & Fdry. Co., Detroit, Mich.
Slack Adjusters
Chicago Railway Equipment Co..Chicago.
Sledges
James Smart Mfg. Co.....Brockville, Ont.
Snow Ploughs
Crossen Car Mfg. Co.....Cobourg, Ont.
Rhodes, Curry Co., Ltd.....Amherst, N.S.
Solder
Tallman Brass & Metal Mfg. Co. Hamilton.
Spikes, Railway, Ship or Pressed
Hamilton Steel & Iron Co., Ltd.Hamilton.
F. H. Hopkins & Co.....Montreal.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Toronto Bolt and Forging Co.....Toronto.
Spreader Cars
F. H. Hopkins & Co.....Montreal.

Spring Dampeners
McCord & Co.....Chicago, Ill.
Springs
American Vanadium Co.....Pittsburg, Pa.
B. J. Coghlin & Co.....Montreal.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works.....Montreal.
Standard Steel Works Co..Philadelphia, Pa.
Stand Pipes
T. McAvity & Sons .....St. John, N.B.
Station Name Signs
Acton Burrows Limited.....Toronto.
Staybolt Bars, Charcoal Iron
Falls Hollow Staybolt Co..Cuyahoga Falls.
Staybolt Iron
Taylor & Arnold.....Montreal.
Staybolt Iron or Steel Bars, Hollow
Falls Hollow Staybolt Co..Cuyahoga Falls.
Staybolts, Flexible
Flannery Bolt Co.....Pittsburg, Pa.
Staybolts, Locomotive
Falls Hollow Staybolt Co..Cuyahoga Falls.
Flannery Bolt Co.....Pittsburg, Pa.
Staybolt Taps
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.
Steam Couplers
Safety Car H't'g & L't'g Co....New York.
Steam Hammers
John Bertram & Sons Co.....Dundas, Ont.
Steam Shovels
M. Beatty & Son.....Welland, Ont.
R. M. Burns & Co.....Chicago, Ill.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Steamship Signs
Acton Burrows Limited.....Toronto.
Steel
W. Abbott...'.....Montreal.
Hermann Boker & Co. .....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Wm. Jessop & Sons.....Sheffield, Eng.
Steel, Fire Box
Taylor & Arnold.....Montreal.
Steel for Axes
Montreal Steel Works.....Montreal.
Steel for Saws
Montreal Steel Works.....Montreal.
Steel for Springs
James Hutton & Co.....Montreal.
Steel Shafting
Nova Scotia S. & C. Co., New Glasgow, N.S.
Steel, Speedicut High Speed
Montreal Steel Works.....Montreal.
Steel, Nickel, for Nickel
The Orford Copper Co.....New York.
Steel Plates
Jas. W. Pyke & Co.....Montreal.
Steel, Tool
W. Jessop & Sons.....Sheffield, Eng.
Montreal Steel Works.....Montreal.
Stokers, Mechanical
Babcock & Wilcox (Ltd.).....Montreal.
Stoves
James Smart Mfg. Co.....Brockville, Ont.
Superheaters
Babcock & Wilcox (Ltd.).....Montreal.
Switches
Canadian Ramapo Iron W's Ld.Niagara Fs.
Montreal Steel Works.....Montreal.
Switch Stands
Canadian Ramapo Iron W's, Ld.Niagara Fs
Switch Targets
Acton Burrows Limited.....Toronto.
Tanks and Tank Fixtures
Ontario Wind Engine & Pump Co..Toronto.
Polson Iron Works, Ltd. .....Toronto.
Tanks, Oil
S. F. Bowser & Co., Limited.....Toronto.
Tapes, Measuring
Lufkin Rule Co .....Saginaw, Mich.
Taps
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.
Telegraph and Telephone Apparatus
Northern Elec. & Mfg. Co., Ltd.Montreal.
Telegraph and Telephone Office Signs
Acton Burrows Limited.....Toronto.
Thermit
Goldschmidt Thermit Co.....Toronto
Ticket Cases
Can. Office & School Furniture Co.Preston.
Tie Plates
B. J. Coghlin & Co.....Montreal.
Hamilton Steel & Iron Co..Hamilton, Ont.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
J. Harrison & Sons Co..Owen Sound, Ont.
Tie Plugs
J. Harrison & Sons Co..Owen Sound, Ont.
Ties
J. Harrison & Sons Co..Owen Sound, Ont.
Parry Sound Lumber Co.....Toronto.
Tires, Steel
James Hutton & Co.....Montreal
Jas. W. Pyke & Co.....Montreal.
Standard Steel Works Co..Philadelphia, Pa.
Tools and Supplies
Canadian Fairbanks Co., Ltd.....Montreal.
James Smart Mfg. Co.....Brockville, Ont.
A. B. Jardine & Co.....Hespeler, Ont.

Tools, Track
John Bertram & Sons Co.....Dundas, Ont.
B. J. Coghlin & Co.....Montreal.
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works.....Montreal.
Mussens Limited.....Montreal.
Tools, Pneumatic
The Holden Co., Ltd.....Montreal.
Tools, Cast Steel Track
American Brake Shoe & F'dry Co.Mahwah.
Track Equipment
Canadian Ramapo Iron W's Ld.Niagara Fs.
Tramway Equipment
J. J. Gartshore.....Toronto.
Transformers
Allis-Chalmers-Bullock Ltd.....Montreal.
Transmission Appliances
Canadian Fairbanks Co., Ltd.....Montreal.
Trolley Wheels
Tallman Brass & Metal Co., Ltd.Hamilton.
Trucks
James Smart Mfg. Co.....Brockville, Ont.
Trucks (Electric Car)
Baldwin Locomotive Works..Philadelphia.
Montreal Steel Works.....Montreal.
Trusses, Roof
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Tubes, Boiler
Jas. W. Pyke & Co.....Montreal.
Turbines, Steam
Allis-Chalmers-Bullock Ltd.....Montreal.
Turnbuckles
Cleveland City Forge & Iron Co..Cleveland.
Montreal Steel Works.....Montreal.
Turntables
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Typewriters
United Typewriter Co.....Toronto.
Valves, Brass Gate
Kerr Engine Co.....Walkerville, Ont.
Valves, Brass Globe
Kerr Engine Co.....Walkerville, Ont.
Valves, Iron and Brass
Canadian Fairbanks Co., Ltd.....Montreal.
Valves, Iron Gate
Kerr Engine Co.....Walkerville, Ont.
Valves, Locomotive Pop
T. McAvity & Sons .....St. John, N.B.
Taylor & Arnold.....Montreal.
Vanadium Steels
American Vanadium Co.....Pittsburg, Pa.
Varnishes
The Dougal Varnish Co., Ltd....Montreal.
Standard Paint & Var. Co., Windsor, Ont.
Vessels
Polson Iron Works.....Toronto.
Washers
Montreal Rolling Mills Co.....Montreal.
Waste
B. J. Coghlin & Co.....Montreal.
N.L. Piper Railway Supply Co....Toronto.
Water Softeners
Babcock & Wilcox, Ltd.....Montreal.
L. M. Booth Co.....Chicago, Ill.
Welding
Goldschmidt Thermit Co.....Toronto.
Wheelbarrows
F. H. Hopkins & Co.....Montreal.
Meaford Wheelbarrow Co., Ltd...Meaford.
Wheels, Car
Canada Car Co., Limited.....Montreal.
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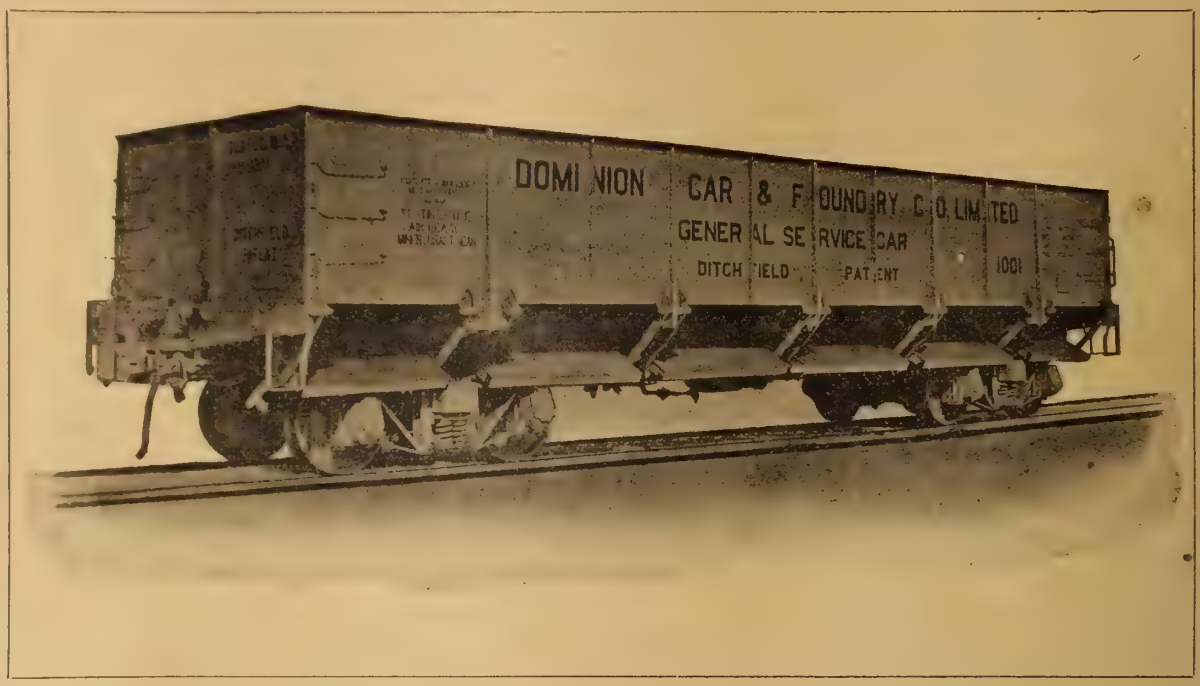

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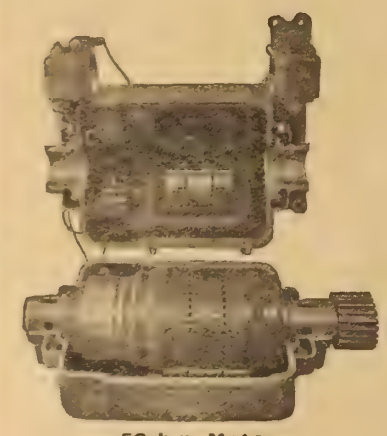

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Fuel Economy on Testing Plants and Railways.

By H. H. Vaughan, Assistant to Vice President, Canadian Pacific Ry.

Most of us have at one time or other been confronted with the statement that there was a terrific waste in the operation of a steam engine, something like 5% of the heat developed by the coal burned under the boiler, being all that was transformed into useful work. That such a statement is true is easily shown by comparing the coal consumption of an ordinary engine, taking say 4 lbs. of coal per h.p. hour, and the work that is the equivalent of the heat in the coal. A horse power is 33,000 foot pounds of work per minute, so that a horse power hour is 1,980,000, or very nearly two million foot pounds of work. Four pounds of coal will develop about 60,000 b.t.u. of heat and as the mechanical equivalent of heat is 778 foot pounds per b.t.u., the total work that is the equivalent of the heat contained in the four pounds of coal is about 46,000,000 foot pounds. As only 2,000,000 or under one-twentieth of this is developed useful work, the statement that 95% is wasted is entirely true and cannot well be denied. As is well known, the larger part of this 95% is not waste at all in the proper sense of the word, but is the necessary result of the natural laws governing the action of heat engines. We are very much in the position of trying to utilize sea water, pumped into a tower at Winnipeg, for power purposes. If the tower were 200 ft. high and the discharge were into the river at a height of 750 ft. above sea level, the best possible efficiency that could be obtained would be by using 200 ft. out of the total head of 950 ft. available, or about 21%. The 79% that was lost on account of the impossibility of utilizing the total down to sea level would not be waste, but power rendered unavailable on account of the conditions under which it was supplied. While not by any means an exact simile, such a case does to a certain extent resemble the conditions under which heat can be used in the heat engine. The heat that can possibly be utilized depends on the proportion of the range of temperature through which the engine works to the initial temperature, and the initial temperature, like the height of the water tower, is not measured from the level at which we can use it, but from the absolute zero of temperature, about 465 degrees below zero Fahrenheit. The most perfect form of heat engine therefore working between a temperature of 390 degrees, or that of steam at 200 lbs. pressure, and 60 degrees, the temperature of the atmosphere, could then only have an efficiency of 330/855 or 38%. It is needless to say that nothing approaching this could practically be realized, not only because such extreme efficiency would be more expensive than the results would justify, but also because any such engine would have to be of a totally different type to the existing steam engine, which cannot work under the conditions demanded for the most economical heat engine. In order, therefore, to afford a practical working comparison, the definition of an ideal steam engine has been adopted, as follows:—

WILLIAM DOWNIE,
General Superintendent Atlantic Division, Canadian Pacific Railway.

"A perfect engine receiving steam at its upper limit of pressure equal to that measured close to, but on the boiler side of the engine stop valve, and continuing this pressure and temperature up to cut-off. Beyond cut-off the steam is assumed, to expand adiabatically in the cylinder down to a pressure equal to the back pressure against which the engine is working. The steam is then exhausted from the cylinder at constant pressure corresponding to the lower limit of temperature."

This definition, while it may appear rather complicated, really specifies a perfect steam engine, working as a steam engine does, with steam at boiler pressure and an exhaust pressure determined by conditions, but with perfect expansion and an entire absence of all the losses due to the cylinder condensation, compression, and the various other causes which prevent an actual engine from obtaining the greatest possible economy. Such losses are however, more or less avoidable, and it is the aim of the steam engineer to reduce them by compounding, superheating, and other means, so that the ideal engine thus set up may be fairly taken as a standard which may be approached, although never equalled, by an actual steam engine.

It is interesting to examine the degree to which the steam locomotive has so far approximated this ideal engine, and for the information in connection with steam locomotives we can use the results obtained in the tests conducted on the testing plant at the St. Louis Exposition in 1906. The conditions under which these engines worked may be taken as a boiler pressure of 200 lbs. and an exhaust pressure of 6 lbs., and with these limits the ideal engine would require about 250 b.t.u. per h.p. per minute, or 12.8 lbs. of steam per hour at boiler pressure. The simple locomotives tested required from 23.6 to 28.9 lbs., while the compounds required from 19.0 to 27.0 lbs., so that compared to an ideal steam engine under the same conditions, the efficiency of the simples was 54 to 44%, and of the compounds 67 to 47%.

The ideal engine taking 250 b.t.u. per h.p. per minute, or 15,000 b.t.u. per hour has an efficiency of 17%. This is obtained by multiplying 15,000 by 778, which gives the work that is the equivalent of that amount of heat, 11,670,000 foot pounds, and dividing this by 1,980,000, the foot pounds equal to the work of one h.p. hour. As the engines on the testing plant may be said to have had an efficiency of about 50% for the simples, and 60% for the compounds, we see that the actual heat efficiency was from 8½ to 10% based on the total heat delivered to them in the steam, so that even in the case of these particular engines there is 90 to 91½% of the heat in the coal that cannot be used, that the fireman cannot be blamed for.

The efficiency of the engine is however, only one of the factors determining the proportion of the heat in the coal that can be developed as useful work. The boiler, while not limited by the same conditions as the engine, is still unable to deliver in the steam the full amount of heat that is generated by the coal

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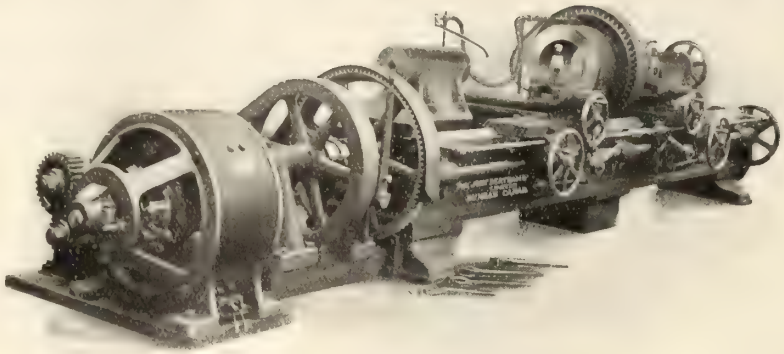

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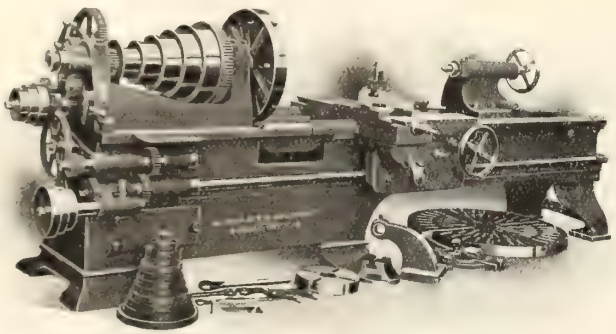

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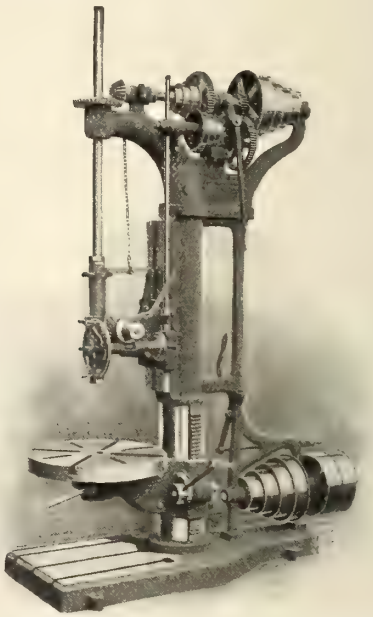

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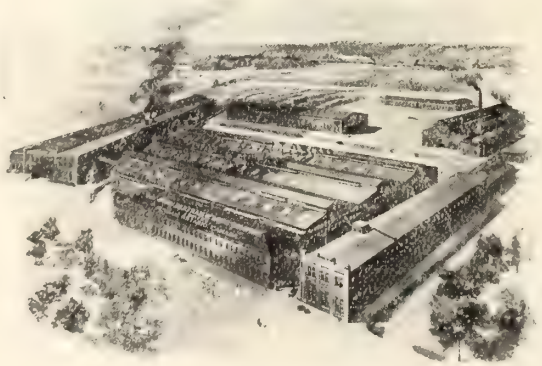

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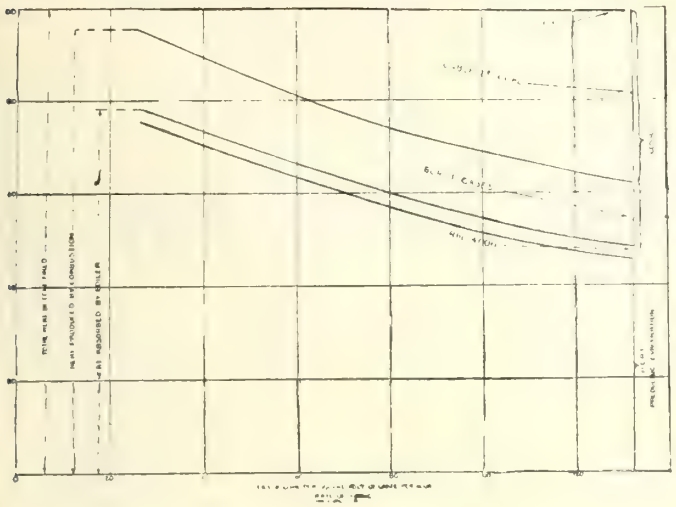


FIG. 1.

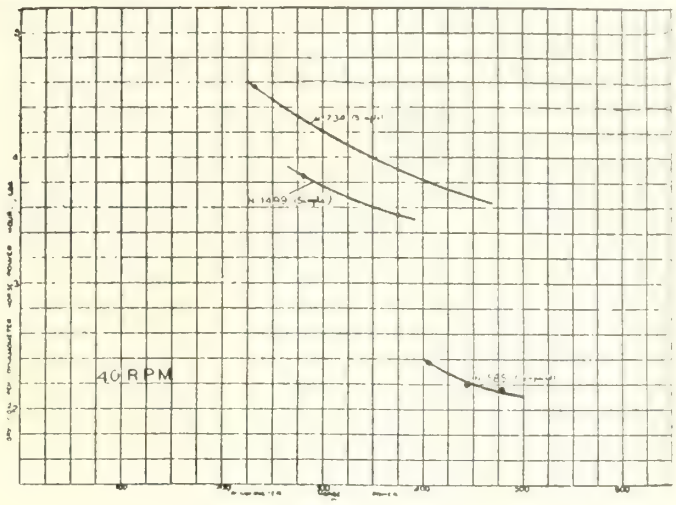


FIG. 2.

burned. The losses are however, nothing like as serious as those which take place in the conversion of the heat in the steam into work, and are only due to the combustion not being entirely perfect. the radiation of heat from the boiler, and to the heat contained in the gases that pass away into the stack. Under favorable conditions the sum of these losses may only amount to about 20%, so that 80% of the heat developed by the fuel may be actually present in the steam delivered by the boiler. In locomotive practice, however, boilers are not worked under as favorable conditions as are stationary boilers, on account of the enormously larger amount of steam that has to be generated by a boiler of a given size. In place of evaporating 3 lbs. of water per square foot of heating surface per hour and burning 15 lbs. of coal per square foot of grate, as much as 16 to 18 lbs. of water are evaporated and 120 to 140 lbs. of coal burnt.

This increase in capacity, while necessary in order to obtain the output from a locomotive boiler that would require a whole battery of stationary boilers, is only rendered possible by a sacrifice of economy, or in other words the efficiency of the locomotive boiler is generally considerably less than the 80% mentioned above. The reasons for this loss in efficiency in the boilers at the St. Louis Exposition were thoroughly investigated by Lawford H. Fry, and figure 1 shows one of the results of the caluculations made by him, which is exceedingly interesting. It is one of several which he presented in his paper on "Combustion in Locomotive Fireboxes" before the Institute of Mechanical Engineers, and refers to the trial of the New York Central balanced compound engine no. 3000. The diagrams for the other engines are generally similar, with some exceptions that will be mentioned later.

The efficiency of the boiler, which is shown by the lowest line, is slightly over 70% when coal is burnt at the rate of 30 lbs. per square foot per hour, and is gradually reduced to about 46% as the rate is increased to 120 lbs. per square foot per hour. The space between the lowest line and the next above it represents the heat radiated away by the boiler, so that this line shows the total heat absorbed by the boiler from the coal. The space above this represents the heat escaping in the hot gases passing out through the front end, while the space between the two upper lines is the loss from unburnt coal. The loss from imperfect combustion, or from the formation of carbon monoxide, is represented by the space between the highest line and the top of the diagram. This diagram is very interesting. In the first place it shows that at low rates of combustion the locomotive boiler is just as efficient as any, as the line showing the heat utilized would evidently be about 80% at a rate of 20 lbs. per square foot per hour, and in the next place, the losses from imperfect combustion are exceedingly small. This loss was not, however, as small as this in all the engines tested, as in one of them it became about 16% at the maximum rate of combustion. This is thought to have been due to insufficient ashpan openings, and it attracted general attention to that detail of the engine.

On most engines, however, this loss was small, and it is evident that from the cause, there need not be very much loss on a locomotive. It must be remembered that the firing at St. Louis was about as perfect as possible and the running conditions uniform, but from the fact that insufficient air causing a dull fire ran this loss up to 16% in place of 2 or 3%, it is evident how easily a loss in efficiency may be caused by heavy or intermittent firing which does not keep the fire in a clean bright condition. The heat wasted by the burnt gases is almost constant. This peculiar fact due to the decreased amount of air per pound of coal required at the higher rates of combustion which compensated for the increased temperature at which the gases passed into the front end. The same thing occurrs in all the tests and shows how well the fires were kept free from holes and the grates properly and uniformly covered.

The important loss, which increases as the rate of combustion increases, is that from unburnt coal. This loss is not entirely explained. The larger part of it is accounted for by the sparks and coal pulled through the tubes and stack without being burnt, but this is not sufficient to account for the entire loss. The loss from sparks is known to be about 20% of the total coal burnt, at the highest rate of combustion, and the balance of the loss is accounted for in different ways. Mr. Fry considers a large portion of it is due to unconsumed hydro-carbons, but it is not definitely known whether this is really the correct explanation. It is possible that the line showing the heat lost from the burnt gases should be rather higher, which would decrease the loss shown as unburnt coal. There is also a loss due to good coal shaken down into the ashpan, but with the care taken in

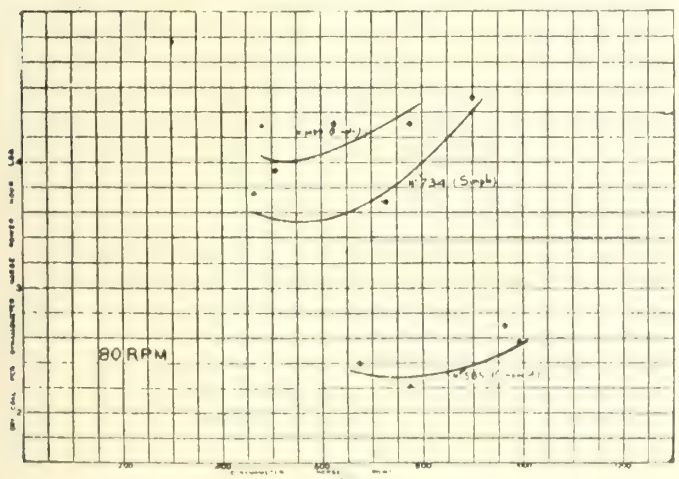
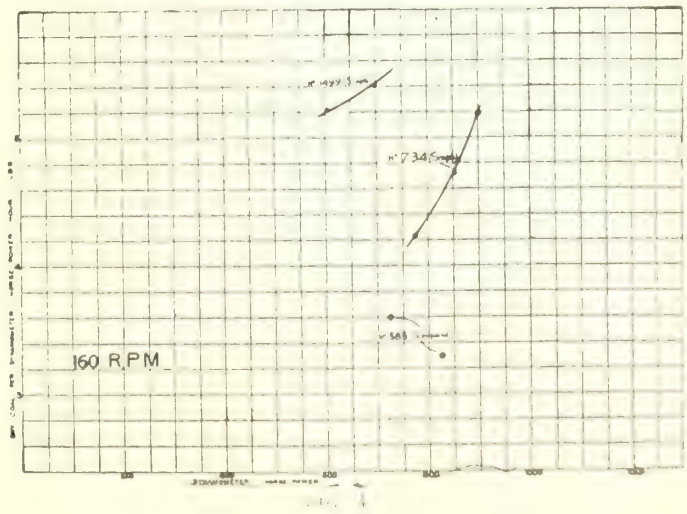


FIG. 3.



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carrying out these tests, this also is comparatively small. All we can say is that after the various known factors have been taken into account, that a portion of the loss due to unburnt coal is from an undetermined cause, and that the explanation offered by Mr. Fry is possibly correct, namely, that it is due to unconsumed hydro-carbons passing away into the front end. He considered that this may be produced by the partial distillation of the particles of coal which are carried off the grate by the draught, or that there may be unconsumed free hydrogen in the flue gases. Evidence supporting this view is furnished by the fact that the gas analysis shows more nitrogen than can be accounted for by the other products of combustion, and that if this excess of nitrogen is assumed to be a hydro-carbon gas, the heat contained in it, together with the expected loss by sparks and a reasonable ashpan loss, make up very closely the total loss through unburnt coal. There is here possibly a chance for better economy, that we have hitherto not suspected, but it may be stated that so far as can be learned from the tests, it will not be obtained from the use of a brick arch as it was found that its value consisted in the reduction of the loss by imperfect combustion, due to the formation of carbon monoxide. The engine from which this diagram of heat balances was obtained was fitted with an arch and, as it shows, the loss from carbon monoxide was exceedingly small. On the engines not having a brick arch there was a considerable loss from this cause, amounting to as much as 16% at higher rates of combustion, and although it so happened that these same engines were subject in each case to unfavorable conditions, there is still good evidence to support the claim made that a properly proportioned brick arch will effect a saving in coal of 5 to 10%.

These points however, while interesting, do not affect the main information given by this diagram, which it may be stated, is from the most efficient boiler tested at St. Louis. It shows that, under the most perfect conditions of testing, uniform work, economical firing and a boiler in as good condition as possible, the heat accounted for in the steam is from 50 to 70% of the heat in the coal, as the rate at which the coal is burnt decreases from 110 to 40 lbs. per square foot of grate per hour. If this efficiency is combined with that of the engine, which as previously stated varied from 8½ to 10%, we find that the total efficiency of the locomotive, under testing plant conditions varies from 4½ to 7%, so that we see that the general statement of a loss of 95% of the heat present in the coal, is confirmed by the best results that have so far been obtained from locomotives.

We also see to what a large extent this loss is unavoidable as long as we are forced to transform heat into work by means of any form of steam engine, and the high degree of perfection that has already been reached by our present locomotives when the limiting efficiency which they could possibly attain is properly considered.

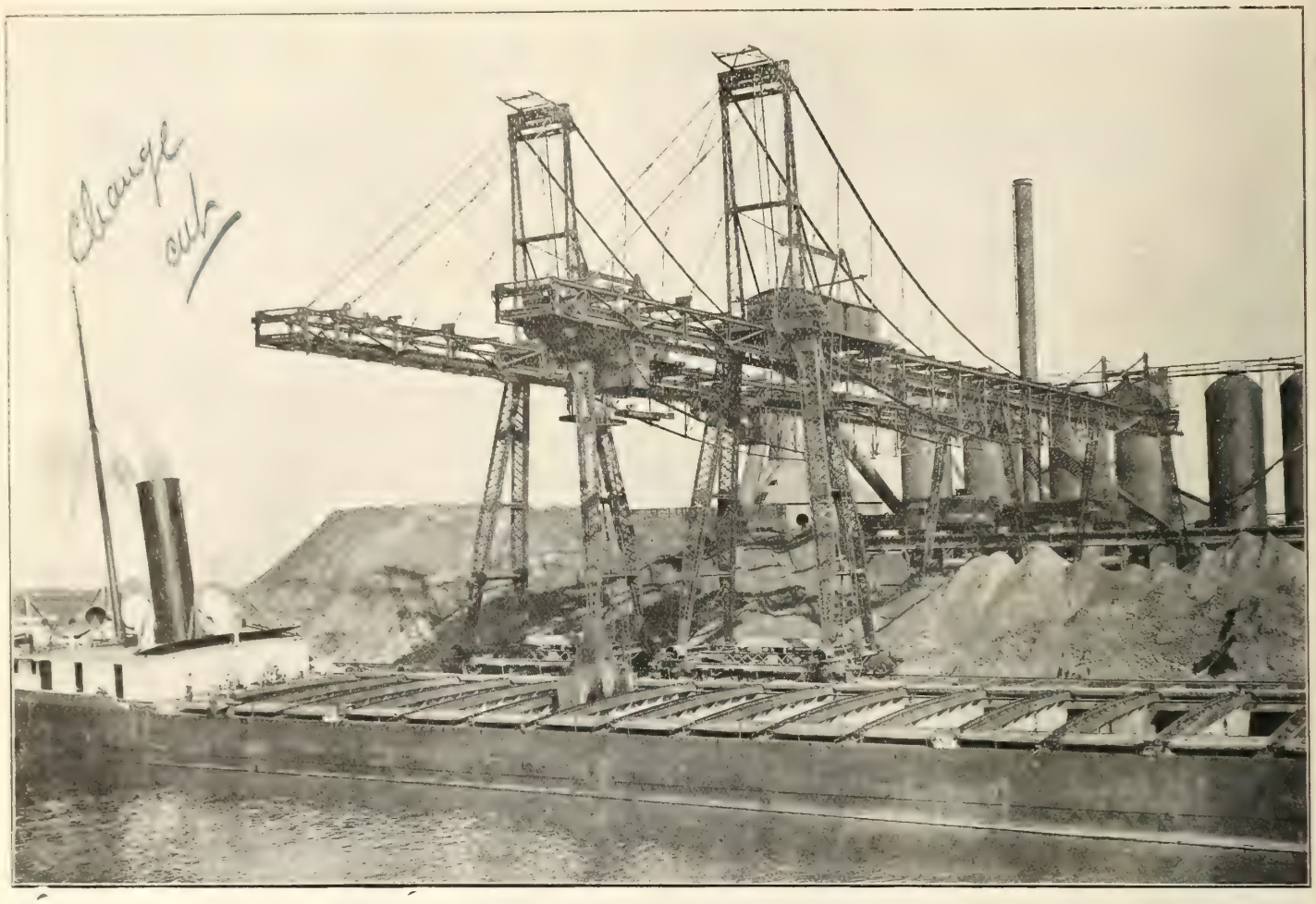
The figures so far discussed have entirely referred to efficiency on the basis of indicated horse power. Before this power reaches the rail, it is reduced by the friction losses in the cylinders, motion and axles, and the resultant power is what is termed the dynamometer horse power. Figs. 2, 3 and 4, which are reproduced from the report of the St. Louis tests, show the coal per dynamometer horse power hour for three freight locomotives tested at St. Louis, at 40, 80 and 160 revolutions per minute respectively. It will be seen that the most economical results were obtained from no. 585, a Michigan Central Rd. cross compound, which at low speeds showed a fuel consumption of only 2¼ lbs. per h.p. hour. This corresponds to a total efficiency of 7.5% , and is an exceedingly economical result for any type of non-condensing steam engine. As shown on the diagrams the fuel consumption increased at higher speeds, and at 160 revolutions per minute, which corresponds to 30 miles an hour for a 63 inch wheel, it amounted to 3½ lbs. Fig. 5 shows roughly the coal consumption of these different engines as the speed increased, and is interesting when their varying types are considered. No. 1499 is a Pennsylvania Rd. simple consolidation, 22 by 28 inch cylinders, 56 inch drivers, 205 lbs. boiler pressure. Heating surface 2844 sq. feet, grate area 49.2 sq. ft. No. 734 is a Lake Shore & Michigan Southern Rd., simple consolidation, 21 by 30 inch cylinders, 63 inch drivers, 200 lbs. boiler pressure. Heating surface 2858 sq. feet. Grate area 33.7 sq. feet. No. 585 is a Michigan Central Rd. compound consolidation, 23 and 35 by 32 inch cylinders, 63 inch drivers, 210 lbs. boiler pressure. Heating surface, 31681 square feet. Grate area 49.4 square feet.

The compound engine is evidently far more economical than the simples, but it should be remembered that the conditions on a testing plant are more favorable to this type of engine than are those in regular road service. On the testing plant, they are working absolutely uniformly, everything is maintained as constant as possible during the time the test is conducted, and it is under these conditions, as we know, that the best results from a compound engine can be obtained. The boiler efficiency of no. 585 was also exceedingly good, and in fact a large proportion of the economy is due to this, as no. 734 showed only from 70% to 82% of the boiler efficiency of 585, and that of no. 1499 showed very poor results at the higher rates of evaporation, due to the insufficient air supply. Still while there may be reasons why the simple engines showed so much greater fuel consumption than the compound, there are no reasons why the compound should show more, and the fact remains that a steam locomotive under the best conditions, has developed a dynamometer horse power hour at a coal consumption of 2¼ to 3½ lbs., corresponding to a total efficiency of 4.9 to 7.5%.

We have found therefore that in order to realize what are avoidable and what are unavoidable losses in the conversion of heat into work by a steam engine or locomotive, it is necessary to consider first what degree of economy could be obtained by an ideal steam egine working under certain limiting conditions, and then consider with what perfection our existing locomotives approach that ideal. Locomotives do not however, operate upon testing plants, but in hauling trains, and the real point we are interested in is the extent to which our locomotives in actual service approach the best results which it is possible to obtain. We know that on the testing plant the machinery was in the best possible condition, the boiler was not leaking, the valves and pistons were as tight as they could be made, and the firing was as good as it could possibly be. To what extent do we approximate the testing plant results and how does our actual efficiency compare with that obtained upon them?

Unfortunately when we are dealing with road conditions there are a number of factors to be considered that cannot be accurately allowed for. In place of constant conditions there are exceedingly variable ones, part of the time the engine is running and part of the time standing, and any comparison that can be made must necessarily be more or less approximate. No estimate can be made that is a reasonable one for determining the exact consumption of the engines in pounds of coal per dynamometer horse power hour, but one figure can be obtained with reasonable accuracy, namely, the efficiency of the equipment and organization as a whole If in place of the ideal steam engine we consider the best results obtained upon the testing plant as the ideal of locomotive efficiency, we can determine fairly closely the degree to which such an ideal is approached by our locomotive and operating departments. To do this some particular section or division must be selected and for this purpose I will refer to the results obtained on district 1 of the Central Division on the C.P.R. during the last few months. On that district the fuel consumption has for several months been below 80 lbs. per thousand equivalent gross ton miles. In one month it was 75 and in another 76, and these figures are not taken from any particular test but represent the total consumption on the division, averaging over 7000 tons of coal a month. When it is considered that, although the difference in level of the two ends of this division of 420 miles is small, only 150 ft., the heavier tonnage is uphill, it is doubtful whether this result has ever been equaled in this or any other country, especially where the large amount of traffic which it includes is taken into account. It is therefore a good example to consider for comparison with an ideal engine, but on account of the hill condition on the east end, the section from Ignace to Winnipeg is preferable in place of the entire district.

The coal records available on the road show the total coal consumed per 1000 equivalent gross ton miles, and cannot therefore be directly compared with the coal per dynamometer h.p. hour. Supposing, however, a train had an average resistance over a division of 5 lbs. a ton, so that 1000 tons gave a resistance of 5000 lbs. This 5000 lbs. pulled one mile or 5280 ft. would equal 26,400,000 foot pounds. A horse power hour is 1,980,000 foot pounds, so that 1000 ton miles with a train having a resistance of 5 lbs. per ton is the equivalent of 12.8 h.p. hours. This is evidently proportional to the resistance, so that if the average resistance of the train were 10 lbs. per ton, 1000 ton miles would equal 25.6 horse power hours and so on. I cannot give the exact figure for the resistance of a train from Ignace to Winnipeg, but the figure obtained for a very similar district, Outremont to Smith's Falls, was 4.50 lbs. eastbound and 7.00 lbs. westbound. The difference in level is 2.6 ft. per mile which accounts for 1 lb. per ton from an average of 5½. From other figures we have, I believe the figure of 7 lbs. per ton is slightly high and that figure for a level undulating road with short grades not exceeding 0.5 or 0.6% would be about 5½ lbs. The difference in level would increase this to 6½ tons up hill and reduce it to 4½ lbs. down. Now from Ignace to Kenora the grade averages 2.7 ft. per mile down west bound, and from Kenora to Winnipeg 2.53 ft. per mile down west bound, so that with very little danger of inaccuracy we may say that the average resistance is 4½ lbs. per ton west and 6½ lbs. per ton east bound on these two sections. 1000 ton miles is therefore the equivalent of 11.5 and 16.6 h.p. hours respectively, and if we assume that when working, the ideal engine has a speed of 20 miles per hour corresponding to a coal consumption of 2.7 lbs. per dynamometer h.p. hour, the coal required per 1000 e.g. ton miles would be 31 and 44½ respectively. Taking the month of July this corresponds with actual results of 61 and 86½ lbs., or an efficiency of 51% in both cases, and this in a sense may be said to be the efficiency of the operation as a whole. This



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however is not exactly fair, it does not mean that the ideal engine could possibly do the work on 51% of the coal. On the testing plant, the fire is in good condition when the test is started and finished, the engine does not have to turn a wheel except the drivers, there are no air pumps or electric headlights to run, while on the road every pound of coal has to be accounted for, and the resistance of the engine is, even when the machine friction is deducted, certainly equal to that of the train. Suppose we consider our ideal engine under these conditions. The average length of the sections is 139 miles, the amount of coal lighting up, and that which must be knocked out at the end of the run, is about 2000 lbs. If we assume that the average length of trip is 10 hours and the air pump takes 30 double strokes a minute during that time, on a full train, the air pump will take about 2000 lbs. of coal west bound, and 1100 lbs. east bound. The headlight requires 60 lbs. of coal per hour and if burned 6 hours out of 24 or 25% of the time will average 150 lbs. per trip. We have therefore 4150 lbs. west bound and 3250 lbs. east bound per trip required by the road engine or 30 and 23 lbs. per mile respectively. We have in addition to allow for the power required to draw the weight of the engine, so that making these allowances the coal required by an ideal engine would be as follows:—

WESTBOUND

Per 1,000 ton miles for actual power developed	31.0 lbs.
Additional for weight of engine	2.1 lbs.
Additional for air pump, etc.	13.9 lbs.
Total	47.0 lbs.

EASTBOUND

Per 1,000 ton miles for actual power developed	44.5 lbs.
Additional for weight of engine	5.3 lbs.
Additional for air pump, etc.	18.8 lbs.
Total	68.6 lbs.

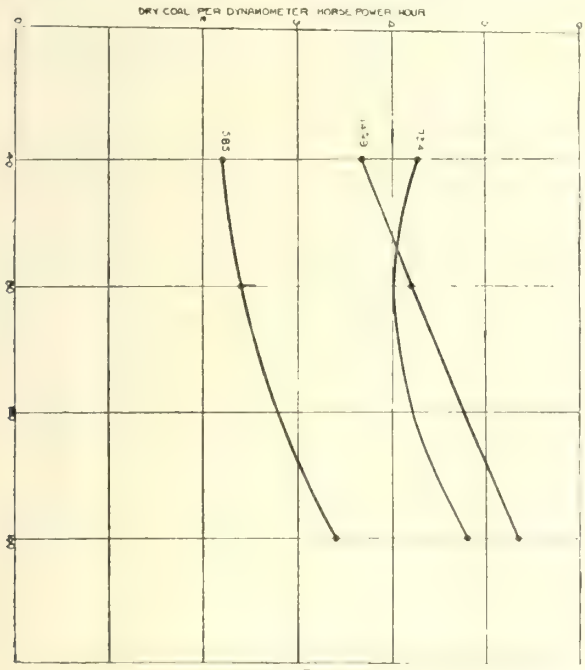


FIG. 5.

The net efficiency obtained therefore is 77% and 79% respectively, or considering the roughness of this calculation about 75 to 80%. This appears to be a very creditable record. We do not of course know whether the engine is as economical as that at St. Louis, but we have had almost exactly similar engines on this road and have found that under favorable conditions their economy is practically the same as that of the D 10 class which were in use on this district while under other conditions the D 10 were superior. We may safely say therefore that this district has come within 25% of testing plant conditions, so far as we know them, and to you, members of this Club, who are also engaged in this work, I can only say that you have done well, but let us get after that other 25%.

The foregoing paper was read before the Western Canada Railway Club recently.

Steam-Turbine Electric Locomotive.

Some particulars were given in our last issue respecting a new type of locomotive which is being constructed in Scotland. It is described as a steam-turbine electric locomotive; and as a turbo-electric combination. In general design it will not differ very materially from the ordinary locomotive now in use. Steam is raised in a boiler of the usual locomotive type, fitted with a superheater, the supplies of water being drawn from tanks disposed on either side of the boiler, and the coal is carried in side bunkers. The steam is led from the boiler to a high-speed impulse turbine running at 3,000 revolutions per minute, to which is directly coupled a continuous-current, variable-voltage dynamo. With this generator electrical energy ranging from 200 to 600 volts is supplied to four series-wound traction motors, the armatures of which are built on the four main or driving axles of the locomotive.

The exhaust steam from the turbine is passed into an ejector condenser, and is finally, with the circulating condensing water, discharged into the hot well. Owing to the steam turbine requiring no internal lubrication, the water of condensation is free from oil, and can consequently be discharged from the hot well direct into the boiler by means of a feed pump. In this manner the water can be used over and over again, and the water carried in the supply tanks actually serves as circulating water in the condensing operations. Circulation is effected in a closed cycle by means of small centrifugal pumps, driven by auxiliary steam turbines, placed alongside the main turbine and dynamo. The water thus flows from the tanks through the first pump, by means of which it is forced through the condenser, where it serves to condense the exhaust steam from the turbine, then to the hot well, from which it is pumped to a cooler at the front of the engine, where it comes in contact with a blast of cold air caused by the movement of the locomotive and a fan which serves to cool it, and then it returns to the tank for further use. In so cooling the water, however, the usual exhaust blast which induces the draft through the furnace and boiler tubes is lost. To remedy this deficiency, a forced draft is supplied by means of a small turbine-driven fan, placed withinthe radiator or cooler, so that while it serves to cool the circulating water it also induces a blast of hot air to the fire. The cab of the locomotive carries a small switchboard, on which are mounted the controller for grouping the four motors, according to what draw-bar pull is required, in series or parallel, as well as the regulator for controlling the electrical circuit voltage, and consequently the speed of the train. The whole of this main and auxiliary machinery is mounted upon a strong underframe, carried on two eight-wheeled com pound bogies, to facilitate negotiation of curves at high speed. Each bogie carries two of the four driving motors, as already mentioned. It will thus be seen that in reality an articulated system is adopted.

The first engine to be built on these lines is approaching completion, and its performances are awaited with great interest. The experiments which have already been made upon an extensive scale lead the builders to believe that such a locomotive as this would possess great possibilities and offer a complete solution to the traction question of to-day. In any large well-equipped locomotive establishment an engine can be produced for a low figure in comparison with the electric locomotive, and by the adoption of the new combination it is not anticipated that the prime cost will be very appreciably enhanced.

Enormous Purchases Imminent.

"Rodolphe Forget, M.P., President of the Richelieu and Ontario Navigation Company, estimates that $500,000,000 will be spent this year throughout Canada by the Dominion Government, the railways, large corporations, mergers, traction systems and in other operations of the larger business houses. He anticipates that the Ottawa Government will spend about $100,000,000, and is of opinion that the money required for the consummation of the mergers now in sight and others to follow will foot up to about $150,000,000, while several more hundreds of millions will be required to meet expansion in all avenues of trade and commerce, which will be felt from one end of the Dominion to the other."

The largest buyers of equipment supplies and other goods for carrying out the works referred to above will be the steam and electric railway and steamship companies, railway and canal contractors, etc., the people who subscribe for and thoroughly read the Railway and Marine World, who depend on it for information relating to their business and who look to its advertising pages when they are in the market for goods.

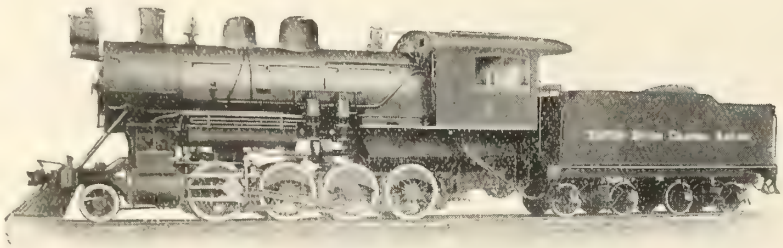
The National Transcontinental Commissioners are reported as expecting to have the road from Moncton to Winnipeg completed during 1912.

The Ontario Court of Appeal has denied the C.P.R. the right of appeal to the Privy Council from the order of the Railway Committee of the Privy Council for the construction of a bridge across the tracks at Yonge St., Toronto.

In the Victorian (Australia) Parliament the Minister of Railways said, during a recent debate: "I think Victoria is to be congratulated on the possession of three railway commissioners who are good business men. Our railways are managed, not perhaps as well as they might be, but as well as they can be under the circumstances. The improvement that has been effected since Mr. Tait came here, by himself and his colleagues, is a matter for congratulation, not only to parliament, but to the people generally."

The Temiscaming and Gowganda Transport Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $40,000 and office at Toronto, to transport in the Nipissing district and elswhere in Ontario, passengers and merchandise, "whether alive or dead," and to own and utilize the necessary vehicles, horses, etc., for such transport, and to carry on a general express business; to enter into contracts with the Ontario Government, the T. & N.O.R. Commissioners, and any railway or other company, and to deal in grain and supplies generally. The provisional directors are:—J. H. Gauthier, Gowganda; J. D. McMurrich, J. Harris, J. S. McLean, Toronto; T. G. Ferriss, Windsor; V. E. Taplin, S. Willows, New Liskeard, and W. Jamieson, Renfrew, Ont.

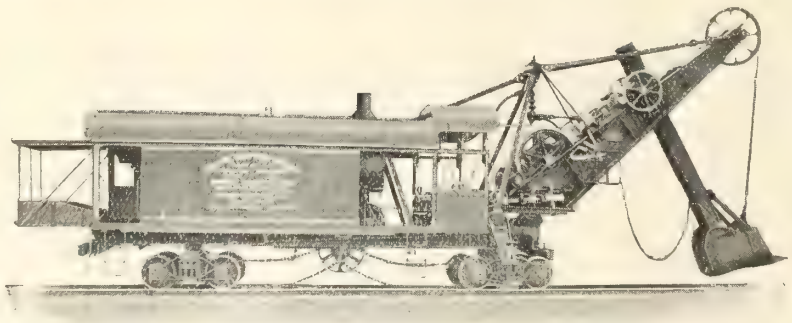
LOCOMOTIVES FOR ALL CLASSES OF SERVICE



Consolidation Type Freight Locomotive, Built for Eastern British Columbia Railway.

Total weight of engine in working order, 186,310 pounds. Weight on driving wheels, 166,100 pounds. Diameter of driving wheels, 51 inches. Boiler pressure, 210 pounds. Cylinders, 20 x 28 inches. Maximum tractive power, 39,200 pounds.

ATLANTIC STEAM SHOVEL



Direct wire rope hoist with but one sheave, instead of chain hoist with from five to seven sheaves, reduces delays and loss of time due to breakdowns, increases the efficiency of the engines, and reduces repair bills as well as fuel consumption.

Finished, interchangeable spare parts always on hand at works.

MONTREAL LOCOMOTIVE WORKS, LIMITED

BANK OF OTTAWA BUILDING, MONTREAL, CANADA

Weighing Coal in Ontario.

The Board of Railway Commissioners passed order 8982, dated Nov. 22, 1909, as follows: Re application of Retail Coal Dealers' Association for order that all railway companies weigh all coal carried by them received from foreign countries at the port of entry, and for other matters; it is ordered as follows:—

1. In the event of the consignee of any car or cars of bituminous coal shipped from the United States for final delivery at a point in Ontario, desiring to have such car or cars weighed at the port of entry, he shall be at liberty to give a written notice to the local agent of the railway company receiving such car or cars at such port of entry for delivery or furtherance, that he wisnes to have any or all the cars weighed, such notice to be given before the coal is received by such railway companies; and upon the receipt of such notice, it shall be the duty of the company to weigh, free of charge, at such port of entry, all cars covered by the notice.

2. Any consignee may give a general or continuing written notice that he wishes to have all such cars consigned to him weighed as above provided.

3. For the purpose of such weighing at the port of entry, the cars to be weighed may remain coupled one to another in a train.

4. The weighing of coal at the port of entry, under the provisions of this order, shall be under the supervision and control of a Government weigh-master, to be appointed or named by the Minister of Customs, whose duty it shall be to prepare in triplicate a certificate of the weight of the coal in each car weighed.

5. The Government weigh-master shall deliver one of the originals of such certificate to the railway company, if desired; attach another to the way-bill, or send it by mail to the consignee; and preserve the third in his possesion for further reference if required.

6. In case of dispute between the railway company and the consignee as to the weight of coal in cars weighed as hereinbefore provided, the certificate of the weight of such coal by the Government weigh master shall be binding upon the railway company.

7. It shall be the duty of the local agent of the railway company at such port of entry to notify the Government weigh-master of the probable hour of arrival from day to day of all cars of coal required to the weighed, in sufficient time to enable the weigh-master to supervise and control the weighing of such coal without unduly delaying the said cars in transit.

8. If the railway company has established weigh scales at the point of destination of such coal, the company shall there weigh such car or cars as may be specified in a written notice delivered by the consignee to the agent of the railway company at such point of destination, within 24 hours after the arrival of the coal.

9. If the railway company has not established weigh scales at the point of destination of such coal, the company shall, at the weigh-scale point nearest to such point of destination in the direct route, weigh such car or cars as may be specified in a written notice delivered by the consignee to the agent of the railway company at such point of destination, a reasonable time before such car or cars shall have reached the said weigh-scale point.

10. For the services required to be performed by the railway company under clauses 8 and 9 hereof, the railway company may charge and collect from the consignee 5c. for every ton of coal in the car, with a minimum of $1 and a maximum of $2 per carload; but no charge shall be made and no amount collected for such service, if the weight of the coal be more than 500 lbs. less than the weight of the coal at the port of entry, or if, the coal not having been weighed at the port of entry, the weight be more than 500 lbs. less than the weight shown by the weigh bill to be in the car at the time of shipment, plus the weight of the car itself as shown by the tare.

11. On notice in writing that he wishes to have the empty car weighed, being given by the consignee of any such coal to the agent at the point of destination of the railway company hauling the same to such point (if a weigh-scale point) within five hours from the unloading of any car containing such coal, the company shall weigh the car at such point, and for such service may charge and collect from the consignee $1 per car; but no such charge shall be made and no amount be collected for such service if the actual weight of the car exceeds the tare marked on it by more than 500 lbs.

12. This order shall apply only to ports of entry and points of delivery in Ontario.

13. Any person or company affected by this order may, after one year from the date hereof, apply to the Board to vary or rescind it.

Order 7261, dated May 31, 1909, is rescinded.

A Veteran Railway Official's Opinion

Wm. Whyte, Second Vice-President of the Canadian Pacific Railway is one of the very ablest, best known and most popular railway officials in Canada. He has risen to his present commanding position by untiring industry, exceptional ability and the valuable faculty of having the confidence of the entire public. His jurisdiction covers the whole of the company's affairs throughout the vast territory extending from the head of Lake Superior on the east to Vancouver Island on the west and embraces Northwest Ontario, Manitoba, Saskatchewan, Alberta and British Columbia. The circular announcing his appointment, issued by Sir Thomas G. Shaughnessy in December, 1903, was one of the most sweeping which ever emanated from a railway office. It read as follows:—

"Wm. Whyte has been elected Second Vice-President, with office at Winnipeg, in general charge of the maintenance and operation of the Company's western lines, and, under the President's direction, of the administration of the Company's affairs in the territory between Lake Superior and the Pacific coast. Officers of departments will report to their respective chiefs, as heretofore, but they will consult with the Second Vice-President, and keep him fully informed about all matters affecting the territory in his charge."

The opinion of a man occupying such a position on any matter relating to the railway interests is of the greatest importance and we therefore especially value and appreciate Mr. Whyte's opinion of our paper which was conveyed to our Managing Director some little time ago in the following letter:—

Canadian Pacific Railway,
Winnipeg, March 8, 1909.

Dear Mr. Burrows,—In your letter of the 27th ultimo you asked me for my impressions of the Railway and Marine World published by you.

I have much pleasure in stating that your periodical contains matter regarding the railway and marine field of a most comprehensive and accurate character, which is strong and clear evidence of the great care exercised by you in collcting the information. I have no hesitation in saying that I receive a great deal of benefit and information from reading the Railway and Marine World, and I express the hope that it may long continue to be the useful periodical of information that it is.

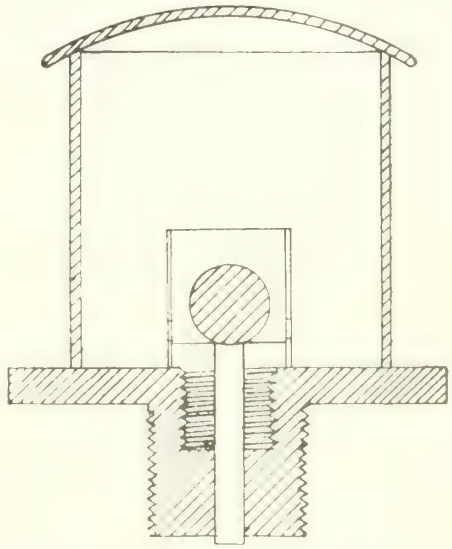
Yours very truly,
W. WHYTE,
Second Vice-President.

The accuracy of our reading matter is similarly recognized by railway officials generally, this accuracy ensures the paper being thoroughly read and therefore greatly enhances the value of the advertising pages.

Automatic Oil Cup for Locomotive Guide Bars.

By H. J. Varlow, General Foreman C.P.R., Fort William, Ont.

The consumption of oil on a railway is of serious importance but it is necessary that it should be watched closely to avoid all waste possible. I have noticed engines arrive at the round houses with the oil dropping on the guide bars. Owing to the needle not being closed the oil that remains in the cup drops on the floor and is wasted, I do not say the closing of the needle is omitted wilfully, but it does occur. The engineer may possibly have his attention fixed on some important work to report and forgets to close the needle in the cup. The accompanying sketch shows how this may be



remedied. It is not necessary to make a new cup. Remove the needle in your old cup and bore a hole half an inch deep in the bottom for a five-eighths screw. Take a piece of brass, turn one end down and screw five-eighths of an inch, bore a three-sixteenths hole through, bore out the top three-quarters of an inch in diameter, and one inch deep, put six holes a quarter inch round the bottom so the oil can flow on the centre, put a half inch diameter ball inside, bore the bottom to a slight radius. You will find the ball will sit over the centre of the three-sixteenths hole and prevent any leak of oil when the engine is at rest. As soon as the engine moves vibration will cause reciprocal motion on the ball and the oil will drop. By using this device the waste of oil on the guide bars can be reduced to a minimum.

A public subscription list for the construction of an opera house at Victoria, B.C., includes the following: C.P.R. $15,000; C.T.P.R. $10,000; Mackenzie, Mann and Co. $10,000; B.C. Electric Ry. $5,000.

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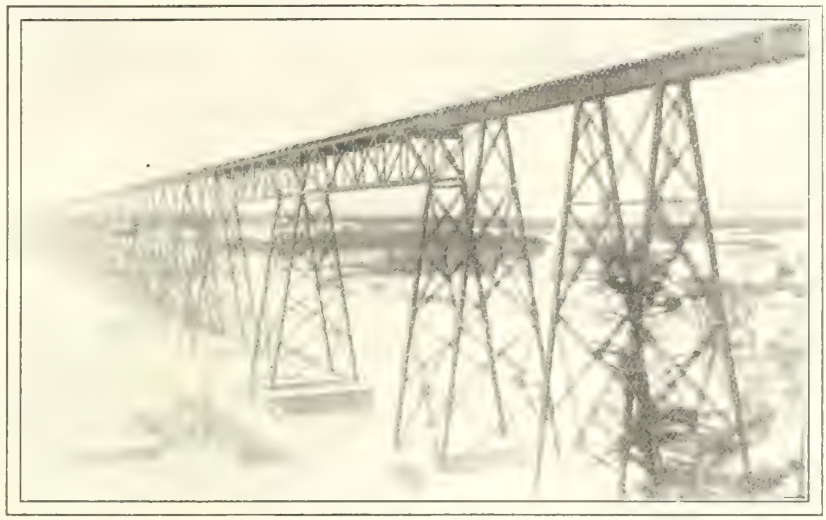
Cap Rouge Viaduct, N. T Ry.

The Cap Rouge viaduct, which has been built on the National Transcontinental Railway near Quebec, is a single track structure about 3,345 ft. long over all with a maximum height of nearly 173 ft. from low water to base of rail. It contains about 4,500 tons of steel and has thirty-one 40 ft. towers and one single bent supporting thirty-three 40 ft. and twenty-nine 60 ft. plate girder spans and one 150 ft., one 160 ft., and one 125 ft. riveted truss deck spans.

Several comparative estimates were made considering the longitudinal force specified, and indicated that the maximum rigidity and minimum total cost would be secured by the adoption of comparatively wide towers and moderate length connecting spans, which were finally fixed of the dimensions already stated, but which it was considered by the contractors would have been substantially as economical if the lengths of the towers had been increased 10 ft. more. The standard of 40 ft. was, however, adopted in deference to the general attitude taken by the engineers of proportions of high viaducts and it has proved very satisfactory in construction and operation.

The towers are of special construction and are interesting on account of the make up of the columns and the system of bracing, which avoids all intermediate horizontal transverse struts and eliminates them from the centre panels in the longitudinal faces of the towers. This column design has been somewhat modified in subsequent structures proportioned by the same designers to provide better for the transportation and erection stresses and to reduce the wide painting area in the interests of maintenance.



CAP ROUGE VIADUCT, NATIONAL TRANSCONTINENTAL RAILWAY.

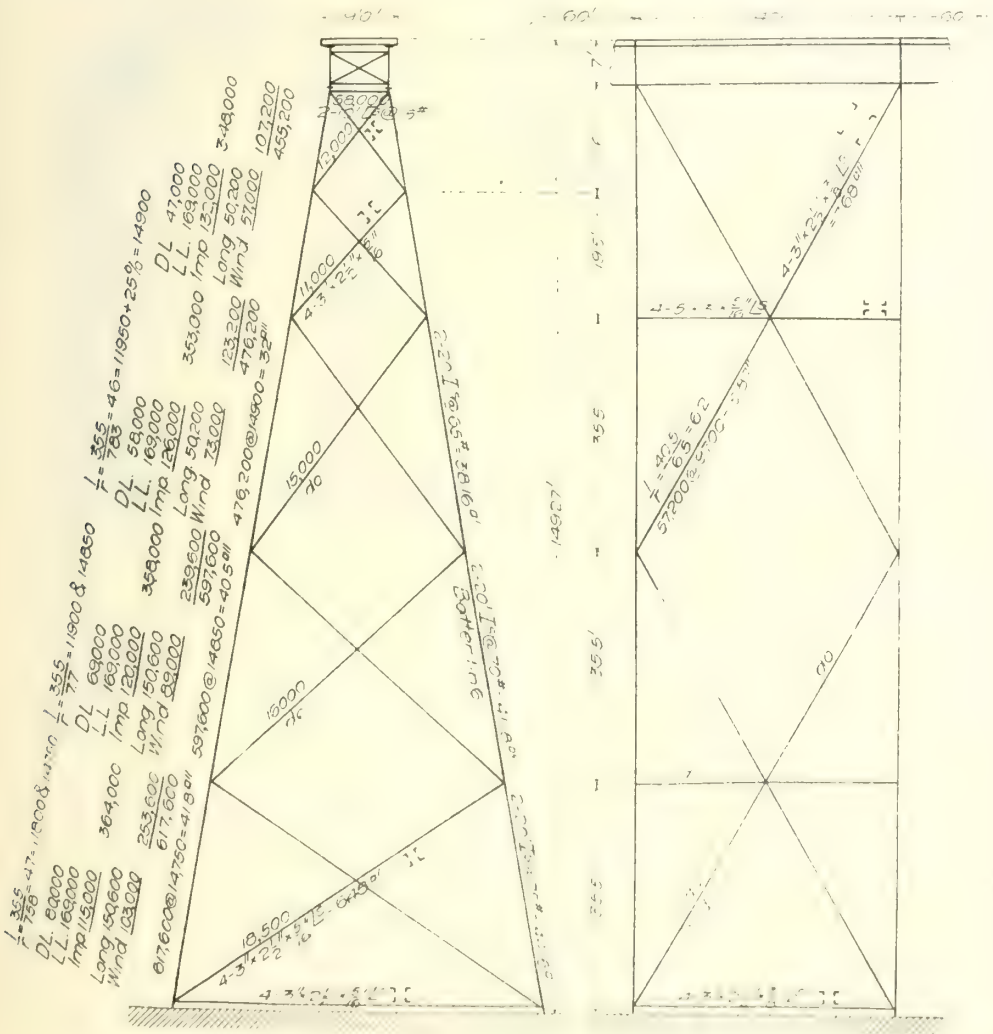
The structure is designed for dead loads of 1,350 lbs., 1,500 lbs., and 3,000 lbs. per linear foot of the 40 ft., 60 ft. and 150 ft. spans respectively, and for the "class heavy" live load and unit stresses conforming to the Dominion government specifications of 1905 which provide for two 180 ton engines 48 ft. long followed by a train load of 4,750 lbs. per linear foot. Wind pressure is assumed at 30 lb. per square foot of exposed train and viaduct surface and impact is allowed for by the formula $(l.\ l.)^2 \div (d.\ l. + l.\ l.)$.

All plate girders have a uniform depth of 6 ft. and sustain maximum calculated stresses of 158,800 lbs. direct shear plus 115,000 lb. impact increment, equals 273,800 lb. for the 60 ft. span, requiring a sectional area of 27.38 sq. in. The corresponding moments give a net flange stress of 2,119,000 lbs., which, increased by the impact increment, 1,465,000 lbs. gives a total of 3,584,000 lbs., for which gross cross sections of 44.26 and 40.12 sq. in. are provided in the top and bottom flanges respectively. For the 40 ft. spans, the shear plus increment is 226,800 lbs. with a 22.68 sq. in. net web section and the flange stress 1,963,400 lbs. with net and gross sections of 21.5 and 23.06 sq. in. respectively to both top and bottom flanges.

The maximum stresses in the tallest bents are given in the accompanying diagram, which also shows the materials used for the members. In bents 110 ft. high to base of rail, the maximum column stress is reduced to 557,300 lbs. with a required sectional area of 34.1 sq. in., and the columns are made with 18 in. I-beams weighing 60 lbs. for the two lower stories and 55 lbs. for the upper stories. The horizontal and diagonal bracing is the same as for the maximum bent.

The height of the viaduct does not fall below 100 ft., except near the ends, at one of which is located the 125 ft. span and the single bent. At the other end there are three towers with their pedestals from 53 to 95 ft. below the base of rail. In all of them the columns are made with 18-in. 55 lb. I-beams. The columns are battered 1:6, which increases the uniform transverse distance 9 ft. apart on centres at the top to from 24 ft. 4 in. to 56 ft. 4 in. at the base.

The column posts are made in lengths of about 32 ft. for the upper stories, which are uniform and vary according to the irregularity of the ground for the lower story. Each section is made with a pair of 18 in. I-beams spaced 15 in. apart on centres with their webs transverse to the axis of the viaduct and their flanges connected by double latticing with flat bars. Successive sections are spliced with double web and flange cover plates, the latter being made about 3 ft. long and extending beyond the inner edges of the columns to serve as jaws receiving the field riveted ends of the horizontal and diagonal [illegible]



TYPICAL STRAIN SHEET OF TALL TOWER, CAP ROUGE VIADUCT.

GLOBE PNEUMATIC ENGINEERING CO., LTD.

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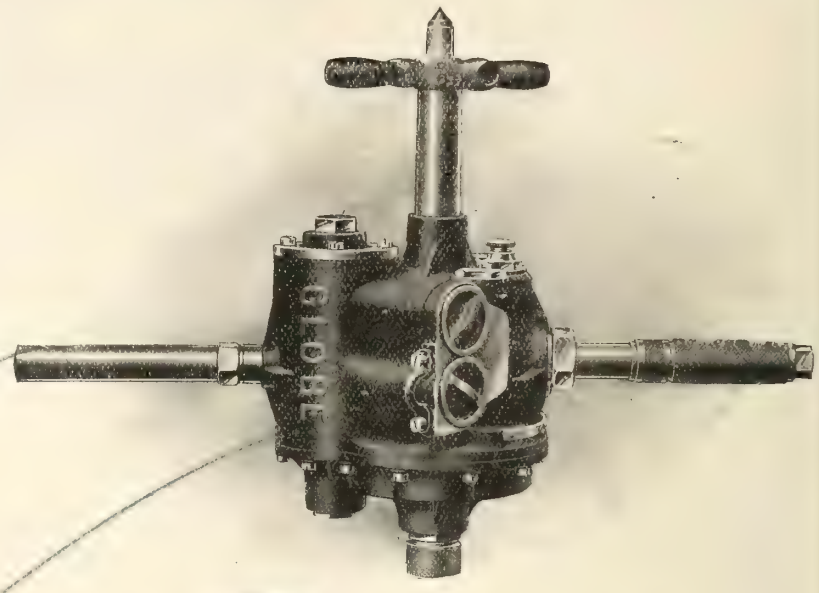
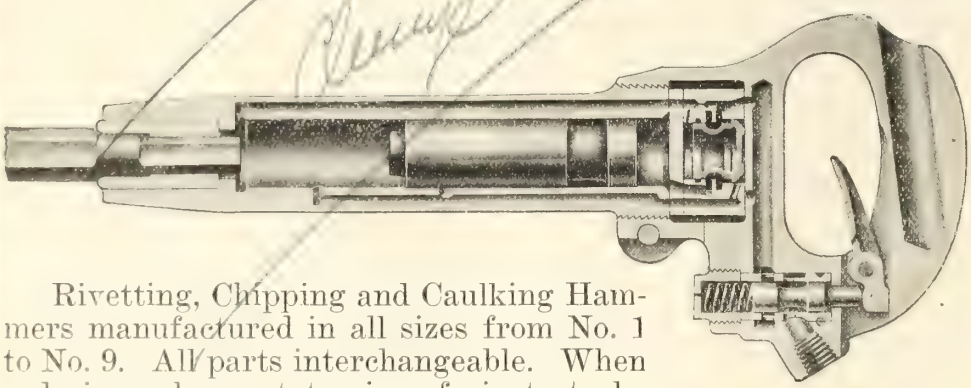
Globe Drills. These tools are patented and manufactured by J. W. Tierney exclusively for the Globe Pneumatic Engineering Co. The workmanship and material is of the very best. Sizes and capacities from 9-16 in. to 3½ in. Reversible or Non-Reversible Drills, reciprocating type. Air pressure required, 60 to 100 lbs. per sq. inch.





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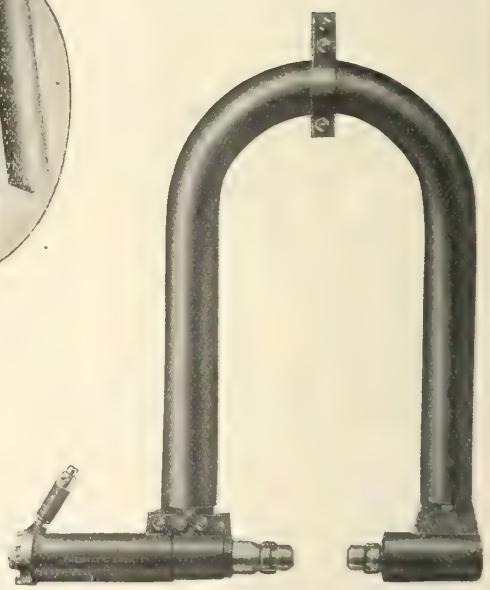

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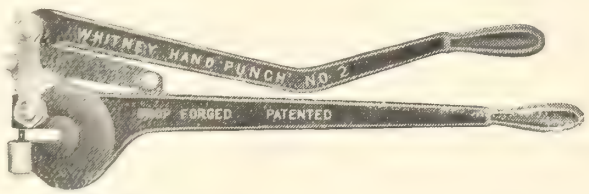

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braces. Pairs of 8 x 3 in. angles about 4 ft. long are riveted to the flange splice plates on the inner sides of the columns to form jaws for the field connections of the transverse X-braces and also serve to add considerable resistance to flexure for the columns at these points.

All diagonal members in the tower bracing have rectangular cross sections made with four 3 x 2½ in. angles latticed on all sides. All diagonals are cut to clear at intersections and are spliced together and with double flange cover plates which, in the case of the top and bottom panels of the longitudinal bracing, connect them also to the continuous horizontal struts which have I-shape cross sections made with two pairs of 5 x 3 in. angles back to back latticed. The column bases are seated on separate concrete pedestals and pairs of vertical distribution angles are riveted to the column webs at the lower end and have bearing plates on top, thus forming pockets and seats for two 2¼ in. anchor bolts 11 ft. long at each column footing of the high towers.

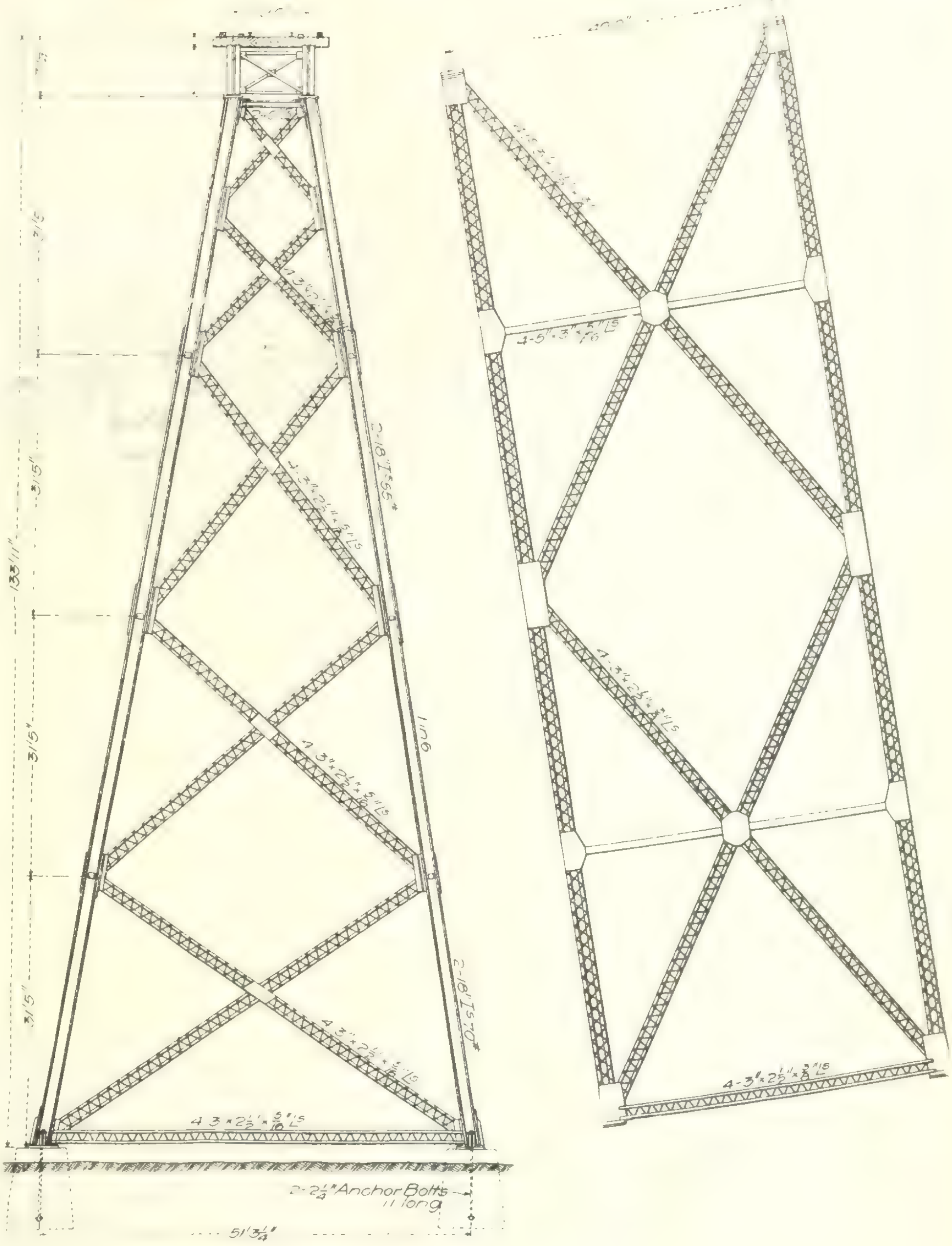
At the upper end of the column, the webs of the I-beams are connected by longitudinal diaphragms which are made with vertical 18 in. I-beams 3 ft. long reinforcing the 36 x ¾ x 38 in. cap plates which, at the ends of the long spans, have guide strips riveted on both edges to engage a cast-iron bed plate with a spherical upper surface finished to a radius of 36 in. A corresponding cast steel bearing plate is finished with a concave surface between which and the convex iron casting there is interposed a sheet lead filler 1-16 in. thick and 21 in. in diameter. The horizontal upper surface of the concave casting is grooved to receive the lower one of a pair of polished Tobin bronze plates 22 in. square and 5-16 in. thick. The upper plate is countersunk riveted to the 1⅞ in. sole plate on the bottom flange of the girder. The girder is thus free to slide longitudinally on the bronze bearings and to be deflected in any direction on the convex casting without materially disturbing the concentric application and distribution of its load on the column top. The cast fillers are bolted between the longitudinal edges of the shoe plate on the girder and the cap plate on the column and are cored for 1 15-16 in. turned bolts which engage round holes in the fixed ends of the girders and slotted holes in the expansion ends.

The 60 ft. girders have 72 x ⅜ in. web plates with top flanges made with a pair of 8 x 8 x ¾ in. upper angles and two 6 x 6 x ¾ in. lower angles riveted over them with their horizontal flanges downwards, making an H-shape cross section which, with one-eighth of the web, gives a gross section of 44.26 sq. in. The bottom flanges have T-shape cross sections, are made with a pair of 8 x 8 x ¾ in. angles and two 17 x 9-16 in. flange cover plates. The 40 ft. girders also have 72 x ⅜ in. web plates. Their top and bottom flanges are the same and are each made with two 8 x 8 11-16 in. angles. All girders are divided into panels 6 to 7 ft. long by pairs of 5 x 3½ in. intermediate vertical web stiffener angles and 6 x 6 in. end vertical angles. The 60 ft. spans have top and bottom flange X-bracing of single 3½ x 3 in. angles. The 40 ft. spans have top lateral bracing only. Both spans being provided with the usual transverse vertical sway bracing frames at the ends and at alternate panel points.

The 150 ft. span has trusses 25 ft. deep, proportioned for a maximum top chord stress of 768,700 lbs., for which a sectional area of 45.4 sq. in. is required, and is made up with four 6 x 3½ x 9-16 in. angles, two 18 x 7-16 in. web plates and one 2 x 1½ in. cover plate. The truss is divided by vertical posts into six panels, each with a single diagonal member. The 125 ft. span corresponds to the 150 ft. span, except that it has only five panels. The maximum chord stress is 522,000 lbs., and a sectional area of 37.6 in. is provided by two 15 in., 50 lb. channels and one 18 x ½ in. cover plate. Both spans have top and bottom lateral X-bracing, made, in the end panels, with four angles each. The vertical posts are braced transversely with sway frames composed of 3½ x 3½ and 6 x 3½ in. angles. The trusses are spaced 16 ft. 11 in. apart and the track is carried on 54 in. floor beams and 48 in. stringers.

The viaduct is being erected with an overhead two-boom traveler. All field rivets are driven by pneumatic hammers.

The viaduct was designed and constructed under the direction of R. F. Uniacke, Bridge Engineer National Transcontinental Ry. Commission. The steel was fabricated and erected by the Dominion Bridge Co., Ltd., of Montreal, Phelps Johnson, Manager.



TYPICAL TOWER, CAP ROUGE VIADUCT.

S. R. Jecks, messenger Dominion and Western Express Cos., Montreal, writes: "I can assure you I would not be without your very interesting and valued paper, the Railway and Marine World."

Canadian Railway Activity. — Geo. Paish, editor of the London, Eng., Statist, who paid an extended visit to Canada recently, is contributing a series of articles to that paper. In the first one he says:—"A third factor of great import is the ability and far-sightedness of Canada's statesmen. They recognize that the essential thing to be worked for is to open up the country and to admit population to the natural wealth. All the energies of the statesmen of the entire country, Dominion and Provincial, are at the moment directed to the extension of railways. This is the platform upon which the Ministries have been returned to office, and it is this policy they are pledged to carry out. Everything possible is being done to encourage and to stimulate railway construction, both in the prairie districts and between the prairies and the sea coast, east, west and north."

The Ontario Government received $416,936 from taxes levied on railways in the province during the last financial year, against $400,227 in the previous year. Of this $30,000 is applied towards the expenses of the Ontario Railway and Municipal Board.

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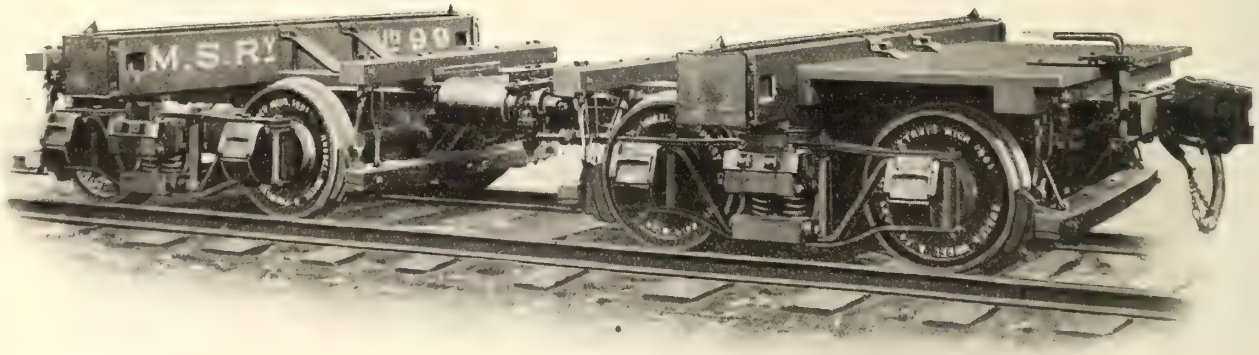

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February Birthdays.

Many happy returns of the day to—

S. A. Baker, Canadian Freight and Passenger Agent, Chicago Great Western Ry., Toronto, born at Morrisburg, Ont., Feb. 1, 1877.

B. H. Bennett, General Agent Chicago and North-Western Ry., Toronto, born at Cobourg, Ont., Feb. 6, 1858.

F. L. C. Bond, Resident Engineer G.T.R., Montreal, born there Feb. 21, 1877.

Thos. Britt, General Fuel Agent C.P.R., Montreal, born there Feb. 3, 1871.

F. W. Churchill, C.P.R. ticket agent, Collingwood, Ont., born in London, Eng., Feb. 6, 1853.

H. R. Charlton, General Advertising Agent G.T.R. and G.T.P.R., Montreal, born at St. John's, Que., Feb. 9, 1866.

F. W. Cooper, Resident Engineer C.P.R., London, Ont., born there Feb. 16, 1880.

R. Crawford, Northwest Agent Northern Navigation Co., Winnipeg, Man., born at Kingston, Ont., Feb. 21, 1870.

E. A. Evans, Chief Engineer Quebec Ry., Light and Power Co., Quebec, born at Kensington, London, Eng., Feb. 26, 1855.

E. H. Fitzhugh, First Vice President G.T.R. and Vice President Central Vermont Ry., Montreal, born in Montgomery County, Mo., Feb. 1, 1853.

L. O. Genest, General Storekeeper C.P.R. Western Lines, Winnipeg, born at St. Henri, Levis County, Que., Feb. 16, 1856.

T. C. Hudson, Master Mechanic C.N.Q.R. and Q. & L. St. J. Ry., Quebec, Que., born at Brockville, Ont., Feb. 20, 1873.

W. Jackson, C.P.R. ticket agent, Clinton, Ont., born there Feb. 4, 1860.

C. Gardiner Johnson, Lloyd's Agent for British Columbia, Vancouver, B.C., born at Dumblane, Perthshire, Scotland, Feb. 8, 1857.

R. S. Logan, Assistant to President G.T.R. and G.T.P.R., Montreal, born at St. Louis, Mo., Feb. 13, 1864.

D. C. Macdonald, City Freight Agent C.P.R., Winnipeg, born at Elmsdale, N.S., Feb. 9, 1874.

D. MacPherson, Assistant Chief Engineer Transcontinental Ry. Commission, Ottawa, born at Bath, Ont., Feb. 2, 1858.

T. McNabb, Master Mechanic Alberta Ry. and Irrigation Co. at Lethbridge, Alta., born in Scotland, Feb. 16, 1849.

J. K. McNeillie, Superintendent District 2, Ontario Division, C.P.R., London, Ont., born at Toronto, Feb. 23, 1874.

C. S. Maharg, Superintendent District 3, Western Division C.P.R., Calgary, Alta., born in Dufferin County, Ont., Feb. 4, 1867.

A. Z. Mullins, Commercial Agent G.T.R., Grand Rapids, Mich., born at Appin, Ont., Feb. 14, 1862.

A. H. Robinson, Superintendent Elgin and Havelock Ry., Havelock, N.B., born at Elgin, N.B., Feb. 2, 1862.

A. E. Rosevear, Assistant General Freight Agent G.T.R., Montreal, born Feb. 20, 1863.

H. H. Schaefer, Division Freight Agent Intercolonial Ry., St. John, N.B., born at Cologne, Germany, Feb. 10, 1848.

J. G. Scott, ex-General Manager Quebec and Lake St. John Ry., Quebec, born there Feb. 13, 1847.

G. Spencer, Superintendent District 1, Lake Superior Division C.P.R., North Bay, Ont., born in London, Eng., Feb. 21, 1865.

H. E. Suckling, Treasurer C.P.R., Montreal, born at Gibraltar, Feb. 27, 1851.

Hugh Sutherland, Executive Agent Canadian Northern Ry., Winnipeg, Man., born at New London, P.E.I., Feb. 22, 1845.

Sir Wm. C. VanHorne, K.C.M.G., Chairman C.P.R. and President Cuba Co., Montreal, born in Will County, Ill., Feb., 1843.

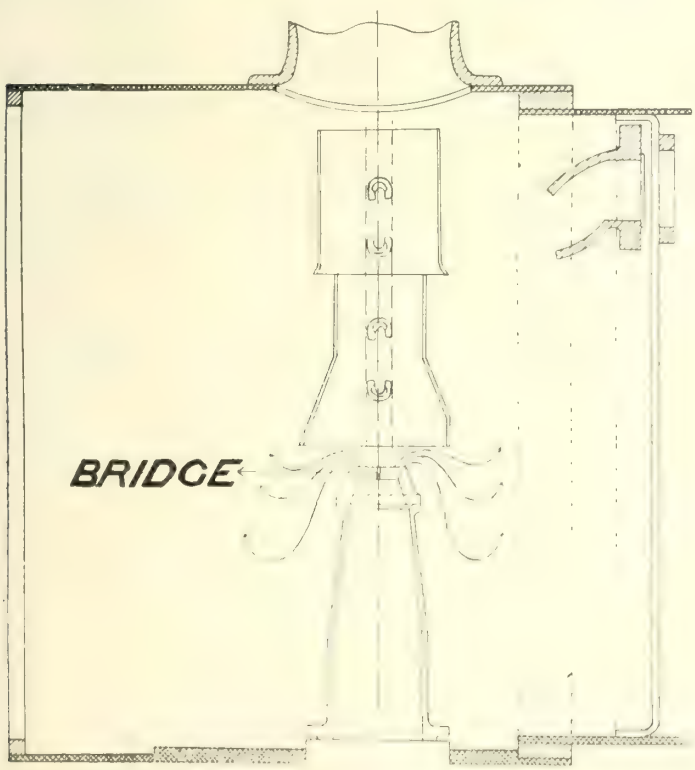
The Silliker Car Co., Ltd., Halifax, N.S., in its report for the past year showed a net profit of $4,000, which with a balance of $14,000 brought forward from the previous year, made $18,000 carried forward to the current year's accounts. The company's capital stock is to be increased to $750,000, by the issue of $250,000 5% cumulative preferred stock, of which it is proposed to issue one-half at once.

Exhaust Nozzle for Locomotives.

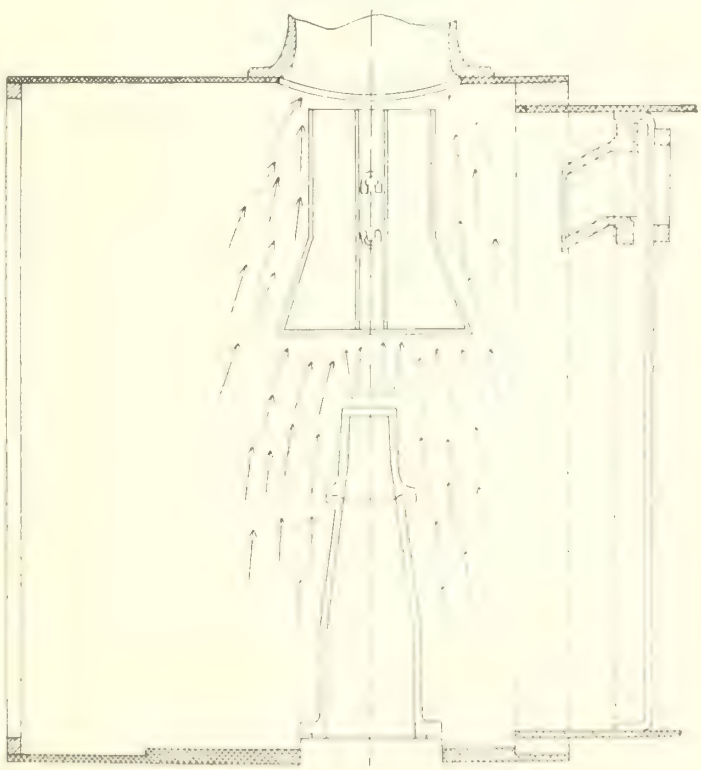
By H. J. Varlow, General Foreman C.P.R., Fort William, Ont.

There are a great many different opinions on this subject. Engineers frequently raise discussions and I have heard some remark that certain locomotives will not steam without a bridge in the nozzle. It is almost impossible to convince some engineers that the engine will steam without the bridge. My opinion is that putting a bridge or bar across a nozzle is not the proper plan; in the first place, it will cause back pressure. This is not the only obstruction caused. When the exhaust strikes the bridge it is split and destroys the vacuum in the smoke box and the fire does not burn evenly. I am inclined to think there is much more work put in the front end of a locomotive than is beneficial and that does not do all that is claimed for it. The accompanying sketch figure 1 shows an exhaust nozzle with bridge. When steam strikes this the exhaust is split and does not go straight up the stack. It will be seen this nozzle is below the centre of the boiler which I believe is a disadvantage and I do not consider a number of petticoats improve the steaming qualities. The other sketch figure 2 shows an exhaust nozzle without a bridge which will give far better results. The nozzle is level withthe centre of the boiler and has one petticoat. I would suggest for an engine with 21½ inch cylinder and 28 inch stroke a nozzle bored parallel 3½ inches and 5 inch diameter, with one petticoat. This can be lowered or raised as required to suit. There will be less back pressure with this nozzle than with one with the bridge and a much better vacuum will be obtained. Care must be taken that the exhaust is set central with the stack.

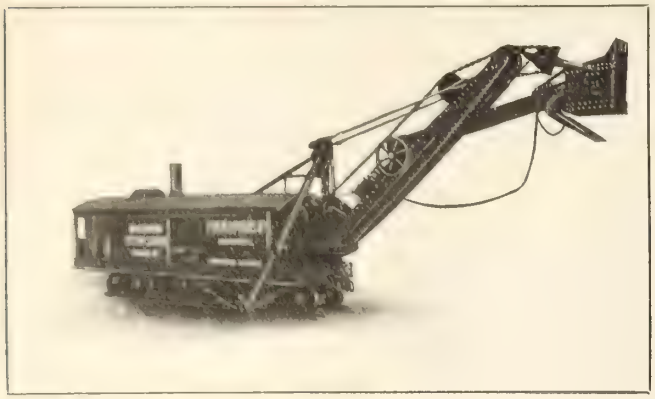
The commissioners and officers of the Victorian (Australian) railways, of which T. Tait is Chairman, sent out a very attractive Christmas card, illustrated with views of a standard train, the Commission's head offices, the Melbourne central station, the railway yards at North Melbourne, and a beautiful Victorian fern scene.



EXHAUST NOZZLE FOR LOCOMOTIVES. FIG. 1.



EXHAUST NOZZLE FOR LOCOMOTIVES. FIG. 2.



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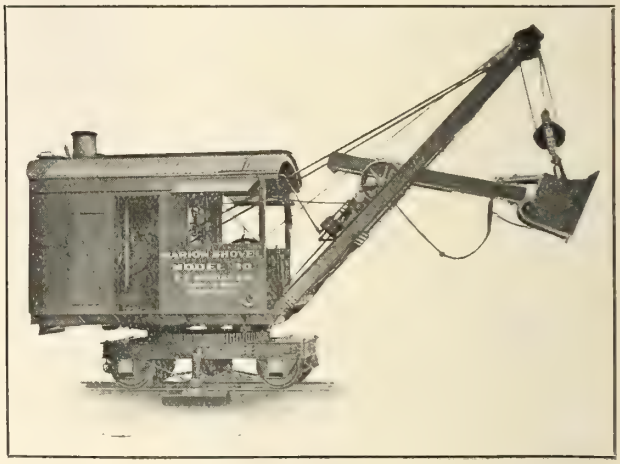

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A Railway to Hudson's Bay.

The surveys for the proposed railway to Hudson Bay have been made under the charge of Jno. Armstrong, C.E., and the instructions for the preliminary surveys were conveyed to him in a letter from the Deputy Minister of Railways dated July 10, 1908. Four parties were organized at Winnipeg, the first two being despatched to Pas Mission, Aug. 30, and the other two Sept. 19. A small additional party was organized to undertake the exploratory work, and for the collection of general information as to the country through which the proposed line will run. The first party completed its field work, Mar. 11, 1909; the second 13 days later; the third April 6, while the two other parties completed their work on the railway route, April 1, and were engaged until July on survey work on the harbors at Port Nelson and Fort Churchill. The chiefs of the staffs worked out the plans and estimates after the withdrawal of the parties from field work.

THE CHURCHILL ROUTE.—The first section of approximately 120 miles is through a comparatively level country, affording easy grades and cheap construction. The territory is underlaid with limestone in horizontal or flat beds, rarely rising above the general level to any extent, and when it does so it is in such a way as to be easily avoided by the railway line. Owing to this condition the rock cutting on this section will be practically nil. The balance of the grading on this section will largely be in clay loam material, probably 70%, the remainder being of sand, gravel and swamp or muskeg. What is called muskeg in this country is not a true muskeg, but would be more properly defined as swamp. Good bottom is usually obtained at a depth of 3 or 4 ft., and very seldom exceeds 7 or 8 ft. The stream crossings will be light, with the exception of the Saskatchewan river crossing. Frog River, the connection between Moose Lake and Cormorant Lake, is a navigable stream for small boats, and as crossing is low down it will probably be necessary to provide a swing span of some kind. As a 50 or 60 ft. opening will do, the sum required will not be large. The second section of 120 miles is through granite country, and although the same general characteristics are preserved the granite ridges are more abrupt, and will necessitate some rock cuttings, although fortunately most of them will be small. All the streams and lakes throughout these two sections possess more or less valuable timber. From mile 240 to 360 is the roughest country encountered, and considerable exploratory and extra preliminary work has failed to find any better route than that adopted. In this territory is included the rise between the basin of the Nelson River and that of the Churchill. The actual height of the summit between the two rivers is not very great, but both approaching and leaving this summit a heavily rolling or undulating country is encountered, and requires the development of a considerable length of line, and the introduction of much curvature to secure the grades adopted, at a reasonable cost. On the Nelson River side of this ridge a considerable amount of heavy work will be necessary, but on the Churchill slope although the yardage to be moved will be heavy it is not anticipated that much rock will be encountered. The fourth section, extending from mile 36 to Port Churchill will require the moving of only a light yardage, but the northern 70 miles being over the tundra, or barren lands, may prove to be a more expensive piece of work than the profile would indicate. W. J. Clifford made a trip through this section in June to examine it after the snow had disappeared. He does not anticipate any serious difficulty or danger in construction, the chief drawback being from the fact that although the material is such as would usually be classified as common excavation, so much frost will be encountered that probably a considerably greater price will have to be paid for its handling than for common excavation. The timber over sections 3 and 4 is not of very much value. A few ties and some timber for temporary work may be obtained but only in small quantities. The bridging on the whole will average light, the only two bridges of great importance being the Saskatchewan crossing and the Deer river crossing about mile 350. The curvature as estimated from the projected location averages 9° 55′ per mile. The grades adopted, viz.: 0.4 northbound and 0.6 southbound, have been obtained without great effort, and although some development was required on section 3, the ease with which they were obtained on the remaining sections seems to justify their use all through for the sake of uniform grades on all engine divisions.

THE NELSON ROUTE.—The route selected towards Port Nelson follows the Churchill route for some 150 miles or thereabouts. Unlike the Churchill route, the Nelson route does not resolve itself into natural divisions each presenting different characteristics peculiar to itself, but throughout maintains a generally uniform appearance so that the description given for the first division of the Churchill route may be applied in a general way to the whole of the Nelson route. It is not expected that the rock work will amount to very much, the major portion of the grading being in clay loam with smaller percentages of sand, gravel and swamp. The tundra is not encountered on this route, the whole line being through timber not appreciably different from that described on the first 200 miles of the Churchill route. It may be mentioned that sand and gravel has been found sufficiently often to justify the belief that ballast may be had without unduly long hauls, except on the northern 70 or 80 miles of the Churchill route. It may be found there, but as yet it has not been noticed. The curvature has been estimated to average about 5° 30′ per mile over this route. A grade of 0.4 both ways may be had on this route. The adoption of 0.6 against southbound traffic would not help alignment nor save grading. There are three important bridges on the Nelson route, viz.: the Saskatchewan, the crossing of the Nelson at Manitou rapids, and the second or lower crossing of the Nelson. The Manitou crossing of the Nelson is a particularly favorable crossing, the river here being confined in one channel of less than 350 ft. wide, the banks being of merely perpendicular granite rock and so situated as to make it possible to choose almost any desired elevation between 50 and 100 ft. above the water, which here is of course very deep, and has a current of from six to eight miles per hour, making it necessary to cross with either a single span or an arch. The lower crossing will be much longer, probably 3,000 ft., from grade to grade, with a waterway of 1,500 ft. with the grade line approximately 80 ft. above the water. The balance of the bridging will be light, trestles being sufficient in all cases with the exception of Frog River.

The waterways susceptible of development in connection with the railway system are indicated on a general map, prepared by the engineers. The waterways have all been recently navigated by vessels of considerable size. Trips have been made between Winnipeg and Edmonton, on the North Saskatchewan; between Medicine Hat and Saskatoon on the South Saskatchewan, and between Grand Forks, N.D., and Winnipeg, on the Red River. These river routes are open to the navigation system touched by the proposed railway. The Nelson River has a discharge of approximately 150,000 cubic feet per second, at Lake Winnipeg, and as it is fed by a number of other rivers, the discharge at Port construction of the railway by substi- Nelson is estimated at about 200,000 cubic ft. per second. The discharge of the Churchill River at Fort Churchill is estimated at 40,000 cubic ft. per second at low water, and there is no possibility of improving it so as to give inland communication by water. The only available site for docks is out near Cape Merry, with the railway terminals from two to three miles up stream. At Port Nelson, not only is there open a great stretch of improvable waterways inland, but there is a good site for docks and terminals adjoining an easily accessible supply of stone, etc., for construction, and the defence of the port would be comparatively easy.

THE ESTIMATES are based on right of way 150 ft. wide with the necessary allowances added for sidings and terminals. A few miles of heavy clearing will be encountered, but the average over the whole line will be comparatively light. The first 200 miles will be through spruce and jack pine with a small proportion of poplar and tamarack. The northern 100 miles of the Churchill route will have practically no clearing. The northern 200 miles of the Nelson route will be through spruce with a small proportion of jack pine and tamarack and will probably have from 12 to 15 acres per mile to clear. A large portion of the clearing on both routes could probably be done for $25 or $30 an acre, but owing to the heavier clearing encountered at intervals an average price of $40 an acre has been decided upon. It is somewhat difficult to estimate the cost of grubbing without an actual location profile. One and a half acres per mile has been used for 400 miles of both lines, using the price $100 an acre which seems to be the price bid by contractors almost universally. The work will class as light, a large proportion of it being such as can be done with heavy grading or breaking ploughs. Grading being the chief item in the estimate, considerable care has been taken with it. The quantities submitted are taken from the projected profiles, and the greater portion of these being very close to the preliminary lines, should be as accurate as is possible without cross sections. Engineers in the field were instructed to take out these quantities liberally, and the estimates submitted by them are probably at least 10% in excess of what the profile actually shows. In addition to this, 25% has been added to all quantities to cover drainage, settlement, &c., so that the quantities reported are approximately 35% in excess of what the profile actually shows. This should provide for all possible contingencies, especially as one of the main causes of swelling of estimates, viz.: road and farm crossings, is not met with here. In addition, 1,100,000 cubic yards are added to Churchill route and 900,000 cubic yards added to Nelson route for sidings and terminals. At present not one single road or farm crossing exists between The Pas and Hudson Bay. The prices adopted, $1.80 for solid rock, 65c. for loose rock and 30c. for earth approximate closely to the prices obtained on the Transcontinental Ry. in what may be termed similar country. The portion from The Pas to Hudson Bay Junction of the Canadian Northern Ry., a much worse proposition, was done at a profit, for 25c. during the high wage period of 1906 and 1907. These prices quoted are of course the average. The accessibility of the work will not be so difficult as supposed. The first section has rail communication to The Pas with a fairly

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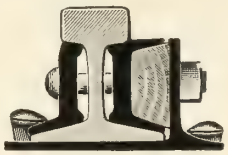

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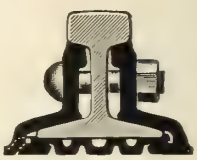

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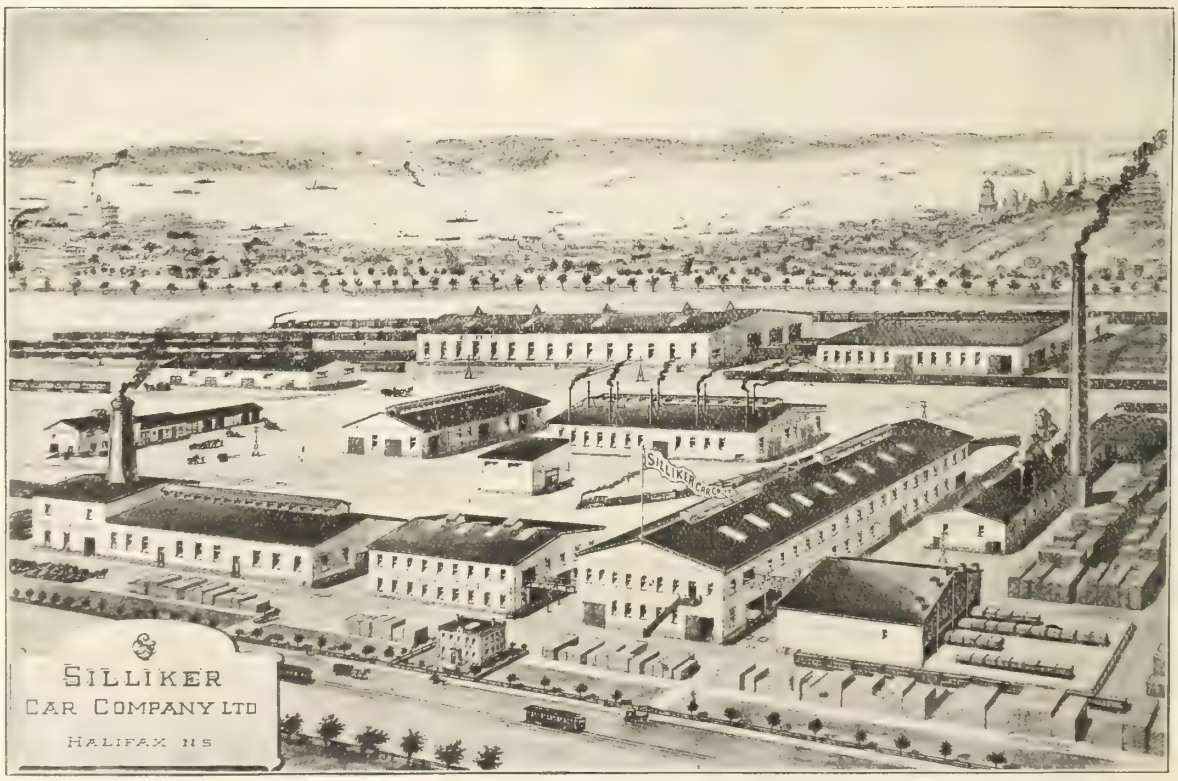

HEAVY FORGINGS AND CASTINGS

RAILWAY, FREIGHT AND PASSENGER CARS OF ALL KINDS

good steamboat connection already established to Moose Lake, 50 miles along the route. The construction of wagon or sleigh roads from this point on will be easy. The second section, with communication from Winnipeg via Lake Winnipeg and the Nelson River, can be made quite adequate for the comparatively small sum of $15,000 or $20,000. In case the Churchill route is selected this will be more expensive. The third section may be supplied from Churchill or Nelson if so desired. In the case of Nelson good water connection being possible for 60 or 70 miles inland. In case the Churchill route is selected probably steam shovels will be required on a section of about 35 miles near Split Lake. These water routes suggested are not recommended for the transport of such plant as this, but will be useful for all lighter supplies and materials. On the Nelson route no steam shovel work is anticipated, except blasting—the plant for which will follow along behind the track.

On the Churchill route a sufficient amount of timber for ties, piles, and temporary work may be had convenient to the line on the southern portion as far as mile 240, but beyond this point none can be had. For this reason piling has been quoted as 50c. per foot on the Churchill route, as against 40c. on the Nelson route, where timber may be had all the way to the bay. With the exception of the Saskatchewan River crossing and the crossing of the Deer River on the Churchill route all waterways have been estimated for, as temporary wooden structures. On the Nelson route the Saskatchewan crossing and the two crossings of the Nelson are to be steel and concrete, all others wood. The expedition is practically the first which has obtained definite and specific information of the country through which it is proposed to run, but inasmuch as practically all the work was done in the winter months with everything frozen solid and under 3 or 4 ft. of snow it is perhaps too much to expect that a proper estimate of water openings could be made. For this reason temporary wooden structures of such a nature as will suffice for from seven to 10 years has been estimated for. During this period close observation of the waterways will enable the engineers to specify with more certainty the style and size of opening required. With this closer knowledge of what is required, and with the increased facilities for handling cement and other materials for permanent structures, the final cost will probably be less than if an attempt were made to construct them now. Cedar timber for culverts may be had f.o.b. cars in Winnipeg for $18 and $20 a thousand, and with freight added is worth $22 to $25 at The Pas. The price of $40, thus leaving from $15 to $18 for framing and contingencies, is probably high enough to cover the cost of what little excavation may be needed. If timber native to the country can be used, such as spruce and tamarack, a considerable saving may be effected.

The iron for bridge and other work, steel rails and ties are estimated at current prices; tracklaying at about $500 a mile; ballasting at $1,000 a mile; and water tanks, etc., in accordance with the general practice, altered to suit the special requirements of the line. A 5,00 ft. side track is estimated for at every eight miles, with a station-house, and accommodation for two section crews at every alternate siding. On the Nelson route, 410 miles, there will need to be four sets of divisional buildings, and the same on the Churchill route of 477 miles.

The estimates as submitted by Mr. Armstrong were:

	Churchill Route.	Nelson Route.
Clearing	$280,000	$280,000
Grubbing	60,000	60,000
Grading	1,870,000	2,000,000
Piling	90,000	80,000
Timber in culverts	136,000	112,000
Timber in bridges and trestles	220,000	176,000
Iron in bridges and culverts	150,000	150,000
Steel rails, 60 lb.	2,160,000	1,820,000
Angle bars	171,000	114,000
Bolts and nuts	40,000	20,000
Spikes	132,000	113,100
Ties	850,000	680,000
Track laying	285,000	241,500
Switches	75,000	60,000
Water tanks	150,000	125,000
Steel bridges, steel	185,000	650,000
Steel bridges, concrete	90,000	180,000
Ballasting	567,000	480,000
Telegraph lines	143,100	123,000
Total	$10,586,520	$8,333,800

The Deputy Minister of Railways has increased the estimate for the actual tuting 80 lb. for 60 lb. steel, thus adding to the cost, in the case of the Churchill route, $720,000 for steel rails and $45,000 for fastenings, bringing the total cost up to $11,351,520; and in the case of the Nelson route, $600,000 for steel rails and $40,000 extra cost of fastenings, bringing up the estimated cost to $8,981,800. The estimated cost of station buildings, shops, etc., are as follows.—

	Churchill Route.	Nelson Route.
Station buildings, telegraph stations, section houses, round houses, shops, etc.	$1,700,000	$1,647,600
Two 4,000,000 bush. elevators	4,000,000	4,000,000
Yard facilities at terminals	320,000	320,000
Engineering, law costs and 10% for contingencies.	1,737,152	1,476,940
	$7,757,152	$7,444,540

The cost of harbour works, piers, dredging, exclusive of lighthouses and buoying channels, is estimated at $6,675,000 in the case of Fort Churchill, and $5,065,000 in the case of the Port Nelson. These estimates show a total estimated cost of railway from The Pas to Fort Churchill, with all the necessary buildings, and the provision of harbor works for the accommodation of coastwise and ocean vessels, of $19,108,672; and for a railway from The Pas to Port Nelson with all the accommodation as in the case of Fort Churchill of $16,426,340.

The southern terminus of the railway as planned, whichever point may be selected as the terminus on Hudson Bay, is at the Pas Mission, to which point the Canadian Northern Ry. has already a line in operation. The Chief Engineer of the present surveys suggests the possibility of constructing lines southerly from The Pas to Saskatoon, and another from Etomimi, the point of divergence of the C.N.R., Prince Albert and Pas Mission lines to Yorkton. The first line, Mr. Armstrong says, would open up a very fertile country along the Carrot River and give an outlet for the valuable timber areas along the northern slope of the Pasquia Hills. This line would be through open prairie country and a first-class road could be constructed for $20,000 a mile. The second suggested line would give communication over the lines of other companies to Regina and other centres in eastern Saskatchewan and western Manitoba. This line will also be prairie work, and its cost should not exceed $20,000 a mile.

A. R. Macdonnell, a contractor for the construction of a large mileage on the Temiskaming and Northern Ontario Ry., and the Commissioners having failed to agree in the final settlement of the construction accounts, the matter was referred to arbitration. The arbitrators sat Jan. 11, but counsel on both sides disputed the scope of the reference, and the contractor decided to apply to the Attorney-General for a fiat to enable him to take proceedings against the Commission in the courts.

Alberta and Great Waterways Railway.

In our last issue, in giving a summary of the prospectus of the company's bonds issued in England, we stated that an arrangement had been made with J. P. Morgan & Co., of New York, to place the bonds on the London market through its British house, J. S. Morgan & Co. We are advised that the arrangement was made direct between the A. & G.W.R. Co. and the London house.

We are advised that two reconnaissance surveys have been made from Edmonton, Alta., to Fort McMurray, 350 miles. About 90 miles have been located from Edmonton, with an alternative survey; three parties are in the field, and it is hoped to complete location to Lac la Biche by the end of April. Further location surveys to Fort McMurray or its vicinity will be gone on with during the season. It is said that the selection of Fort McMurray as the northern terminus would necessitate a 2½ pusher gradient and that consequently there may be a change in the proposed route at that end. Last year work was started about 15 miles north of Edmonton, and some 10 miles were graded by E. Manders, sub-contractor. Further contracts for grading will be sub-let in the near future and we are advised that it is hoped to complete the line from Edmonton to Lac la Biche, 150 miles, this year. A telegraph or telephone line, or possibly a combination one, will be built concurrently with the railway.

The President, Chief Engineer and General Manager were in Montreal together in January, and a contract was given the Algoma Steel Co. for between 30,000 and 40,000 tons of 56 lbs. rails for delivery this year and next. Orders for other material were given as follows:—Bolts, Toronto Bolt & Forging Co.; spikes, Peck Rolling Mills; fish plates and angle bars, Nova Scotia Steel & Coal Co. The Canada West Construction Co., contractors for construction, will buy some locomotives and flat cars and a steam shovel. Press reports from Edmonton state that sub-contracts have been let to the MacInnes Lumber Co., Edmonton, and to J. Walker, Fort Saskatchewan, for timber for culverts, bridges and for the line as far as Lac la Biche.

The company's officers are:—President, W. R. Clarke, President United States Trust Co., Kansas City, Mo., who for the present has headquarters at Edmonton and Montreal; Chief Engineer, J. A. L. Waddell, of Kansas City, Mo., who has his present headquarters at Edmonton; General Manager, E. A. James, formerly Manager Canadian Northern Ry., who now lives at Victoria, B.C., but will establish his headquarters at Edmonton in the spring; General Counsel, G. D. Minty, Winnipeg. Mr. Clarke is in general charge of all the company's interests; Mr. Waddell has charge of surveys and construction. In our last issue Bertrand R. Clarke, of Kansas City, was erroneously mentioned as Vice President of the A. & G.W.R. Co. He is President of the Canada West Construction Co., Ltd., which has the contract to build the railway.

The construction of this line will open up a tremendous mileage of interior navigation from Fort McMurray, or its vicinity, via the Athabasca River, Athabasca Lake, Slave River, Great Slave Lake and Mackenzie River to the Arctic Ocean, and bring the whole of the 3,500 miles of waterways in the Mackenzie basin into connection with the Dominion railway systems. It is probable that the A. & G.W.R. Co. will place steamboats on the river and lake routes.

The C.P.R. is reported to have completed plans for a $100,000 hotel to be built at Arrow Lake, B.C.

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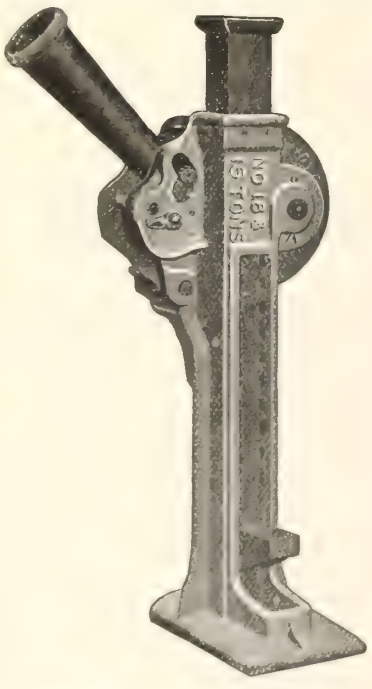

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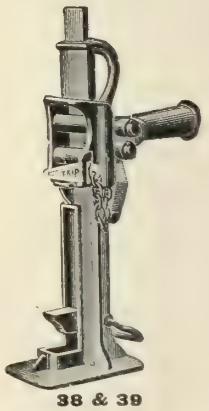
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Railway Commissioners' Traffic Orders.

Summaries of other traffic orders are given on another page under "Orders by Railway Commissioners":—

CONCURRENCE IN JOINT TARIFFS.

8984. Dec. 11.—Whereas notices of concurrences in joint tariffs are not required by secs. 335 and 336 of the Railway Act relating to international traffic, traffic from Canada through a foreign country into Canada, and from a foreign country through Canada into a foreign country; and whereas the Railway Act, sec. 333, provides "that where traffic is to pass over any continuous route in Canada operated by two or more companies, the several companies may agree upon a joint tariff for such continuous route, and the initial company shall file such joint tariff with the Board, and the other company or companies shall promptly notify the Board of its or their assent to and concurrence in such joint tariff; it is ordered that the following form of certificate shall be used in notifying the Board of assent to and concurrence in a joint tariff, or in a supplement thereto, applicable between points in Canada, that has been published and filed by another company, and to which the company giving assent and concurrence has been made a party; the certificate to be used for one schedule only, to be printed on paper eight inches wide by eleven inches long, and to be mailed to the Chief Traffic Officer of the Board:—

(Name of concurring company in full)
.....Department
(Place and date).....
No. C. C. (from 1 progressively).

THE BOARD OF RAILWAY COMMISSIONERS FOR CANADA.

This is to certify that the (name of concurring company in full) assents to and concurs in the publication and filing of the joint tariff (or joint supplement) described below, and hereby makes itself a party thereto and bound thereby.

(Full title and C.R.C. No. of schedule concurred in.)

Date effective .....
Issued by.....(Company.)

This certificate to be signed with the name and title of the official of the concurring company appointed by by-law of the company to prepare and issue tariffs, or by some person duly authorized to sign for him, such person to affix his name in full and his name and authority for the purposes of this Order to be communicated to the Board. And it is further ordered that in lieu of the individual certificate hereinbefore prescribed, the Board is prepared to receive a general certificate of concurrence in the following form, in all joint tariffs and supplements thereto, applicable between points in Canada, that have been published and filed by other companies named therein, and to which the company giving assent and concurrence has been made a party; the certificate to be mailed to the Chief Traffic Officer of the Board:

(Name of concurring company in full)
.....Department
(Place and date).....
No. G.C. (from 1 progressively).

THE BOARD OF RAILWAY COMMISSIONERS FOR CANADA

This is to certify that the (name of concurring company in full) assents to and concurs in all joint tariffs and supplements thereto, that may hereafter be published and filed by (the name of company in full), in which this company is named as a party thereto, in so far as such schedule contains rates which apply, within Canada, to or via (not from) this company's points.

This certificate to be signed in person by the official of the concurring company appointed by by-law of the company to prepare and issue tariffs. And it is further ordered that the company which prepares and issues the joint tariff shall, against the name of each of the other concurring companies, show in small type the C.C. or G.C. number, as the case may be, of the certificate of concurrence of such company in such joint tariff. That two copies of all certificates of concurrence shall be filed with the Board, one marked "duplicate," which will be stamped with the date of receipt by the Board and returned to the sender; and it is further ordered that under sec. 323 of the Railway Act, the only procedure in the case of objection to any joint tariff shall be by formal application by the objecting company to the Board for an order disallowing the said tariff. The circular re concurrence certificate issued by the Board September 16, 1904, and Feb. 15, 1905, are rescinded. This order shall come into effect on Feb. 1, 1910.

MILLING-IN-TRANSIT PRIVILEGES.

9032. Dec. 21.—Re application of W. S. Tilston, Manager Transportation Bureau Montreal Board of Trade, under sec. 323 of the Railway Act, for an order directing the C.P.R. to publish tariffs covering the milling-in-transit privilege on corn received at Montreal by rail from its Georgian Bay elevator ports and from Detroit, which is ground at Montreal, and the product of which is re-shipped thence to C.P.R. points east in the Provinces of Quebec and New Brunswick for domestic consumption and for furtherance by water to outports; and re application of the Canada Flour Mills Co., of Chatham, Ont., for an order directing the G.T.R. and the C.P.R. to restore the milling-in-transit privilege on United States corn enjoyed by the applicant company under an arrangement with the said companies, the said arrangement having been withdrawn some years ago. Upon hearing the application, Mr. Tilston appearing in person for the Montreal Board of Trade, and in the presence of counsel for the C.P.R. and the G.T.R. Companies, no one appearing for the Canada Flour Mills Co., and what was alleged; it is ordered that the said applications be dismissed.

RATES ON IRON AND STEEL FROM ST. JOHN, N.B.

9099. Dec. 21. Re complaint of James Pender & Co., the Maritime Nail Co., and the Portland Rolling Mills, St. John, N.B., complaining against increase in rates on coarser articles of iron and steel from St. John to points on the Quebec Central Ry., via Megantic, from 16½c. per 100 lbs. on carloads and 25c. per 100 lbs. on less than carloads, to 22 and 33c. per 100 lbs. on carloads and less than carloads respectively; and applying for an order directing the C.P.R. to restore the former rates: Upon hearing the complaint, Mr. McDonald, Manager of the Maritime Nail Co., appearing for complainants, and W. B. Bulling, Assistant Freight Traffic Manager C.P.R. for that company, it is ordered that Supplement 3 to Special Tariff C.R.C. no. 937, increasing said rates be disallowed, and the railway company is directed to restore, not later than Jan. 10, 1910, the former rates on the said traffic.

METALLIC SHINGLE RATES FROM EASTERN POINTS.

9128. Dec. 21.—Re application of Kemp Manufacturing and Metal Co. and Winnipeg Ceiling and Roofing Co., both of Winnipeg, under sec. 315 of the Railway Act, for an order directing the railway companies to equalize their freight rates on metallic shingles and metallic siding from eastern points to Manitoba, Saskatchewan and Alberta, as against the freight rates charged on the unmanufactured material. It is ordered that order 653, July 5, 1905, made upon the application of the Canadian Manufacturers' Association and the manufacturers of metallic shingles, directing the C.P.R., the G.T.R., the C.N.R., and such other railway companies as are represented by the Canadian Freight Association, to establish commodity rates on metallic shingles, in carloads, equal to the rates at which metallic shingles, in carloads, were carried immediately before the change of classification in March, 1901, and to apply the same rates on metallic siding, and directing mixed carloads of the two articles to be carried at the rates charged on straight carloads,—in so far as it relates to or has affected shipments to points west of and including Port Arthur, from points in Canada east thereof, and from Winnipeg and St. Boniface, Man.—be rescinded. It is further ordered that order 1004, dated March 24, 1906, in so far as it relates to shipments between and within the territories hereinbefore described, be rescinded. And it is further ordered that order 6188, dated Feb. 2, 1909, made herein, dismissing the application, be rescinded.

LUMBER RATES, B.C. TO ALBERTA.

9187. Jan. 7.—Re complaint of J. A. Maddaugh, of Vancouver, B.C., of an overcharge of $52.18 on a shipment of four carloads of lumber from Maddaugh siding, B.C., on the Vancouver, Westminster & Yukon Ry., to Stony Plains, Alta., on the C.N.R., applying for an order to extend the operation of order of 7277, of June 16, 1909, to cover points on the C.N.R.; and for an order directing the V. W. & Y., the C.P., and the C.N.R. Companies to refund to complainant $52.18. It is ordered that the Great Northern Ry. Co., operating the V., W. & Y. R., forthwith publish and file joint rates on lumber and other articles covered by the joint tariff hereinafter mentioned, from points on the V., W. & Y. R. between Vancouver and New Westminster, not inclusive, to points on the C.N.R., via Vancouver, or New Westminster, and the most convenient and practicable points of interchange between the C.P. and C.N. Railways,—the said joint rates to be 1c. per 100 lbs. higher than the joint rates from Vancouver and New Westminster to the points shown in the C.P.R. Joint Tariff C.R.C., no. W. 847, or as it may be amended; the V., W. & Y. R. to be allowed 2½c. per 100 lbs.; the C.P. and the C.N. Railways to agree upon the apportionment of the balance of the joint rates. And it is further ordered that the V., W. & Y., the C.P., and the C.N. Railways, be authorized to refund to the complainant $52.18 on said shipment of lumber from Maddaugh siding, B.C., to Stony Plains, Alta.

WOOD PULP RATES FROM THOROLD.

Re application of J. Davy, of Thorold, Ont., for an order directing the Niagara, St. Catharines and Toronto Ry. to refund $219.83, alleged excess freight charges collected from applicant on shipments of wood pulp from Thorold to Suspension Bridge, N.Y.; and for an order directing the N. St. C. and T.R. to restore and maintain a rate of 2c. per 100 lbs. on further shipments between the said points. It is ordered that that part of the application directing the N. St. C. and T. R. to refund $219.83, being the additional 1c. per 100 lbs. paid on 42 carloads shipped from Nov. 15, 1908, when the 3c. rate went permanently into effect, to Sept. 29, 1909, the date of this application, be dismissed. And it is further ordered that the joint rate of 3c. per 100 lbs. at present in force on wood pulp, in carloads, from Thorold to Suspension Bridge, via the N., St. C. and T. R. and the M.C.R. be, disallowed, and the N., St. C. and T. R. is required by Jan. 15, 1910, to restore the joint rate of 2c. per 100 lbs. which was in effect on the said traffic prior to Feb. 1, 1908, and Nov. 15, 1908.

The action brought by M. A. Pigott, against the Guelph and Goderich Ry., for a sum approximating $500,000 for work done on construction, after being in hearing before the Ontario Courts for 28 days, was withdrawn, a settlement having been reached. The court dismissed the action, directing each party to pay their own costs.

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In Rough, Rough Turned or Smooth Finished

BAR IRON **BAR STEEL**
Plain, Cold Twisted or Deformed

STEEL BARS
For
CONCRETE REINFORCEMENT

STEAM RAILWAY STATISTICS FOR YEAR ENDED JUNE 30, 1909.

In the following table the column headed gross earnings includes passenger and freight earnings, as well as miscellaneous earnings; the next four columns give the operating expenses classified under their various headings, while the last gives the net earnings, which is arrived at by deducting the totals of the four columns referred to from the figures in the gross earnings column. The minus mark (−) before figures in the net earnings column shows that there was a deficit in the operations of the line to the extent of the figures given. The numbers in brackets—thus (1)—after the name of a railway refer to notes on page 105. The cents have been omitted in all cases, and the figures in the totals show the aggregate earnings, etc., including the cents, omitted from the detailed items.

Name of Railway	Mileage	Passenger Earnings	Freight Earnings	Gross Earnings	Maintenance of Way and Structures	Maintenance of Equipment	Traffic and Transportation Expenses	General Expenses	Net Earnings
Alberta Ry. & Irrigation Co. (1)	111.82	$ 80,991	$ 200,588	$ 294,278	$ 84,266	$ 29,868	$ 71,312	$ 21,029	$ 87,801
Albert Southern	19.00								
Algoma Cent. & Hudson Bay (2)	89.64	17,010	229,181	304,730	35,054	52,341	120,308	17,535	79,490
Atlantic & Lake Superior (3)	100.00	31,119	59,009	93,553	28,361	20,300	37,514	7,586	−208
Atlantic, Quebec & Western (3)	20.00	6,174	10,637	16,826	6,530	1,140	12,983	3,400	−7,228
Bay of Quinte (4)	89.37	41,163	108,020	153,652	25,109	25,594	71,669	9,314	21,964
Bedlington & Nelson (5)	23.97	162	1,583	1,745	4,005	228	1,043	477	−4,010
Bessemer & Barry's Bay	5.00		3,107	3,107	3,134	1,475	5,230	2,146	−8,879
Brandon, Sask. & Hudson Bay (5)	69.45	29,070	39,843	68,940	31,884	9,059	47,842	3,701	−23,547
British Yukon (6)	90.32	81,012	239,083	326,612	50,312	16,028	53,097	11,903	195,269
Brockville, Westport & N. W.	45.00	32,192	25,575	57,768	9,930	3,375	18,539	39,305	18,463
Bruce Mines & Algoma (38)	17.28								
Buctouche & Moncton (7)	32.00	9,986	17,444	27,430	8,410	2,336	8,700	2,896	5,086
Campbellf'd,Lake Ontario & W.(8)									
Canada Atlantic (16)	396.41	440,297	1,320,882	1,813,945	377,750	282,039	929,217	43,290	181,647
Central Counties (16)	38.49								
Canada Southern (25)	382.19	2,240,967	5,492,113	7,766,465	817,331	945,987	2,648,427	128,242	3,203,472
Canadian Government									
Intercolonial (9)	1,450.37	3,004,490	5,543,349	8,602,986	1,642,398	2,040,823	5,147,327	221,972	449,535
Prince Edward Island	269.33	166,308	155,838	323,084	115,084	70,398	213,476	12,186	−88,061
Canadian Northern (10)	2,490.24	2,107,100	7,488,670	10,581,767	1,405,212	1,193,677	3,966,310	308,308	3,708,258
Canadian Northern Ontario (10)	332.73	130,601	194,733	332,553	88,711	53,636	211,589	24,276	−45,660
Canadian Northern Quebec (10)	266.80	224,877	498,250	739,603	162,407	77,073	391,778	47,067	61,276
Canadian Pacific (11)	9,608.30	22,374,718	46,774,714	70,438,424	9,875,550	10,882,347	26,992,311	1,514,239	21,173,975
Cape Breton	31.00	5,319	2,606	8,043	5,444	1,640	7,256	3,266	−9,563
Caraquet (12)	68.00	14,747	37,282	52,030	20,767	8,699	20,527	4,085	−2,048
Carillon & Grenville	13.00	1,532	78	2,508	1,951	1,115	1,664	45	−2,266
Central Ontario (13)	140.13	84,815	163,472	267,437	49,379	16,751	73,166	6,532	121,606
Crow's Nest Southern (5)	74.18	19,102	157,469	178,387	142,174	17,272	64,658	13,178	−58,897
Cumberland Ry. & Coal Co. (14)	32.00	18,079	86,159	104,238	21,183	12,394	17,337		53,322
Dominion Atlantic (15)	278.87	388,686	405,703	796,774	117,513	60,164	275,657	45,070	298,366
Eastern British Columbia	14.00	1,953	5,000	6,959	4,729	1,507	5,785	284	−5,347
Edmonton, Yukon & Pacific (40)	4.50								
Elgin & Havelock	28.00	3,521	10,118	13,644	5,837	890	5,577	791	720
Esquimalt & Nanaimo (11)	78.00								
Grand Trunk (16)	3,108.44	10,017,218	17,662,990	28,024,007	3,672,594	3,878,960	11,046,167	802,341	8,623,942
Grand Trunk Pacific (16)									
Gulf Shore (12)	16.78								
Halifax & SouthWestern (10)	369.81	188,411	181,056	372,782	114,047	41,246	177,479	24,906	15,104
Hampton & St. Martins	30.00	4,784	8,175	12,974	4,129	588	5,251	851	2,152
Hereford (17)	52.85	18,792	45,828	64,870	27,504	11,190	40,043	2,425	−16,293
International Ry. of N.B. (18)	80.00								
Inverness Ry. & Coal Co. (10)	61.00	23,157	162,927	187,220	37,692	27,385	41,458	8,591	72,091
Irondale, Bancroft & Ottawa	48.00	6,716	20,241	26,958	10,308	5,015	12,139	5,514	−6,019
Kaslo & Slocan (5)	23.37	3,140	13,861	17,010	10,419	2,747	10,785	704	−7,645
Kent Northern (19)	27.00	7,702	9,729	17,432	3,920	300	6,828	1,591	4,792
St. Louis & Richibucto (19)	7.00								
Kettle River Valley	20.00	82	1,549	1,631	1,817	160	598	168	1,113
Kingston & Pembroke (11) (37)	109.80	56,103	126,856	179,350	47,717	21,344	71,881	9,201	29,203
Klondyke Mines	31.81	13,481	30,926	44,428	16,238	2,671	17,063	12,465	−4,911
Lake Erie & Detroit River (20)	198.81								
Lenore Mount Sicker (38)	12.00								
Liverpool & Milton	5.75	444	11,414	11,858	873	2,222	4,587	397	3,778
London & Port Stanley (20)	23.66	36,495	69,111	110,628	33,323	18,396	80,831	4,967	26,890
Lotbiniere & Megantic	30.00	5,818	24,064	33,442	9,941	2,752	10,889	6,124	3,734
Magnetawan River (16)	1.91								
Manitoba Ry.	350.68								
Manitoulin & North Shore Ry. (2)	15.83	1,552	39,687	41,239	7,781	5,611	12,388	7,855	7,602
Maritime Coal Ry.&Power Co. (21)	15.00	7,090	36,711	43,887	5,720	5,167	18,877	2,881	11,240
Marmora Ry. & Mining Co. (13)	9.60								
Massawippi Valley (22)	35.46	69,775	108,333	178,729	37,664	14,736	91,990	4,875	29,461
Midland of Manitoba (5)	91.77	9,760	54,875	64,749	35,129	7,082	34,909	2,398	14,771
Montreal & Atlantic (11)	163.40	197,177	626,154	845,097	213,446	116,557	396,953	25,309	92,829
Montreal & Province (16)	58.60	51,214	37,373	90,610	20,809	1,002	40,653	1,825	26,318
Montreal & Vermont Jct. (16)	23.60	55,335	78,687	134,097	15,736	847	44,191	1,411	68,979
Morrissey, Fernie & Michel (23)	10.85	7,952	69,330	77,282	11,227	11,224	33,561	20,272	996
Napierville Jct. (30) (37)	27.06	1,381	40,498	43,822	5,446	1,726	21,206	2,042	13,399
Nelson & Fort Sheppard (5)	55.42	27,506	42,098	73,068	53,109	8,622	45,138	3,220	37,023
New Brunsw'k Coal & Ry. Co. (24)		18,631	38,101	69,372	23,174	14,758	27,936	10,104	6,602
New Brunswick & P.E.I.	36.00	11,011	21,007	32,110	10,555	4,964	9,647	1,617	5,327
New Brunswick Southern	82.35	19,472	21,623	41,401	29,205	10,213	25,063	1,801	27,884
New Westminster Southern (5)	24.10	51,116	41,260	92,652	18,268	7,114	44,069	2,827	20,371
North Shore Ry.		361	2,718	3,080	631	137	2,059	65	18

(Continued on page 105)

THE ELECTRIC HEADLIGHT

The following letter was received under date of May 8, 1908, from Mr. J. W. Cleary, Travelling Engineer Pyle-National Electric Headlight Co.:

"I learn from_____the Master Mechanic here, that an engineer running between_____ and_____discovered a broken rail with the Pyle-National Electric Headlight and made the stop without ditching his train. One or two pairs of wheels got off, but that was a small affair to what it would have been where a foot of the rail was broken off. Also an engineer running east of here found some cars shoved out on the main line. He saw them with the 'Electric' and made the stop without hitting them."

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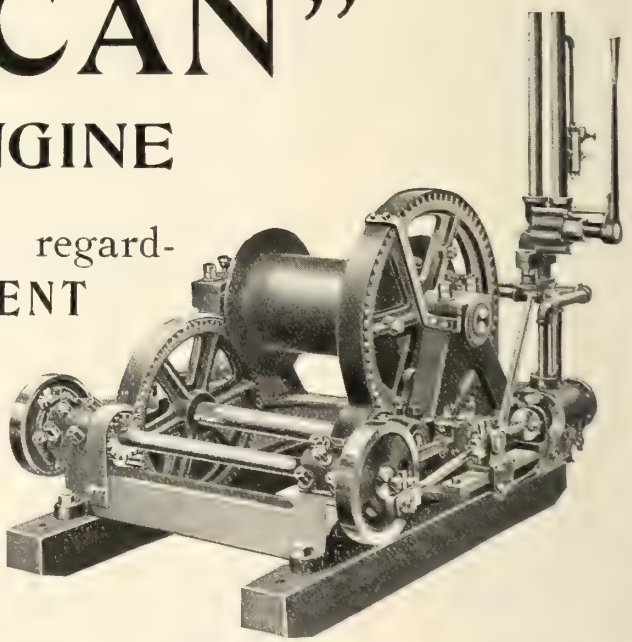

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CHICAGO NEW YORK PITTSBURG NEW ORLEANS

Steam Railway Statistics for the Year Ended June 30, 1909—*(Continued from page 103)*

Name of Railway	Mileage	Passenger Earnings	Freight Earnings	Gross Earnings	Maintenance of Way and Structures	Maintenance of Equipment	Traffic and Transportation Expenses	General Expenses	Net Earnings
Nosbonsing & Nipissing	5.50		23,299	23,299	7,455	3,494	12,548		
Nova Scotia Steel & Coal Co	12.50	2,248	3,527	5,776	3,923	2,018	5,326		−5,492
Orford Mountain	55.10	7,173	22,960	30,250	14,055	2,665	18,152	3,222	−7,746
Ottawa & New York (25)	56.90	67,204	69,260	139,410	97,251	16,492	71,442	5,743	−51,520
Pembroke Southern (16)	21.36								
Pere Marquette (20)		152,220	2,210,490	2,372,155	167,930	329,704	265,531	53,115	995,873
Phillipsburg Ry. & Quarry Co	6.00		4,351	4,351	216			31	4,104
Pontiac & Renfrew (38)	4.25								
Princeton Branch, W. C. Ry. (17)	5.10	7,720	17,193	24,914	3,059	1,220	5,218	328	15,088
Qu'Appelle, Long Lake&Sask. (10)	255.50								
Quebec Bridge & Approaches (28)									
Quebec & Lake St. John (10)	286.50	258,149	362,977	631,389	109,596	111,091	298,776	33,744	78,178
Quebec & New Brunswick (27)									
Quebec Central	222.00	356,622	658,010	1,020,482	152,669	138,103	373,360	60,884	295,564
Que., Montm'cy & Charlev'x (29)	27.00	11,676	40,833	57,193	4,902	6,337	23,480	7 230	15,242
Que., Mon. & Southern (30) (37)	191.91	110,833	124,290	234,993	60,437	33,768	117,304	17,799	5,622
Red Mountain (5)	9.59	3,917	17,834	22,162	14,668	4,178	46,687	3,812	−47,185
Rutland & Noyan (25)	3.39	8,883	3,520	12,403	1,297	1,749	6,013	460	2,883
St. Clair Tunnel & Approaches(16)	2.25		277,052	277,093	23,120	22,521	57,862	3,185	170,402
St. John Valley & Riv. du L'p (31)									
St. Lawrence & Adirondack (25)	46.12	174,295	247,674	422,232	68,849	31,027	166,573	7,039	148,741
Salisbury & Harvey	50.00	11,917	18,768	30,836	16,340	7,069	12,140	1,913	−6,629
Schomberg & Aurora (10)	14.40								
Spokane & British Columbia	3.70	58	760	819	1,117	140	291	170	−899
Stanstead, Sheff'd & Chambly (16)	43.00	34,970	38,098	73,350	22,919	2,808	42,386	1,816	3,519
Sydney & Louisburg (32)	62.99	19,296	327,143	349,287	54,239	99,652	137,072	41,751	16,571
Temiscouata	113.00	83,508	143,143	230,148	51,082	31,029	75,080	10,659	62,295
Temiskaming & Northern Ont.(33)	264.74	526,459	710,070	1,324,129	133,165	126,868	467,539	43,610	552,946
Thousand Islands (4)	6.33	10,819	19,957	32,971	3,641	2,960	1,737	8,839	7,700
Toronto, Ham. & Buffalo (25) (34)	83.67	254,483	531,543	796,443	135,509	71,637	288,325	26,584	274,386
Trans-Canada (35)									
Vancouver, Victoria & E. Ry. (5)	178.49	86,131	313,484	402,539	133,559	36,489	197,014	14,954	20,521
Victoria & Sidney (5)	16.26	20,247	22,533	42,927	9,165	4,431	14,270	2,459	12,599
Victoria Term. Ry. & Ferry Co (5)	1.14	2,089	3,122	5,488	694	332	1,184	517	241
Wabash (36)		595,410	1,524,515	2,123,208	226,300	360,000	982,064	77,078	477,763
Wellington Colliery	10.75	3,353	44,111	47,464	15,841	9,275	22,348		
York & Carleton	10.50	1,845	3,530	5,375	1,396	310	2,470	60	1,139
Totals	24,104.17	45,282,326	96,685,076	145,056,336	21,153,274	21,510,303	58,083,411	3,853,094	40,456,251

Notes to Steam Railway Statistics

(1) The Alberta Railway and Irrigation Co.'s lines include the lines of the Alberta Ry. and Coal Co., and the St. Mary's River Ry. It is all standard gauge, but there is a third rail on 20 miles, making a gauge of 3 ft. It has trackage rights over 1.60 miles of C.P.R. tracks.

(2) The Algoma Central and Hudson Bay Ry. and the Manitoba and North Shore Ry. are owned by the Lake Superior Corporation.

(3) The Atlantic, Quebec and Western Ry. has under construction an additional 82 miles. It has trackage rights over 1.75 miles of the lines of other companies. It has power to acquire the Atlantic and Lake Superior Ry., formerly the Baie des Chaleurs Ry.

(4) The Bay of Quinte Ry. has trackage rights over 19 miles of another company. The Thousand Islands Ry. is also owned by the same interests.

(5) The Great Northern Ry. owns and operates the following lines in Canada: Brandon, Saskatchewan and Hudson Bay Ry.; Midland Ry. of Manitoba; Crow's Nest Southern Ry.; Kaslo and Slocan Ry.; Red Mountain Ry.; Nelson and Fort Sheppard Ry.; Vancouver, Victoria and Eastern Ry. and Navigation Co.; New Westminster Southern Ry.; Victoria Terminal Ry. and Ferry Co., and Victoria and Sidney Ry. The Midland Ry. of Manitoba has trackage rights over 0.99 mile of another company's line. The Bedlington and Nelson Ry. mileage includes 8.67 miles operated under lease. The Nelson and Fort Sheppard Ry. mileage includes 5.42 miles of leased lines. The New Westminster Southern Ry. and the Vancouver, Victoria and Eastern Ry. have each trackage rights over 1.48 miles over the Fraser River Bridge owned by the Britsh Columbia Government.

(6) The British Yukon Ry. is the Canadian portion of the line operated as the White Pass and Yukon Route, connecting with steamers on the Yukon River to Dawson in summer, and with stages in the winter.

(7) The Buctouche and Moncton Ry. is the charter name of the railway operated as the Moncton and Buctouche Ry.

(8) The Campbellford, Lake Ontario and Western Ry. is reported as having 40 miles under construction.

(9) The Intercolonial Ry. mileage does not include the Windsor branch 32 miles, operated by the Dominion Atlant'c Ry. It has 16 miles of second track. It operates its trains into Montreal over the G.T.R., its trackage rights over foreign lines being 40.36 miles.

(10) Mackenzie, Mann & Co. (Ltd.) interests own or control and operate the following railways:—Canadian Northern Ry.; Canadian Northern Ontario Ry.; Canadian Northern Quebec Ry.; Edmonton, Yukon and Pacific Ry.; Halifax and South Western Ry.; Inverness Ry. and Coal Co.; Quebec and Lake St. John Ry.; Schomberg and Aurora Ry. and the Qu'Appelle, Long Lake and Saskatchewan Ry. The Canadian Northern Ry. figures include the statistics relating to traffic over the Manitoba Ry., which it operates under a lease from the Government of Manitoba. The lines included in the Manitoba Ry. are the Northern Pacific and Manitoba Ry., Winnipeg Transfer Ry., Portage and North Western Ry., and Waskada and North Eastern Ry. Its earnings, etc., also include those of the Qu'Appelle, Long Lake and Saskatchewan Ry., and of the Edmonton, Yukon and Pacific Ry., which report mileage separately. The Canadian Northern Ontario Ry. has trackage rights over 3.80 miles into the Union Station, Toronto. The Halifax and South Western Ry. has 2.30 miles of trackage rights over the Intercolonial Ry. into Halifax.

(11) The Canadian Pacific Ry. mileage includes 2,905.90 miles of main line and 3,053.10 miles of branch lines owned; and 3,649.30 miles of leased lines. It has 385.10 miles of second track; and has trackage rights over 37.30 miles of other companies. The C.P.R. returns include the earnings and expenses of the Esquimalt and Nanaimo Ry. The lines operated by the C.P.R. include the Montreal and Atlantic Ry., which has 6.40 miles of second track, and a leased line—Lake Champlain and St. Lawrence Junction Ry. The C.P.R. also owns with the New York Central and Hudson River Ry., the Toronto, Hamilton and Buffalo Ry.

(12) The Caraquet Ry. operates the Gulf Shore Ry.

(13) The Central Ontario Ry. operates the line owned by the Marmora Ry. and Mining Co. (formerly the Ontario, Belmont and Northern Ry.).

(14) The Cumberland Ry. and Coal Co. also owns the Springhill and Oxford branch, 14 miles, but it is not being operated.

(15) The Dominion Atlantic Ry. operates under agreement the Windsor branch of the Intercolonial Ry., 32 miles, which is included in the D.A.R. mileage, but not in that of the I.C.R. It has also trackage rights over 14.42 miles of other lines.

(16) The G.T.R. mileage includes the Buffalo and Lake Huron Ry., 161.30 miles, leased and partly owned. The G.T.R. figures include the earnings, etc., of the Magnetawan River Ry. It has 706.48 miles of second track, and has

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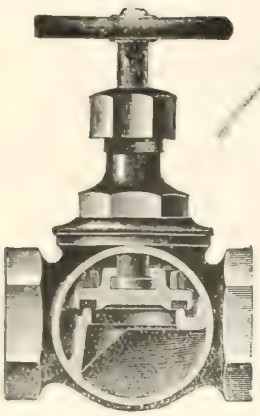

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trackage rights over other lines totalling 13.71 miles. I also owns the Canada Atlantic Ry. and the St. Clair Tunnel Co., which report separately, and the G.T. Pacific Ry., which reports 945 miles of track laid, but does not report any earnings or expenses for the year under review. It also controls the Central Vermont Ry. which operat s the Montreal and Province Line; the Montreal and Vermont Jct. Ry. and the Stanstead Shefford and Chambly Ry. The Canada Atlantic Ry. mileage includes the Ottawa, Arnprior and Parry Sound Ry.; it also operates under lease the Central Counties Ry., and the Pembroke Southern Ry., which report mileage separately.

(17) The Hereford Ry. is owned and operated by the Maine Central Rd., which also owns the Princeton branch, Washington County Ry.

(18) The International Ry. of New Brunswick was origin lly known as the Restigouche and Western Ry. Although 80 miles are reported completed it had not been opened for public traffic.

(19) The Kent Northern Ry. earnings and expenses include those of a leased line. The St. Louis and Richibucto Ry., which reports its mileage separately, whenever it has been operated of recent years it has been by the Kent Northern Ry.

(20) The London and Port Stanley Ry., practically owned by the City of London, Ont., is leased to the Lake Erie and Detroit River Ry., which is owned and operated by the Pere Marquette Rd., a U.S. company. The P.M.R. has trackage rights over 136.78 miles of other Canadian lines.

(21) The Maritime Ry., Coal and Power Co., owns the line formerly owned by the Canada Coals and Ry. Co.

(22) The Massawippi Valley Ry. has trackage rights over 2.95 miles of another company's lines. It is operated by the Boston and Maine Rd.

(23) The Morrissey, Fernie and Michel Ry. includes 5.03 miles of leased lines. It is owned by the Crows Nest Pass Coal Co.

(24) The New Brunswick Ry. and Coal Co. owns and operates the old Central Ry. of New Brunswick. It is operated by a commission appointed by the New Brunswick Government.

(25) The New York Central and Hudson River Rd., owns the Ottawa and New York Ry., and the St. Lawrence and Adirondack Ry. It also controls the Toronto, Hamilton and Buffalo Ry.; the Rutland Rd., which owns the Rutland and Noyan Ry.; and the Michigan Central Rd., which controls the Canada Southern Ry. This line has 226.18 miles of second track on main lines, and 16.80 miles of second track in branches and spurs. The Ottawa and New York Ry. operates 1.90 miles under trackage rights. The St. Lawrence and Adirondack Ry. mileage includes 13.30 miles of leased lines, and it has also trackage rights over 8.92 miles of other companies lines.

(26) The North Shore Ry. owns the line formerly known as the Beersville Coal and Ry. Co.'s line.

(27) The Quebec and New Brunswick Ry. is reported as having three miles of its total length of 135 miles, under construction.

(28) The Quebec Bridge is reported as having 10 miles of approaches under construction.

(29) The Quebec, Montmorency and Charlevoix Ry., reports as to the section of the Quebec Ry., Light and Power Co.'s lines upon which steam trains are operated. There are 6.00 miles of second track.

(30) The Quebec, Montreal and Southern Ry., includes the old East Richelieu Valley Ry., the United Counties Ry., and the South Shore Ry. It is owned by the Delaware and Hudson Co., which also owns the Napierville Jct. Ry.

(31) The St. John Valley and Riviere du Loup Ry. is reported as being projected from Fredericton to Woodstock, N.B. Six miles are reported as constructed.

(32) The Sydney and Louisburg Ry. is owned by the Dominion Coal Co. It has trackage rights over 1.20 miles of other lines.

(33) The Temiskaming and Northern Ontario Ry. is owned by the Province of Ontario and is operated by a Commission.

(34) The Toronto, Hamilton and Buffalo Ry., is owned by the New York Central and Hudson River Rd., and the C.P.R. It has 2.04 miles of second track and has trackage rights over 4.36 of foreign lines.

(35) The Trans-Canada Ry. is reported as being projected from Roberval, Que., to Port Simpson, B.C. Sixty miles are said to be under construction westerly from Roberval. We question the accuracy of this statement.

(36) The Wabash Rd. does not own any track in Canada, but operates over G.T.R. tracks under lease.

(37) The gross earnings of the Kingston and Pembroke Ry., Napierville Jct. Ry. and Quebec Montreal and Southern Ry. are given as less than the totals of the figures given in the columns for passenger and freight earnings. In the column of the statistical tables for other earnings from operation the figures for these three companies are preceded by "Cr." and the amount of the figures—$3,610, $1,058 and $190, respectively—deducted from the total freight and passenger earnings give the total gross earnings.

(38) The Albert Southern Ry., Bruce Mines and Algoma Ry., Lenore Mount Sicker Ry., Pontiac and Renfrew Ry., are not being operated.

Great Northern Ry. Construction, Etc.

Ayr to International Boundary.—Surveys are reported to have been completed for the construction of a line from Ayr, Cass County, N.D., to Surrey, Ward County, about 140 miles. Ayr is about 20 miles west of Fargo, and Surrey about six miles east of Minot, from near which point a line runs to Crosby, just south of the International Boundary between Montana and Saskatchewan.

Vancouver, Victoria and Eastern Ry.—The construction force on the section of the line between Keremeos and Princeton, was paid off just before Christmas, 1909, and the boarding cars converted into flat cars. A train service was put on to Princeton, Dec. 27.

The Dominion Parliament is being asked to authorize a further extension of time within which the company may construct the lines authorized by its original act, British Columbia Statutes, chap. 75, 1897; Dominion Statutes, 1898, chap. 89, and 1905, chap. 172.

Tenders have been asked for the construction of a section of the line from Princeton to Tulameen, and for a section easterly from Abbottsford to Hope, 78 miles. These sections will complete the line with the exception of the section through the Hope Mountains. In reference to this section the engineers are undecided whether to adopt a route involving eight miles of tunnel work,, or 25 miles of open work. The tunnel route is the shorter and more direct, but it is also the more expensive, and the question is whether the saving in cost of operation will compensate for the extra cost of construction. Representatives of several firms of contractors have gone over the two sections for which tenders are asked, and it is expected that contracts will be let at an early date, and that construction will be started in the spring. (Jan., pg. 29.)

Canadian Northern Ry. Earnings, Etc.

Gross earnings, working expenses, net profits, increases or decreases from 1908-09, from July 1, 1909:

	Earnings.	Expenses.	Net Earnings.	Net Increase or Decrease.
July	$ 813,500	$613,900	$229,600	$26,[illegible]
Aug.	807,100	602,700	204,400	18,300—
Sept.	1,076,800	765,300	311,500	60,400+
Oct.	1,384,200	903,500	480,700	60,600—
Nov.	1,517,600	970,100	547,500	134,000+
Dec.	1,160,300	825,.00	334,400	49,300—
	$5,789,400	$4,681,400	$2,108,000	$350,100+
Inc.	$ 1,154,300	$ 804,200	$350,100	.....

Approximate earnings for three weeks ended Jan. 14, 1910, $360,600, against 262,500, for same period 1909.

C.P.R. Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits, increases or decreases over 1908-9, from July 1, 1909:

	Earnings.	Expenses.	Net Profits.	Net Increase or Decrease.
July	7,140,029.93	4,660,159.20	2,479,870.73	205,297.48+
Aug.	7,426,984.64	4,402,926.76	2,964,057.87	485,140.60+
Sept.	8,428,178.03	4,891,288.86	3,431,889.17	1,317,281.40+
Oct.	9,744,596.87	5,358,299.08	4,386,297.19	1,731,030.48+
Nov.	9,075,963.93	5,383,625.98	3,692,337.95	1,471,258.60—
	$41,710,753.38	$24,756,300.47	$16,954,452.91	$5,110,027.12
Inc.	$7,954,959.78	$2,844,942.66	$5,110,027.12	.....

The aggregate gross earnings for Dec. 1909 [illegible] and for 2 weeks ended Jan. 14 $2,657,000 against [illegible] and [illegible] for same periods 1908-09.

DULUTH SOUTH SHORE AND ATLANTIC RY.—Operating revenue for Nov., 1909 $270,967.59; expenses, $193,187.57; net revenue, $77,780.02; against $232,191.27 operating revenue; $158,755.54 expenses; $73,435.73 net revenue for Nov., 1908. Aggregate operating revenue for five months ended Nov. 30, 1909, $1,483,377.76; expenses, $984,981.55; net revenue, $498,396.21, against $1,170,629.57 operating revenue; $823,924.88 expenses; $346,704.69 net revenue for same period 1908. Approximate gross earnings for Dec., 1909, $235,080, and for two weeks ended Jan. 14, $91,877 against $223,671 and $86,620 for same period 1908-09.

MINERAL RANGE ROAD.—Operating revenue for Nov., 1909, $70,838.12; expenses, $59,705.72; net revenue, $11,132.40, against $66,326.16 operating revenue; $54,726.52 expenses; $11,599.64 net revenue for Nov., 1908. Aggregate operating revenue for five months ended Nov. 30, 1909, $369,495.17; expenses, $308,188.37; net revenue, $61,306.80, against $362,502.84 operating revenue; $284,978.77 expenses; $77,524.07 net revenue for same period 1908.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RY.—Total operating revenue for Oct., 1909, $1,915,981.22; expenses and taxes, $835,702.09; operating income, $1,080,279.13, against $1,518,210.31 total operating revenue; $781,279.73 expenses and taxes; $736,930.58 operating income for Oct., 1908. Aggregate operating revenue for four months ended Oct. 31, 1909, $5,934,041.26; expenses and taxes, $3,098,764.76; operating income, $2,835,276.50, against $4,928,144.43 aggregate operating revenue; $2,831,222.11 expenses and taxes; $2,096,922.32 operating income for same period 1908. Approximate earnings for Nov., $2,121,623; for Dec., 1909, $1,586,725, and for two weeks ended Jan. 14, 1910, $682,846 against $1,730,385; $1,481,910 and $586,184 for same periods 1908-09.

Grand Trunk Ry. Earnings, Expenses, Etc.

The following figures give the earnings of the G.T.R., the C.A.R., the G.T. Western Ry., and the D.G.H. & M. Ry., separately, for Nov., 1909, as compared with Nov., 1908:

	1909.	1908.
Earnings	$2,965,000	$2,786,127
Expenses	2,209,000	1,986,473
Net earnings	$756,000	$799,654

CANADA ATLANTIC RAILWAY

	1909.	1908.
Earnings	$209,000	$175,807
Expenses	143,000	130,029
Net earnings	[illegible]	[illegible]

GRAND TRUNK WESTERN RY.

	1909.	1908.
Earnings	$[illegible]	$[illegible]
Expenses	392,000	352,101
Net earnings	$[illegible]	$[illegible]

DETROIT GRAND HAVEN AND MILWAUKEE RY.

	1909.	1908.
Earnings	$[illegible]	$[illegible]
Expenses	[illegible]	[illegible]
Net earnings	$49 [illegible]	$[illegible]

Approximate earnings for Dec., 1909, $3,561,380, and for 2 weeks ended Jan. 14, $1,379,910, [illegible] and $1,181,[illegible] for same [illegible] 1908-09.

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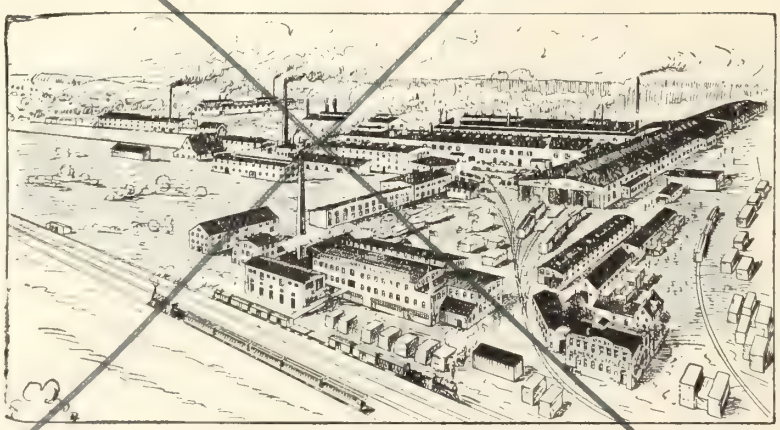

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Algoma Central and Hudson Bay Ry.—We are advised that it was expected to have the survey completed by Jan. 20, for the connection between the company's existing line and the C.P.R. main transcontinental line. As soon as the quantities, etc., can be worked out, it is expected to ask for tenders for the construction of the line. No further progress has been made with the proposal for the completion of the line between the present end of track and Hawk Lake Jct. (Jan., pg. 19.)

Anglo-Newfoundland Co.—At the annual meeting of the shareholders of the Amalgamated Press in London, England, Dec. 15, Lord Northcliffe made a lengthened reference to the progress of the Anglo-Newfoundland Co., in which it is largely interested. After referring to the development work on the pulp mills, etc., he said: "You have been informed that we have constructed a railway from Grand Falls to our harbor at Botwood, which must not be confused with our railway from Millertown Jct. to Millertown. Our new railway reflects great credit on our engineers, who carried out the work in the short space of nine months. We have purchased our rolling stock in parts, and are setting it up ourselves on the spot, and I think it will compare favorably with that turned out by the great English and American railway companies."

We are advised that the company has constructed and has in operation 22 miles of railway, from Grand Falls, via Bishop's Falls, to Botwood Harbor. The gauge is 3 ft. 6 in. The company is not now constructing any further lines, and has no present intention of constructing any more. W. Scott, Grand Falls, Nfld., is Chief Engineer.

Millertown Jct., referred to in Lord Northcliffe's report, is a station on the Reid-Newfoundland Ry. 310 miles from St. Johns, and some maps of Newfoundland show a line running from that point to Millertown at the north-easterly end of Red Indian Lake. Millertown is situated 56 miles from Grand Falls, and Grand Falls itself is 270 miles from St. Johns.

Atlantic, Quebec and Western Ry.—Application is being made to the Board of Railway Commissioners for permission to construct a branch line of half a mile from near the terminal station at Gaspe to the wharf proposed to be constructed by the Department of Public Works at Adam's Bluff, Gaspe. (Jan., pg. 19.)

British Columbia and Manitoba Ry.—See Northern Empire Ry.

Bruce Mines and Algoma Ry.—Application is being made to the Ontario Legislature to extend the time for the construction and completion of its authorised railway and branches for five years from May 1, 1910, and to declare the act incorporating the company in force notwithstanding any neglect or default in complying with the provisions of the amending acts passed in 1903 and 1905. (July, 1909, pg. 475.)

Burrard Inlet Tunnel and Bridge Co.—The Dominion Parliament is being asked to incorporate a company with this title to construct a tunnel under the first narrows of Burrard Inlet and a bridge over the second narrows, with the necessary approaches, from the south shore at Vancouver to the opposite shore to connect with present and future line of street railways and railways, and to construct one or more lines of railway not exceeding 10 miles long. The bridge and tunnel to be constructed to provide steam and street railway tracks as well as for all kinds of ordinary traffic. Power is also asked to construct a railway from the northern ends of the bridge and tunnel easterly along the shore line of the municipality of North Vancouver to Deep Cove, on the north arm of Burrard Inlet, and westerly along the shore line of the city of North Vancouver to Horse Shoe Bay on Howe Sound. It is asked that the works be declared to be for the general advantage of Canada. Burns and Walkem, Vancouver, B.C., are solicitors for applicants.

Calgary and Fernie Ry.—Application is being made to the Dominion Parliament to extend the time for the construction of the railway authorized by chap. 71, of the statutes of 1906, as amended by chap. 89 of the statutes of 1908, and for such other powers as may be necessary. Pringle and Guthrie, Ottawa, are the solicitors. (July, 1909, pg. 475.)

Central Ontario Ry.—Application is being made to the Dominion Parliament to authorize the company to enter into agreements, for any of the purposes specified in section 361 of the Railway Act, with the following companies or any of them:—C.P.R.; G.T.R.; Brockville, Westport and North-Western Ry.; Irondale, Bancroft and Ottawa Ry.; Canadian Northern Ontario Ry., and the Marmora Ry. and Mining Co. (Dec., 1909, pg. 881.)

Comox Harbor to Campbell Lake, B.C.—The British Columbia Legislature is being asked to incorporate a company to construct a railway from 750 ft. east of the south-east corner of lot 8 on the fore shore of Comox Harbor, northwesterly for about 20 miles to the southeast end of Campbell Lake. Power to construct branch lines is also asked. The line is to be used mainly for logging purposes. Davis, Marshall and MacNeill, Vancouver, are solicitors for applicants.

Diamond Coal and Ry. Co.—Application is being made to the Alberta Legislature to incorporate a company with this title to construct "all conveniences of transportation," to construct railways, tramways, or roads of any kind, and in particular to construct a railway from the C.P.R. or one of its branches to the vicinity of Diamond City, with power to acquire, sell to, or amalgamate with similar companies. Johnstone and Ritchie, Lethbridge, Alta., are solicitors for applicants. (Jan., pg. 19.)

Eagle Lake to Barkerville, B.C.—Application is being made to the British olumbia Legislature to incorporate a company to construct a railway from the projected line of the G.T. Pacific Ry. at Eagle Lake, following the watershed of the Willow River to the Cariboo road at Barkerville, B.C., and to construct branch lines to any point within 25 miles of the main line. D. S. Tait is solicitor for applicants.

Erie, London and Tillsonburg Ry.—The Dominion Parliament is being asked to extend the time within which the company may construct the lines authorized by its act of incorporation, chap. 90 of the statutes of 1906, and the amending act, chap. 106, of the statutes of 1908. (Nov., 1909, pg. 829.)

Farmers' Ry.—A press dispatch from Prince Albert says D. W. Hines, President of this projected railway, was given the option of leaving the country within a fixed time or being taken to the Brandon Asylum, and that he has chosen to return to his home in Hannah, N.D. The despatch adds that he says he will continue the work of promoting the railway. (Dec., 1909, pg. 881.)

Ha Ha Bay Ry.—Under the heading of the Chicoutimi Pulp Co., on page 847, of our issue of Nov., 1909, it was stated that the pulp company proposed to construct an electric railway from its mills to the River du Moulin district, Que. We are advised that this is incorrect, and that the pulp company has no intention of constructing any railway, either now or later. The charter for the construction of a railway through the territory named is held by the Ha Ha Bay Ry. Co., which has under construction a line from deep water at Ha Ha Bay to Mathias station, on the Quebec and Lake St. John Ry., with a branch to Chicoutimi. The roadbed and culverts are practically completed, and the work of construction is being proceeded with. It is expected that track will be laid early in the summer and that by the end of the summer a regular train service will be in operation over the whole line, which is to be operated by steam. J. F. Grenon, Chicoutimi, Que., is Chief Engineer. The President of the company is Senator Choquette, Quebec, and the Vice President is J. E. A. Dubuc, Director General and Secretary of the Chicoutimi Pulp Co. (Jan., pg. 19.)

Howe Sound, Pemberton Valley and Northern Ry.—Application is being made to the British Columbia Legislature to authorize the company to connect the terminus of the line at Newport, at the head of Howe Sound, with Vancouver, and any intermediate point by telephone or telegraph, and to extend the northern terminus of the line from Anderson Lake to Lillooet. The company is also asking authority to increase its capital stock to $2,500,000, and its bonding powers from $20,000 to $25,000 a mile of railway. McEvoy, Whiteside and Robertson, Vancouver, are the solicitors. (June, 1909, pg. 413.)

Indian River Ry.—During the past year the Maine Central Rd. had a survey made for a line from Grant's Pond, Me., to Megantic, Que., with a 1% equated gradient. The route is covered by the charters of the Rangeley Lake and Rumford Falls Ry. Co. in Maine and the Indian River Ry. Co. in Quebec, both charters being now held by the Maine Central Rd. Co. The I. R. Ry. located a line 18.1 miles long, between the boundary line and Megantic, some six or seven years ago. The survey made last fall was for the purpose of ascertaining whether or not a more favorable location could be obtained. The only village through which either the original location, or the line run last fall, would pass is Woburn. According to the survey made last fall the distance from the boundary line to Megantic is 26.1 miles. It is not probable, we are advised, that construction will be commenced during the current year. T. L. Dunn, Chief Engineer of the Maine Central Rd., is also Chief Engineer of the I. R. Ry. (Sept., 1909, pg. 649.)

Intercolonial Ry.—The extensions and branches under survey are: Diversion of line at Chatham, N.B., and branch to wharves, 8.5 miles; cut-off east of Moncton to new transportation yard, 1.5 miles; diversion of line, George's River to Leitche's Creek, near Sydney, N.S., 13.5 miles. (Jan., pg. 19.)

International Ry. of New Brunswick.—We are advised that 85 miles of track have been laid and ballasted from the Campbellton end of this line, and that all the grading has been completed to St. Leonards, N.B. The total length of the line is 114 miles. It is expected that a regular train service will be placed in operation over the first 57 miles of the line from Campbellton at an early date, the company having the necessary rolling stock on hand. (Jan., pg. 19.)

Iron Range Ry.—The Ontario Legislature is being asked to extend the time within which the company may commence and complete the railway, the construction of which was authorised by chap. 127 of the statutes of 1908. Dowler and Dowler, Fort William, Ont., are the solicitors. (May, 1908, pg. 331.)

Khutze Inlet Easterly. The [illegible] Columbia Legislature is being asked to

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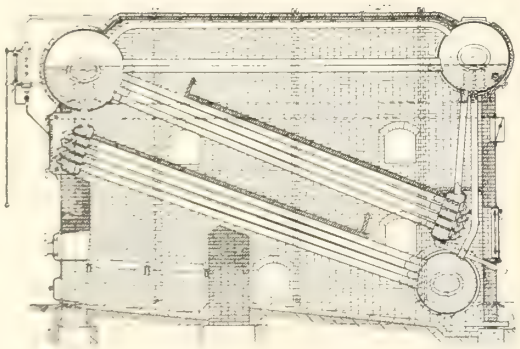

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incorporate a company to construct a railway from the head of Khutze Inlet, near the mouth of the Khutze river, easterly along the course of the river for about six miles, and branch lines. Burns and Walkem, Vancouver, are solicitors for applicants.

Lac Seul, Rat Portage and Keewatin Ry.—Application is being made to the Ontario Legislature to extend the time within which the company may commence and complete the railway the construction of which was authorised by chap. 102 of the statutes of 1903 and the amending act, chap. 128 of the statutes of 1908. Dowler and Dowler, Fort William, Ont., are the solicitors. (May, 1909, pg. 357.)

London and Port Stanley Ry.—At a meeting of directors, Jan. 17, the question of the electrification of the line was considered, and it was decided to have a conference with Hon. A. Beck, Chairman of the Hydro-Electric Power Commission, with a view of obtaining information as to the supply of electric power. A committee consisting of Aldermen Richter, Eckert, Jeffries, and Ex-Mayor Stevely (directors for the London city council) was appointed to consider the matter. (Jan., pg. 19.)

Manitoulin and North Shore Ry.—We were advised Jan. 18, that a party was in the field making a survey between what is known as Krean Hill and Espanola, at which point the line crosses the C.P.R. Sault Ste. Marie branch. The work is well under way, and it is expected that a favorable route will be obtained. Construction between Krean Hill and Gertrude Mine, which is a 10-mile extension of the line already completed from Sudbury to Gertrude is progressing very satisfactorily, and it is anticipated that tracklaying will be started as soon as the snow is gone. (Jan., pg. 21.)

Michigan Central Rd.—A press report states that plans for the remodelling and enlargement of the shops, the reconstruction of the roundhouse, and the rearrangement of the yards, at St. Thomas, Ont., are almost completed. The only work which is likely to be taken in hand during the current year is the roundhouse. The new structure, it is proposed, will be erected on the vacant property between the present shops and First Avenue. This will make way for the shop improvements. The present suggestion is that the existing main shop be enlarged and turned into a boiler shop, and that a new machine shop be erected on the site of the existing roundhouse. The question of the supply of electric power of these shops came up at a meeting of the city council's power committee, Jan. 14. (Dec., 1909, pg. 883.)

Monarch Ry.—Application is being made to the Ontario Legislature to incorporate a company to construct a railway, to be operated by steam, electricity, or other motive power, from the northerly limits of Toronto northerly to Barrie, thence north-westerly to Orillia, and northerly to Penetanguishene, with a branch from Barrie to Owen Sound and Wiarton. Power is also asked to construct branch lines and to make connections with the G.T.R., the C.P.R., and the Canadian Northern Ry. Corley, Price and Co., Toronto, are the solicitors.

Northern Empire Ry.—British Columbia and Manitoba Ry. Press dispatches from Edmonton, Alta., Dec. 16, stated that at a meeting of shareholders the charters of these two projected railways were transferred to a new company "capitalized at $4,500,000 subscribed and deposited in the Bank of Montreal, which was to be used to commence immediate construction of the line." The Northern Empire Ry. has its offices at Edmonton and its officers and directors were elected there. The dispatch gave their names as follows:—President, H. S. Crawford, broker, Ottawa; other directors: J. H. McKinnon, wholesale grocer, Sudbury, Ont.; C. Brown, capitalist, Montreal; C. B. Price, Sudbury; W. E. Brown, Ottawa; Chas. Patton, broker, Montreal; J. W. Gamble, capitalist, Ottawa; Henry Roy, Ottawa. The party then proceeded to Lethbridge, Alta., the official headquarters of the British Columbia and Manitoba Ry., and organized that company. The officers elected were:—President, D. L. McKinnon, Sudbury, Ont.; Frist Vice President, M. J. Fagan, Ottawa; Secretary-Treasurer, C. Brown, Ottawa.

The dispatch outlined the company's plans as follows:—On May 1 a party of engineers will leave the city to run the preliminary surveys north to Fort McMurray, and through the mountains to the Yukon. It will be their object to also search for a feasible pass through the mountains. The probability is that the Pine pass will be the one used. Construction will be proceeded with both north and south of Edmonton. The line runs from boundary to boundary, and will parallel the Calgary and Edmonton Ry. from the International boundary as far as Edmonton to the west of that line. From Edmonton the line will proceed to Lac la Biche and Fort McMurray, and from there across country to Peace River crossing and thus into the mountains and to Dawson. A branch is also projected east from Fort McMurray to Fort Churchill on Hudson Bay.

Later press despatches, dated Jan. 11, state that Lord A. E. F. Somerset, brother of the Duke of Beaufort, and J. E. Leiter, of Chicago, Ill., are among those interested in the construction of these two railways. Lord Albert Somerset, while in Vancouver, B.C., stated that the syndicate had secured the whole of the interests represented by the two former companies, that a new company was in process of formation, and that it was not anticipated that there will be any difficulty in raising the capital necessary for this enterprise.

It may be pointed out that the route from Edmonton via Lac la Biche to Fort McMurray is the same as that of the Alberta and Great Waterways Ry, some grading on which was done last year, and for the further construction of which arrangements are already well under way. Much of the matter in the press dispatches above quoted should probably not be taken seriously

The Dominion Parliament is being asked to extend the time within which the company may construct it authorized railway.

Pacific and North Western Ry.—The Dominion Parliament is being asked to incorporate a company with this title to construct a railway from the International boundary between British Columbia and Alaska, between the 136th and the 137th degree of west longitude, generally westerly to the International boundary between Yukon and Alaska, near the 63rd parallel of north latitude. W. J. Boland, Toronto, is solicitor for applicants. The starting point of this projected line is the vicinity of the Chilcot Pass.

Prince Edward Island Ry.—The branch line under construction between Harmony and Elmira, P.E.I., will be 10 miles long. The contractors are Whitehead Bros., Grand Falls, N.B. (Dec., 1909, pg. 885.)

Quebec Central Ry.—The new line from St. George to St. Justine, Que., was recently inspected by the Director of Railways for the Provincial Government, and a certificate was issued authorising its opening for traffic Jan. 1. (Jan., pg. 23.)

Reid Newfoundland Ry.—The principal business which will be discussed at the current session of the colonial Legislature will be the extension of the railway lines on the island, in connection with which an agreement has been made between the Government and the Reid Newfoundland Co. (Jan., pg. 23.)

Rural Ry. Co. of Manitoba.—Application is being made to the Manitoba Legislature to incorporate a company with this title, to construct a railway on the east side of the Red River from St. Boniface to the International boundary at Emerson, and on the west side of the river from Winnipeg also to the International boundary together with power to construct a railway in the municipalities of Springfield and Macdonald, with all powers usually conferred upon railway companies. Bernier, Knott and Bernier, Winnipeg, are solicitors for applicants.

Saskatchewan and Southern Ry.—The Saskatchewan Legislature is being asked to incorporate a company with this title to construct the following lines of railway: From Estevan westerly to near Romford, thence north-westerly to Moose Jaw; from Moose Jaw north-westerly to tp. 23, range 5, west of the third meridian, thence to the Elbow of the Saskatchewan River; from near Estevan, on the first mentioned line, northerly to Stoughton, on the C.P.R. Arcola branch; and from between tps. 2 and 4 in ranges 13 and 14, northerly to Francis, on the C.P.R. Arcola branch. Balfour, Martin, Casey and Brown, Regina, Sask., are solicitors for applicants.

Southampton Ry.—The New Brunswick Legislature is being asked to incorporate a company with this title to construct a railway from the C.P.R. to the Pokiok bridge in York county. The provisional directors named are:—J. E. Stewart, Andover, N.B.; J. K. Pinder, M.L.A., Southampton, N.B.; H. H. McNally, M.D., P. A. Guthrie, Fredericton, N.B.; D. Gilman, Dumfries, N.B.; W. E. Triles, Salisbury, N.B.; A. C. Hagerty, M.D., Ellsworth, Me.

Temiskaming and Northern Ontario Ry.—The discovery of gold in the Porcupine Lake country, to which this line gives the nearest railway point of access, has led the Commissioners to investigate the possibilities for traffic. F. Dane, one of the commissioners, accompanied by the Chief Engineer and other officials, left Toronto Jan. 13, for the purpose of making a visit of inspection. They intended to leave the railway at mileage 222 and strike across country for the Porcupine Lake.

As a result of Mr. Dane's visit, it is said that a new station will be established at mileage 225, or 20 miles north of Matheson, from which a road to the Porcupine district may be developed. The people of Matheson, said Mr. Dane, have already spent $3,200 fixing up a route into the Porcupine country, and have a four-horse stage running daily. A telephone line is being constructed into the country by local enterprise.

The Toronto City Council is asking the Ontario Legislature to amend section six of the Corporation's act of 1906 as to the construction of railway tracks on roads or lands of corporations to provide sidings to manufacturing industries in Ashbridge's Bay neighborhood.

Toronto, Haliburton and Pembroke Ry.—Application is being made to the Ontario Legislature to incorporate a company with this title with power to construct a railway from Barry's Bay, southerly to Haliburton, Ont.; or, as an alternative, from the intersection of the Ottawa, Arnprior and Parry Sound Ry. (Canada Atlantic Ry.), with the boundary between Lyall and Jones tps., thence westerly to Haliburton. Thomson, Tilley and Johnston, Toronto, are solicitors for applicants.

Western Canadian Collieries. We are advised that the Western Canadian Collieries, owning the Frank and Grassy Mountain Ry., has laid 8,200 ft. of new sidings at its Bellevue colliery, Blairmore, Alta. At present it is not contemplated to make any improvements on the F. and G.M.R. (Dec., 1909, pg. 887.)

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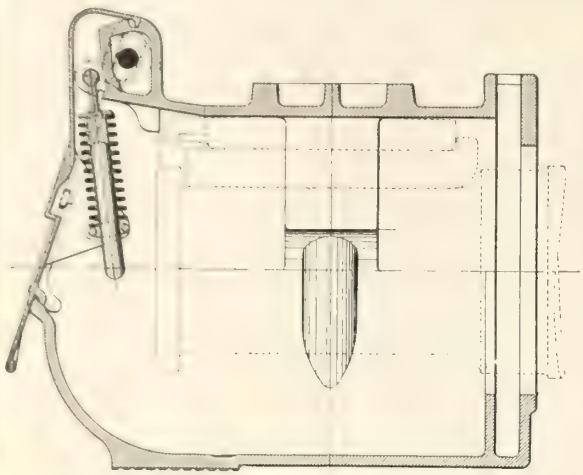

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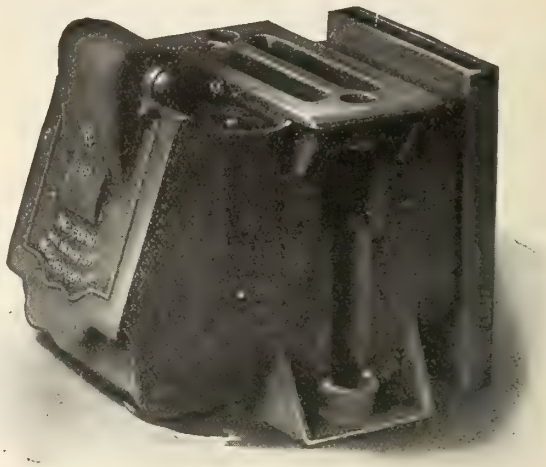

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Railway Statistics for 1908-1909.

In submitting his annual report of the steam railway statistics for the year ended June 30, 1909, J. L. Payne, Comptroller of Railway Statistics, refers to the expansion and betterment in statistical data made possible by the system which has been in effect for the past three years. In 1907 the foundation may be said to have been laid; in 1908 a commencement was made on the superstructure; this year the new edifice will be seen to be taking definite shape. Analytical comparisons are now possible which in the past could not even have been attempted. The time limit for sending in the statistical information was placed at Aug. 31 so as to have the statistics completed as soon as possible after the assembling of Parliament. The returns reached Ottawa earlier than in any preceding year, and, while there was not a single delinquent, the Schomberg and Aurora Ry. and the Kettle River Valley Ry. returns were so meagre as to be of no practical value.

The total railway mileage in Canada on June 30, 1909, was 24,104, an addition of 1,138 miles as compared with 514 for the year ended June 30, 1908. The total mileage given does not include the trackage of the National Transcontinental Railway, of which 675 miles was opened for traffic during the year, although officially returned as being still under construction. It is not possible to say how many miles of line were under construction in the Dominion on June 30, 1909, the term being wholly relative. It is estimated, however, from information received that at least 3,300 miles were in process of construction on the date indicated. The distribution of railway mileage with the increase for the year, by provinces, is as follows:—

		Increase.
Ontario	8,229.11	296.21
Quebec	3,662.94	89.29
Manitoba	3,205.30	94.39
Saskatchewan	2,631.34	550.04
Alberta	1,321.52	.....
British Columbia	1,795.94	63.11
New Brunswick	1,547.25	37.89
Nova Scotia	1,350.53	6.48
Prince Edward Island	269.33	1.83
Yukon	90.91	.....

In Alberta there has been considerable railway construction in progress during the past two years, but it was all returned as being still under construction on June 30. The mileage of second track increased from 1,211 on June 30, 1908, to 1,464 on June 30, 1909, while the mileage of yard and siding tracks increased from 4,546 to 4,761. This growth of second track and yard and siding track has a direct bearing on transportation facilities. Adding together the first, second and yard and siding tracks a total of 30,330 miles is obtained. With the exception of less than 100 miles, all tracks in the Dominion are laid with steel rails. Compared with other countries Canada has the largest railway mileage in proportion to population, while in relation to area it has the smallest.

The capital invested is $1,308,481,416, of which $647,534,647 is represented by stocks and $660,946,769 by bonds and other funded debt. These figures show an increase of $40,109,298 in stocks, and of $29,077,105 in bonds, etc. The report says:—"The capital obligations arising out of these stock and bond issues amount to $54,285 per mile of line. But that result is quite misleading, since, before such a calculation can properly be made, certain facts have to be taken into account. For example, the total of $1,308,481,416 includes the stock and bond liability of the G.T. Pacific, while the mileage of that line is not embraced in the total of 24,104 miles forming the divisor. On the other hand, the mileage of government owned lines in Canada forms a part of the 24,104, against which there is not any issue of either stock or bonds. Therefore, in dealing primarily with corporation railways the capital liability of the G.T. Pacific must be eliminated, along with the mileage of government owned lines. This process reduces the money side of the equation to $1,222,089,976 and the mileage to 21,965. On this basis the result is $55,638, which correctly represents the stock and bond liability of Canadian corporate railways per mile." The Great Northern Ry. (U.S.) has constructed eight lines in the Western provinces, aggregating 527 miles, in respect of which a capital liability of $11,110,600 has been recorded. The mileage of government owned and operated lines, with their capital cost is as follows.

	Mileage.	Cost.	Per mile.
Intercolonial	1,447	$88,006,989	$60,820
Prince Edward Island	269	7,707,259	28,651
Temiskaming and Northern Ont.	265	13,867,015	52,329
New Brunswick Coal and Ry. Co.	58	1,964,640	33 873
Total	2,039	$111,545,903	.....

It was stated in the report for 1907-08 that an effort would be made to revise the capital statements of the railways. Serious obstacles were interposed, however, and it was not found practicable to complete the task. The inquiry was carried to a point of establishing a basis for the reporting of the capital liability for 1909-1910, and it is anticipated the revision will be brought to a satisfactory issue in the next report. The object of this revision will be to eliminate dead and duplicate liability, of which the aggregate is very considerable—probably exceeding $200,000,000. This inaccuracy has been due to the system—rather than to any intention to misrepresent, and in part it came about from the ignorance of the facts in the Department. This situation is not, however, peculiar to Canada. It exists in all countries where the controlling interest in lines has changed hands, or where the transfer of operating rights has taken place in any considerable degree.

The subsidies paid to railways during the year were, $3,291,601, contributed as follows:—By the Dominion, $2,500,612; by the provinces, $397,111; by municipalities, $393,878. Since 1876 the Dominion has aided railway construction to the extent of $135,549,987.71; the provinces to the extent of $35,588,526.15, and municipalities to the extent of $17,824,823.60. The Dominion Government had also expended to June 30, 1909, $30,301,342.15 upon the construction of the National Transcontinental Ry., between Moncton, N.B., and Winnipeg. In addition to cash subsidies paid, the Dominion and Provincial Governments have guarant ed bonds of several railway companies, and have voted 55,116,017 acres of land in aid of construction.

The number of passengers carried during the year was 32,683,309, against 34,044,992 in 1907-08; the number of passengers carried one mile was 2,033,001,225 against 2,081,960,864; the number of passengers carried one mile per mile of road was 84,342, against 90,654, a decrease in the density of traffic of 6,312; the number of passengers carried per mile of railway was 1,355 against 1,482, a falling off of 127; the average receipts per passenger per mile were 1.921 or within .001 of the figure for the previous year; the average number of passengers in each train was 51, a decrease of three; the average passenger journey was 62 miles or one mile more than in the previous year.

The number of tons of freight handled was 66,842,258, an increase of 3,771,091 tons; the number of tons hauled one mile was 13,160,567,550, against 12,961,512,519; the number of tons hauled one mile per mile of line was 545,991, a decrease of 18,383; average receipts per ton mile, 0.727c.; revenue freight train mileage, 40,304,900 against 40,476,370; mixed train mileage, 7,061,370; mileage of traded freight cars, 775,543,414; mileage of empty freight cars 281,175,615; average haul of freight, 197 miles against 206; average number of loaded cars per freight train 16.37 against 16.04; average number of tons per loaded freight car, 16.98, against 17.33; average receipt per ton per mile .727c. against .723c. The commodities carried were classified as follows:—

	[illegible]	[illegible]
Products of mines	23,931,061	22,636,227
Products of agriculture	11,963,263	9,396,967
Products of forests	11,595,007	12,912,226
Manufactures	7,902,592	6,655,719
Miscellaneous	6,234,372	6,938,135
Products of animals	2,807,487	2,472,359
Merchandise	2,393,285	2,008,067
Total	66,830,019	63,019,900

Of this tonnage 36,075,101 tons originated on the various lines reporting, and 30,754,918 were received from connecting lines and other carriers.

The aggregate earnings for the year were $145,056,336.19, a decrease of $1,861,977.42. The distribution was as follows:—Passenger service, 31.21%; freight service, 66.65%; station and train privileges, 0.35%; telegraphs, rents and other sources, 1.79%. The operating expenses were $104,600,084.43 or $2,704,058.08 less than the previous year; the net revenue, therefore, being $40,456,251.76, an increase of $842,080.66. The net earnings were equal to $1,678.40 per mile of railway, or $46.50 less than in the previous year, and represented 3.09% on a capitalization of $1,308,481,416. Thirty-six railways reported a deficit for the year, and this has been the case with these same railways for years. The gross earnings per mile of railway amounted to $6,017.93, against $6,397.21; net earnings per mile of line, $1,678.40, a decrease of $46.50; average revenue per passenger, $1.195; average receipts per ton of freight, $1.432; earnings per passenger train mile, $1.150 against $1.228; earnings per freight train mile, $2.041, against $2.008; earnings per train mile for all trains, $1.816, against $1.868.

The proportion of operating expenses to gross earnings was 72.11 against 73.04 in the previous year. The distribution of operating expenses was:—Way and structures, 20.22%; equipment, 20.56%; traffic expenses, 3.63%; transportation expenses, 51.89%; general expenses, 3.70%. The multiplication of items and subdividing of accounts has, for the time being, made it difficult, in some cases impossible, to carry out close comparisons with the figures of previous years. The operating expenses represent $4,339.53 per mile of line, as compared with $4,672.30 in the previous year; the cost of running a train one mile, using the mileage of all trains as a basic factor, was $1.309 against $1.254.

Eastern Canadian Passenger Association.—At the annual meeting in Montreal, Jan. 4, the following were elected: Chairman, C. Hartigan; Executive Committee, G. W. Vaux, W. Stitt, Thos. Henry; Rules Committee, G. W. Vaux, W. Stitt, G. Tombs, J. W. Hanley, E. O. Grundy, F. F. Backus, W. H. Underwood, J. M. Lyons, N. Mooney; Secretary, G. H. Webster.

The Royal Trust Co., Montreal, has entered an action in the New Brunswick Courts against the Alexander Gibson Railway and Manufacturing Co., Marysville, N.B., for the foreclosure of a mortgage of $440,000 and interest from Nov. 18, 1899, at 6%. The company owned the old Canada Eastern Ry., extending from Fredericton to Chatham, N.B., about 125 miles, which was taken over in 1904 by the Dominion Government, and is now operated as part of the Intercolonial Ry.

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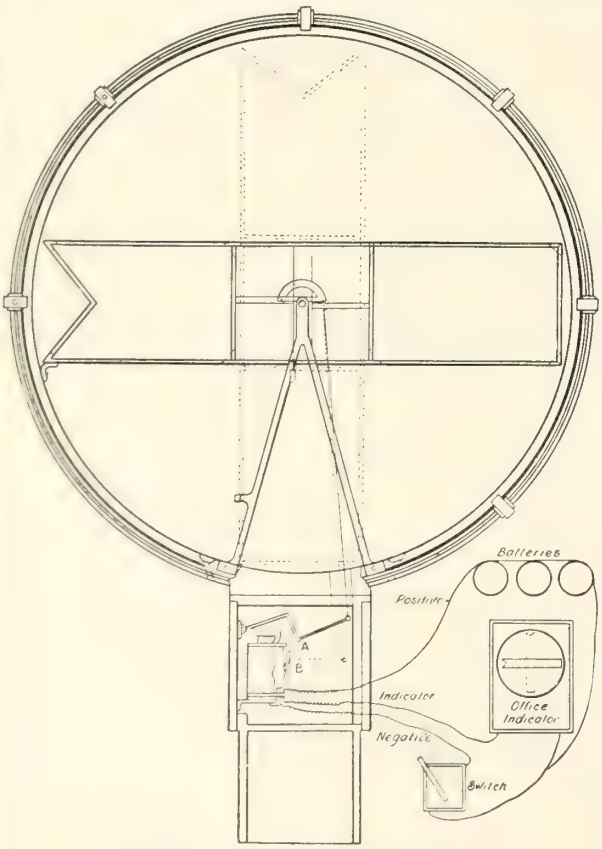

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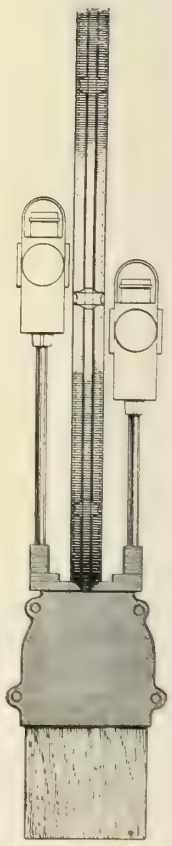

Side View of McAvity Electric Railway Signal. Type B.

Passenger Meetings at Buffalo.

Three important passenger meetings were held at the Hotel Lafayette, Buffalo, N.Y., in Jan. The rate clerks met on Jan. 18 and 19, to prepare the rate sheets, which were approved at the general meeting on Jan. 20.

President C. F. Bielman, T.M., White Star Line, Detroit, Mich., took the chair at the International Water Lines Passenger Association meeting.

A. A. Heard, General Passenger Agent Delaware & Hudson Co., on behalf of Capt. C. H. Nicholson, ex-Traffic Manager Northern Navigation Co., of Ontario, and now Manager Grand Trunk Pacific Ry. Pacific Coast Steamships, presented Mr. Bielman with a silver mounted gavel made from wood used in the construction of the Northern Navigation Co.'s s.s. Hamonic.

The executive committee having reported in favor of the admission of the following lines, they were elected members:—Chicago & South Haven Line, Eastern Steamship Co., Plant Line.

The Secretary reported that at the end of 1909 there were 39 member companies, one had retired and three joined, making the present membership 41.

T. J. Kennedy, General Superintendent Algoma Central S.S. Co., sent notice of the company's withdrawal from passenger business, and tendered its resignation of membership.

C. H. Nicholson sent notice of his resignation from the Northern Navigation Co.'s service and appointment as Manager G.T.P.R. Pacific Coast Steamships, and resigned as chairman of the audit committee.

Messrs. Kennedy and Nicholson were nominated for honorary membership, to be voted on at next year's meeting.

A resolution of condolence with the family of R. Maxwell, Traffic Manager Star Cole Line, who died Aug. 30, 1909, was adopted.

The constitution was amended by providing that any transportation line of North America, performing a regular passenger service, is entitled to representation in the Association. This eliminates the words "east of and including the Mississippi River."

The following were elected by acclamation:—President, W. M. Lowrie, G.P.A., Northern S.S. Co.; Vice President, T. H. Henry, T.M., Richelieu & Ontario Navigation Co.; Secretary, M. R. Nelson, C.C., P.D., Northern Steamship Co.; Executive Committee, A. A. Heard, G.P.A., Champlain Transportation Co., and Lake George S.B. Co.; J. J. Cheesman, T.M., United States and Dominion Transportation Co.; Capt. F. Elliot, Supt. Ottawa Division, Ottawa River Navigation Co.; Auditing Committee, E. E. Horsey, T.M., Lake Ontario & Bay of Quinte S.S. Co.; C. C. Brown, G.P.A., Eastern S.S. Co.; R. C. Davis, G.P.A., Goodrich Transportation Co.

President-elect Lowrie having taken the chair, it was decided to hold the next meeting on the same date and at the same place as the Niagara Frontier Summer Rate Committee.

The Niagara Frontier Summer Rate Committee's meeting was presided over by the Chairman, A. A. Heard, G.P.A., Delaware and Hudson Co., who stated that it had been called to compile for the information of interested lines summer fares from Niagara Falls, Toronto, Montreal, Quebec, Detroit, Port Huron and miscellaneous points for season of 1910.

On behalf of the committee, T. Henry, T.M., Richelieu & Ontario Navigation Co., presented for W. J. Lynch, P.T.M., Michigan Central Rd., who was chairman in 1908, a gavel made from wood used in the construction of the s.s. Rochester, the first R. & O.N. vessel under the U.S. flag, and which will go into service next season between Youngstown and Ogdensburg, N.Y.

A. A. Heard was presented with a gavel which D. A. Loomis, General Manager Champlain Transportation Co., had had made from wood from the hull of the schooner, Royal Savage, flag ship of General Arnold, commander of the "American" flotilla on Lake Champlain, which was sunk near Valcour Island, Oct. 11, 1776, where a part of her hull has since lain. In 1886, a diver secured relics from the wreck, consisting of cannon balls and pieces of lumber.

J. F. Fairlamb, G.P.A., New York Central & H.R. Rd., was elected Chairman for the current year, Jas. Morrison, C.R.C., Canadian Pacific Ry., being re-elected Secretary.

Mr. Fairlamb having taken the chair, the Secretary reported that fares had been compiled by the rate representatives on Jan. 18 and 19, and they were adopted.

The Maine S.S. Co. and the Memphremagog S.S. Co. were elected members.

It was decided to issue the meeting's proceedings for the information of interested lines as usual.

Rochester, N.Y.; Detroit, Mich.; New York City and Montreal were proposed for the next place of meeting, the ballot being in favor of Rochester by a large majority.

In the absence of Chairman C. H. Nicholson, T. Henry, T.M. Richelieu & Ontario Navigation Co., presided at the Great Lakes & St. Lawrence River Rate Committee's meeting.

E. E. Horsey, G.M. Lake Ontario & Bay of Quinte S. B. Co., was elected Chairman for the current year and took the chair.

The representatives of the various steamship lines announced their rates for the ensuing season and the Canadian railway companies gave notice of their routing rates to shore ports on upper lake business, all of which will be embodied in the rate sheets.

It was decided to hold the 1911 meeting at Rochester, N.Y., immediately following the Niagara Frontier Summer Rate Committee meeting.

Railway Rolling Stock Statistics.

During the year ended June 30, 1909, there were added to the rolling stock of the various Canadian railways 97 locomotives, 2,070 freight cars and 166 passenger cars. On that date there were in service 3,969 locomotives, 117,779 freight cars, and 4,192 passenger cars. In addition to these there were reported to be 65 locomotives and 9,345 cars under lease and 7,859 other cars in the companies' service. The available motive power was equivalent to 165 locomotives for every 1,000 miles of line, a decrease of four. This reduction is largely due to the fact that the new mileage had not been brought up to the standard of the older lines in regard to equipment. The average tractive power of locomotives has been steadily rising for years, so that the 97 locomotives added may be considered to represent a hauling capacity sufficient to compensate for the loss of motive power per 1,000 miles as expressed in number of engines. The passenger car supply is equivalent to 174 cars for every 1,000 miles of line, and the freight car supply 4,887 cars for every 100 miles of line. Although the number of cars showed an increase the additions to stock did not keep pace with the expanding mileage. The total carrying capacity of the freight cars was 3,385,313 tons, an increase of 107,919 tons over the previous year. The aggregate car supply was equal to one car for every 567 tons of freight, against 545 tons; the average carrying capacity of the cars was 28.70 tons, against 28.28 in the previous year.

Shelters. Stations and Agents.

The Board of Railway Commissioners passed the following order, 9160. Jan. 6.—Re complaint of Winnipeg Jobbers and Shippers Association alleging unsatisfactory service rendered by railway companies in connection with shipments of freight to flag stations and applying for an order directing the companies, where the traffic warrants, to appoint permanent agents to take charge of business at such stations. It is ordered:

1. That all railway companies subject to the Board's jurisdiction within six months from the date of this order, do construct and maintain, upon their lines of railway, in Manitoba, Saskatchewan and Alberta, at stations (other than regular agency stations) from or to which freight (l.c.l.) and passenger traffic is carried, suitable shelters or waiting rooms for the accommodation of freight and passengers, the said shelters to be provided with proper doors and windows and not to be below the standard of the plans and specifications attached, no. 1 (A or B, as may be decided upon).

2. That appurtenant to the said shelters and at proper and convenient locations, shall be erected within the time aforesaid, proper and convenient platforms and approaches.

3. All freight traffic delivered to such points shall be placed in the said shelter, and the carrier shall not be relieved from liability under the release approved by order 6242, unless this direction is complied with.

4. That at all stations or shipping places upon the said railway from or to which the total freight and passenger earnings of the company for the last fiscal year, or where the average earnings for the last three fiscal years, amount to not less than $15,000, of which $2,000 shall represent inward traffic, the said railway companies shall forthwith construct and equip suitable and proper stations, not to be below the standard of plans and specifications attached, no. 2, and shall likewise forthwith appoint and continue a permanent agent at such point or points.

5. That at all non-agency points where the business of the company consists solely or principally of grain shipments and the same amounted to at least 50,000 bush. for the previous year, temporary grain agents shall be appointed and continued during the grain shipping season, being from September 15th to December 31st, in each year.

Capital Seeking Investment in Steam and Electric Railways, Etc.

A well known transportation official in London, Eng., who is an old subscriber to the Railway and Marine World, has written our Managing Director, as follows:—

"An agent of a very influential and strong syndicate here has asked me if I know of any railway charters, either steam or electric, cold storage plant, docks, or other similar propositions in Canada which require financing. He states that his principals are ready to take up any good proposition of this kind and finance it, and I immediately thought that you would be the best one to know if there was anything of the kind offering, as you seem to have a bigger grasp of all things pertaining to railways than any other man in Canada. If you know of one or two propositions, I would be glad if you would give me particulars of them."

Holders of charters of undoubted value and promoters of any enterprise referred to in our correspondent's letter are invited to communicate with us, giving full particulars, and in the case of any proposition we would feel justified in recommending, we would put them in communication with the syndicate referred to.

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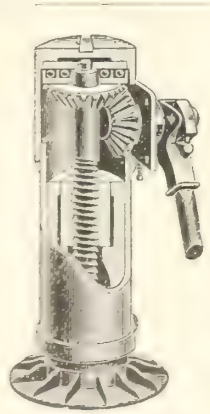
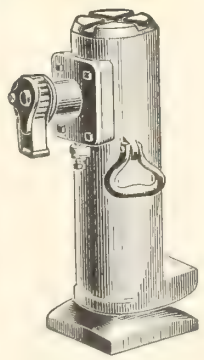


Sectional View



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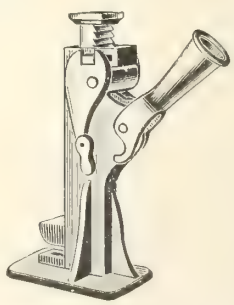
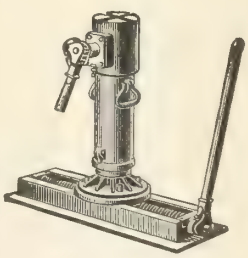
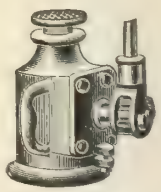


15 Ton Track Jack



Traversing Jack



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Railway Finance, Meetings, Etc.

Alberta Ry. and Irrigation Co.—Approximate net profits from all sources, exclusive of land sales, for Nov., 1909, $52,211, against $50,870 for Nov., 1908. Cumulative net profits for five months ended Nov. 30, 1909, $213,489. Approximate traffic receipts for Dec., $31,523, against $28,432 for Dec., 1908. Aggregate traffic receipts for six months ended Dec. 31, 1909, $203,986.

Canadian Pacific Ry.—The Dominion Parliament is being asked to authorize the issue of bonds for $25,000 a mile in respect of the construction of certain branch lines and to authorize the company to issue debenture stock in lieu of the bonds. The bill also authorizes the company to make by-laws providing for the election of two or more vice presidents, who need not be members of the board of directors, and defining their duties. Provision is made one-fifth instead of one-fourth of the directors retiring each year. Another section provides that the intent of sec. 2 of the C.P.R. Act, 1893, in so far as it relates to the aggregate amount of preferred stock which the company may issue, is to fix a definite limit to the company's power to issue such stock, and that notwithstanding any other provision relating to such stock the amount of such preferred stock outstanding may equal but shall not exceed at any time one-half of the aggregate amount of the ordinary stock then outstanding.

Dominion Atlantic Ry.—Gross earnings for Nov., 1909, $110,200, against $96,868 for Nov., 1908. Aggregate earnings for five months ended Nov. 30, $720,000, against $701,235 for same period 1908.

At a meeting of the Halifax, N.S., Board of Trade, Jan. 18, the President stated that it was understood that the Canadian Northern Ry. interests had acquired the Dominion Atlantic Ry. together with its steamships. The D.A.R. Co.'s stock is owned in Great Britain, and a Halifax barrister has recently been in London, Eng., carrying on some negotiations with the company.

Grand Trunk Pacific Ry.—The Supreme Court gave judgment recently in the case of the G.T.P.R. Co. and the Dominion Government arising out of the issue of guaranteed stock. In 1903, by statutory agreement, the bonds were guaranteed to the extent of 75% of the cost of construction of the western division, but not to exceed $13,000 per mile of the prairie section and $30,000 per mile of the mountain section. During the next year it was found that these bonds would not realize 75%, and a new agreement was made, striking out the limitations as to the mountain section, and providing that the Government implement its guarantee in such a manner as may be agreed upon, so as to make the proceeds equal to 75% of the cost. The company claimed to be entitled to sell the bonds, and if they realized less than 75% the Government should pay them the difference. The Government contended that it was only obliged to be surety for payment, and not to pay cash. The Governor-General in council submitted a number of questions to the Judges of the Supreme Court, upon which the judgment is based. In effect the court holds that the Government is not bound to make good any difference between the sale price of the bonds and 75% of their face value.

London and Port Stanley Ry.—The report of the Treasurer presented to the directors recently showed the total receipts to be $15,976.39, as follows:—Rental, $10,000; interest on rental, $2,596.60; percentages from Pere Marquette Rd. (leased), $3,379.79. The expenditures for the year were $211. The falling off is in the percentage on earnings. In 1908 the city of London received $6,706.21 from the Pere Marquette Rd., $3,326.42 more than in 1909. The President pointed out that the right to place in a switch had been granted to the Michigan Central Rd., and a similar request from the P.M. Rd. was now under consideration. The question of the extension of the lease to the P.M. Rd. had been taken up, but after some negotiations had been dropped.

The annual meeting of the shareholders was held Jan. 17. The officers and directors for the current year are:—President, Mayor Beattie; Vice President, Alderman Eckert; other directors: Aldermen Richter, Stevenson, Morgan, Jeffries, Underwood, Ashplant, Ex-Mayor S. Steveley; Secretary, — Baker.

New Brunswick Coal and Ry. Co.—Hon. W. Pugsley, Dominion Minister of Public Works, has filed a bill of complaint in the Supreme Court of Equity, against the New Brunswick Coal and Ry. Co., for an investigation of certain matters arising out of the report of a Royal Commission on the affairs of the Company. The papers filed ask for an accounting of receipts and expenditures of subsidies and moneys received by the company from the Dominion and Provincial Governments, and also all expenditures and appropriations of the proceeds of debentures, bonds, etc., guaranteed by the province, and of the dealings of the company. Mr. Pugsley was Premier of New Brunswick when the transactions investigated took place, the railway being managed by a commission appointed by the New Brunswick Government.

Northern Securities Co.—In the annual report to the shareholders J. J. Hill says the reduction of the dividend rate, as compared with former years, has been occasioned by the fact that in 1909 the company received no income from its holdings in the Crow's Nest Pass Coal Co. Of the 62,108 shares in the C.N.P.C. Co. the Northern Securities Co. holds 27,552. The C.N.P.C. Co. owns the Morrissey, Fernie and Michel Ry.

Orford Mountain Ry.—Application is being made to the Board of Railway Commissioners for a recommendation to the Governor in council for the sanction of a lease of the company's railway to the C.P.R. for 999 years.

Quebec Central Ry.—Gross earnings for Oct., 1909, $102,764.35; expenses $68,-921.28; net earnings, $33,842.37, against $78,244.82 gross earnings; $57,055.25 expenses; $21,189.57 net earnings for Oct., 1908. Aggregate gross earnings for four months ended Oct. 31, $413,-870.31; expenses $264,489.78; net earnings, $149,380.53, against $413,788.30 gross earnings; $20,696.65 expenses; $143,091.65 net earnings for same period 1908.

Temiscouata Ry.—Net profit on operation for Oct., 1909, $4,835, and for 10 months ended Oct. 31, $44,934.

Toronto City and C.P.R. Lines.—At the time of the construction of the Credit Valley Ry., the Toronto, Grey and Bruce Ry., and the Ontario and Quebec Ry., now included in the C.P.R. system, the City of Toronto provided certain amounts in aid of construction in return for which the council was given the right to nominate certain directors. These have been appointed from year to year but it appears that no reports are received from them by council. The Mayor has been investigating the matter and as a result the City Treasurer has been directed to present a report on the whole question. The report will also cover the position of the city with reference to its representation on the directorate of the company which constructed the line from Toronto northerly, forming part of the G.T.R. Northern Division.

White Pass and Yukon Ry.—Aggregate gross earnings for five months ended Nov. 30, 1909, $829,086.

Q. and L. St. J. Railway Bonds

The Railway Share Trust and Agency Co. of London, Eng., trustees for the Quebec and Lake St. John Ry. prior lien, 1st mortgage, and income bondholders, issued the following circular in Dec.:—The trustees have been informed by the Q. and L. St. J. R. Co. that it will be unable to pay the coupon for interest on the first mortgage bonds falling due Jan. 1, 1910. A proposal has been submitted to the trustees for the reorganization of the company's bonded capital on the following lines:—That a new 4 o consolidated perpetual debenture stock of the Q. and L. St. J. R. Co., absolutely guaranteed both as regards principal and interest by the Canadian Northern Ry. Co. should be created sufficient in amount:—To exchange the outstanding prior lien bonds at the rate of £100 of the new stock for every £100 of prior lien bonds. To exchange the first mortgage bonds at the rate of £60 of the new stock for every £100 of first mortgage bonds. To exchange the income bonds at the rate of £10 of the new stock for every £100 of income bonds. To exchange the bonds (£10,000) issued by the Lake St. Joseph Hotel Co., and guaranteed by the Q. and L. St. J. R. Co. at the rate of £100 of the new stock for every £100 of hotel bonds. To provide for the present floating indebtedness of the company, and to provide for additional rolling stock and equipment now required. Interest on the new stock to be payable half-yearly, on Feb. 1 and Aug. 1; the first payment for the period from Feb. 1, 1910, to Aug. 1, 1910, being made on the latter date. That in addition to the Canadian Northern Ry. Co.'s guarantee the new stock will be secured by a trust deed constituting it a first mortgage on the whole of the property and undertaking of the Q. and L. St. J. R. Co. including the Lake St. Joseph hotel property. That power be reserved to the company:—To create charges on any new line of railway hereafter constructed ranking in front of the new stock, provided such charges are guaranteed by the Dominion or by one of the Provinces. To create additional new stock (ranking pari passu with the new stock to be issued as above mentioned) to provide for the purposes following:—To an amount equal to $30,000 per mile of line of railway hereafter constructed or contracted to be constructed, after deducting therefrom any amount not exceeding $30,000 per mile for the time being outstanding of any mortgages or securities guaranteed by the Dominion or any Province, and for the time being ranking on such line of railway in priority to the new stock. To an amount equal to the amount by which any mortgages or securities guaranteed by the Dominion or any of the Provinces that may hereafter be secured on the company's railways or any part thereof in priority to the debenture stock exceed $30,000 per mile of the line on which they are secured as a first mortgage or charge. To an amount equal to the cost price to the company of any rights of way, or land purchased or to be purchased by the company for terminals or any other purposes in connection with the construction, operation and maintenance of the company's lines of railway or any of them. To an amount equal to the cost price to the company of any bonds, stocks, shares or securities of any other company which may hereafter from time to time be deposited with the trustees and specifically mortgaged by way of first mortgage as additional security for the new stock.

The foregoing proposals were submitted at a meeting of bondholders in London, Eng., Jan. 14, but were so strongly opposed that they were withdrawn.

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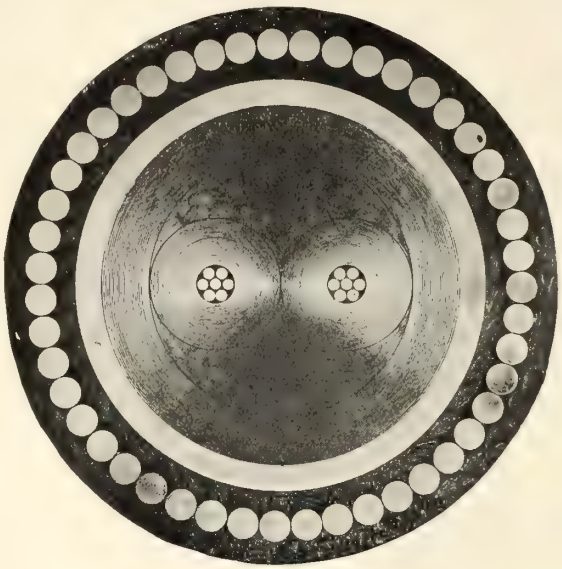

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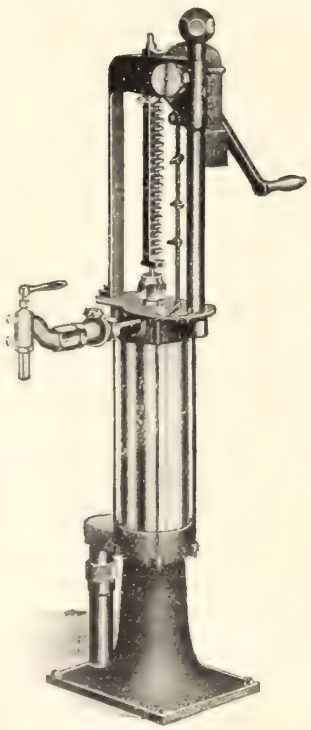

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Orders by the Railway Commissioners.

Beginning with June, 1904, we have published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed our paper have a continuous record of the Board's proceedings. No other paper has done this.

The dates given of orders, immediately following the numbers, are those on which the hearing took place and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the date assigned to them.

8902. Dec. 13.—Authorizing C. S. Hyman & Co. to lay heating pipes on Richmond St., London, under C.P.R.

8903. Dec. 15.—Amending order 3245, July 4, 1907, regulations re locomotives. This order was published fully in our Jan. issue, pg. 47.

8904. Dec. 2.—Authorizing C.N.O.R. to place tracks across G.T.R. near Port Hope, Ont.

8905. Dec. 7.—Authorizing C.P.R. to construct spur for Spietz Furniture Co. and Hanover Portland Cement Co., Hanover, Ont.

8906. Dec. 9.—Authorizing C.P.R. to install half-interlocking with derails, on Richmond St., London, Ont.

8907. Dec. 13.—Ordering C.P.R. to carry highway between Springer and Caldwell tps., Ont., over its tracks.

8908. Dec. 15.—Authorizing G.T.R. to construct sidewalk over Maitland River, Wingham, Ont.

8909. Dec. 8.—Authorizing G.T.R. to construct branch north of Ontario St., Port Hope, Ont.

8910. Dec. 12.—Refusing W. Knetchel & Sons' application for spur to mill at Hanover, Ont.

8911. Dec. 2.—Authorizing G.T.R. to reconstruct highway bridge over its tracks at Margaret St., Berlin, Ont.

8912, 8913. Dec. 15.—Authorizing Peck Rolling Mills, Montreal, to operate an overhead carrier and rail line over Montreal and Southern Counties Ry., at Mill St.

8914. Dec. 15.—Approving highway crossing and road diversion between secs. 15 and 22, tp. 33, r. 28, w. 2 m. of G.T.P.R. District, Saskatoon, Sask.

8915. Dec. 15.—Authorizing G.T.P.R. to build across diverted highway through s.e. ¼ sec. 20, tp. 42, r. 25, w. 3 m., Sask.

8916. Dec. 15.—Approving C.N.O.R. location in Pickering tp., Ont.

8917. Dec. 15.—Approving C.N.R. standard plan of overhead highway crossing.

8918. Dec. 15.—Authorizing Winnipeg corporation to place transmission lines across C.P.R. in s.e. ¼ sec. 7, tp. 13, r. 7, e.p.m., Man.

8919. Dec. 15.—Authorizing Bell Telephone Co. to place wires across G.T.R. near Courtland station, Ont.

8920. Dec. 15.—Authorizing Coldstream Telephone Co. to place wires across G.T.R. between Komoka and Strathroy, Ont.

8921. Dec. 15.—Authorizing A. McMichael, Jr., Melfort, Sask., to place wires across C.N.R. at Government Rd.

8922. Dec. 15.—Authorizing C.P.R. to construct spur to the end of its Kootenay Lake wharf, Nelson, B.C.

8923. Dec. 15.—Authorizing G.T.R. to construct spur to Goderich Lumber Co.'s premises, Southampton, Ont.

8924. Dec. 15.—Ordering G.T.P.R. to place two more wires along fences on both sides of its right of way in sec. 2, tp. 12, r. 11, w. 1 m., Man.

8925. Dec. 16.—Approving C.N.R. location through tp. 24, r. 17-15, w. p. m., mile 0 to 14.02, Man.

8926. Dec. 10.—Approving Toronto, Niagara & Western Ry. location from Davenport station to Jane St., Toronto.

8927. Dec. 4. Ordering G.T.R. to remove not later than July 1, additional track crossing King St., Sherbrooke, Que.

8928. Dec. 15.—Authorizing Guelph, Ont., Board of Light and Heat Commissioners to place wires across C.P.R. at Norwich St.

8929. Dec. 16.—Authorizing Bell Telephone Co. to place wires across M.C.R. at Wellington St., Windsor, Ont.

8930 to 8932. Dec. 16.—Authorizing People's Telephone Co. to place wires across G.T.R. near Jericho, and near Forest, Ont.

8933. Dec. 16.—Authorizing town of Waterloo, Ont., to lay water main under G.T.R. at John St.

8934. Dec. 7.—Dismissing G.T.P.R. application for order for connection with Canada Iron Corporation's tracks at Mountain Ave., Fort William, Ont.

8935. Dec. 7.—Ordering C.P.R. to fill in with plank space between rails along John and Water Sts., Eganville, Ont.

8936. Dec. 7.—Ordering C.P.R. to construct station with proper facilities for traffic at Eganville, Ont.

8937. Dec. 7.—Authorizing Georgian Bay & Seaboard Ry. to cross G.T.R. mileage 50.5, Victoria Harbor, Ont.

8938. Dec. 2.—Authorizing C.P.R. to construct spur near Sutton station, Que.

8939. Dec. 16.—Authorizing C.P.R. to construct spur near Smelter Jct., B.C.

8940. Dec. 16.—Approving C.N.O.R. location through Frontenac co., mileage 61 to 96, west from Ottawa.

8941. Dec. 7.—Ordering Montreal Park & Island Ry. to stop cars to allow passengers to get off and on at six points in Mount Royal Ward, Montreal.

8942. Nov. 30.—Ordering M.C.R. and P.M.R. to file plans showing location of towers, gates, etc., where they intersect side road running between lots 6 and 7, con. 5, at Highgate and Muirkirk stations, Ont.

8943, 8944. Dec. 17.—Approving plans of Atlantic, Quebec & Western Ry. stations at L'Anse aux Gascons and Newport, Que.

8945. Dec. 17.—Authorizing C.N.R. to place wires under Kaministiquia Power Co.'s wires near Kakabeka, Ont.

8946 to 8957. Dec. 17.—Authorizing Nipissing Power Co. to place transmission lines across Bell Telephone Co.'s wires at 12 points in Ontario.

8958. Dec. 13.—Authorizing C.P.R. to open for traffic its double track on main line between Fort William and Winnipeg.

8959. Dec. 18.—Authorizing village of Eganville, Ont., to construct highway across C.P.R.

8960. Dec. 18.—Authorizing C.P.R. to divert crossing of Salvage Ave. to proposed crossing of its tracks by Chapman Ave., Grassy Lake, Alta.

8961. Dec. 15.—Authorizing Daly & Morin to lay pipe under G.T.R. at Lachine, Que.

8962, 8963. Dec. 17.—Approving C.N.R. location from mileage 88 to 119, up North Thompson River from Kamloops, and from mileage 0 to 7, Lytton, B.C.

8964. Dec. 17.—Authorizing Manitoba Government Telephones to place wires across C.P.R. west of St. Boniface.

8965, 8966. Dec. 17.—Authorizing C.N.O.R. to place wires across Bell Telephone Co.'s wires at stations 2928-06 and 2924-54.

8967, 8968. Dec. 18.—Authorizing Berlin, Ont., Light Commissioners to place wires across G.T.R. at Waterloo and St. Leger Sts.

8969. Dec. 9.—Authorizing C.P.R. to lay pipe under C.N.R. along Boyne Ave., Morris, Man.

8970. Dec. 18.—Authorizing C.P.R. to construct extension of Eureka Mineral Claim spur, Yale District, B.C.

8971. Dec. 18.—Authorizing C.P.R. to construct two spurs in Weyburn, Sask.

8972. Dec. 18.—Authorizing C.P.R. to construct two spurs at Calgary, Alta, for Y. Shaw and Crown Lumber Co.

8973. Dec. 18.—Authorizing C.P.R. to construct spur for Leitch Collieries, Ltd., mileage 87.11, Crow's Nest Pass Branch.

8974, 8975. Dec. 18.—Authorizing C.P.R. to construct spur near Galloway station, B.C., and for La Compagnie Jobin, St. Augustin Parish, Que.

8976. Dec. 20.—Authorizing C.N.O.R. to use for construction purposes only the crossing by its line of the G.T.R. near Brooklin.

8977. Dec. 20.—Authorizing C.P.R. to construct spur through blocks 200 and 201, Regina, Sask.

8978. Dec. 18.—Authorizing Berlin, Ont., Light Commissioners to place wires under G.T.R. at King St.

8979. Dec. 18.—Authorizing Bell Telephone Co. to place wires under M.C.R. at Chippawa St., Chippawa, Ont.

8980. Dec. 18.—Authorizing C. Hudson, Lambton station, Ont., to work steam shovel on coal dump on the C.P.R. on Sunday, Dec. 19, on account of emergency.

8981. Dec. 20.—Authorizing G.T.R. to construct bridge over Chaudiere River at mile post 164.1, 3rd district, near Chaudiere Jct., Que.

8982, Nov. 22.—Ordering all railway companies in Ontario to weigh coal carried by them received from foreign countries at the port of entry if so required. This order is given fully on another page.

8983. Dec. 20.—Approving C.N.O.R. crossings at four streets in Parry Sound, Ont.

8984. Dec. 11.—Prescribing form of certificate to be used by railways in notifying the Board of assent to, and concurrence in, a joint tariff, or supplement, applicable between points in Canada. This order is given fully on another page.

8985. Dec. 20.—Authorizing Ridgetown Fuel Supply Co. to lay gas pipe under P.M.R. in Highgate, Ont.

8986. Dec. 22.—Authorizing Ottawa Electric Co. to place wires across C.P.R. at Billings Bridge, Ont.

8987 to 8991. Dec. 22.—Authorizing C.N.Q.R. to construct its lines and tracks across public roads between lots 100 and 105, on lot 195; to divert public road on lot 183; across public roads on lots 2, 26, 27 and 30, Deschambault Parish.

8992. Dec. 17.—Ordering C.P.R. to make repairs and changes to crossing at mileage 1.90 Artemesia sp., Ont.

8993. Dec. 15.—Authorizing Windsor, Essex and Lake Shore Rapid Ry. to operate along Gravel Rd., Sandwich West tp., Ont.

8994. Dec. 21.—Authorizing Manitoba Government Telephones to place wires across C.P.R. north of Purves station.

8995. Dec. 21.—Authorizing Southwold tp., Ont., to lay pipe under G.T.R.

8996. Dec. 22.—Authorizing Dominion Light, Heat & Power Co. to cross with a drain C.N.Q.R. at Pie IX St., Maisonneuve, Que.

8997. Dec. 21.—Authorizing Southwold tp., Ont., to lay drain under G.T.R.

8998. Dec. 21.—Authorizing T.H. Herrington to place telephone line across G.T.R. at Belleville Rd. crossing (Napanee), Ont.

8999, 9000. Dec. 21.—Authorizing Bell Telephone Co. to place wires across M.C.R. east of Essex station, Ont., and across C.N.Q.R. in Deschambault Parish, Que.

9001 to 9004. Dec. 22.—Authorizing Manitoba Government Telephones to place wires across C.P.R. at four points.

9005. Dec. 7.—Authorizing Chatham Gas Co. to lay main under C.P.R. at Inches Ave., Chatham, Ont.

9006. Dec. 22.—Extending until June 15, time within which C.P.R. may complete fencing, erect crossing signals, and install cattle guards along its Snowflake branch extension to Windygates, Man.

9007. Dec. 22.—Authorizing the village of Brussels, Ont., to install a telephone instrument in the C.P.R. station at Walton, Ont.

9008. Dec. 22.—Cancelling order 3507, Aug. 15, 1907, in so far as it approves G.T.P.R. location from John St. to Spadina Ave., Winnipeg.

9009. Dec. 22.—Authorizing Ridgetown Fuel Supply Co. to lay gas pipe under M.C.R. at Highgate, Ont.

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9010, 9011. Dec. 22.—Authorizing the city of Toronto to lay ducts under G.T.R. on John and Wellington Sts.

9012. Dec. 22.—Authorizing Ernestown Rural Telephone Co. to place wires across G.T.R. at Ernestown, Ont.

9013. Dec. 22.—Authorizing F. T. Cross, Farm Point, Que., to place wires across C.P.R.

9014. Dec. 23.—Authorizing Thedford, Arkona & East Lambton Telephone Co. to place wires across G.T.R. at Thedford, Ont.

9015. Dec. 22.—Authorizing Manitoba Government Telephones to place wires across G.T.P.R. at Treat.

9016. Dec. 23.—Authorizing Oxbow Telephone Co. to place wires across C.P.R. at Oxbow, Sask.

9017 to 9022. Dec. 22.—Authorizing Manitoba Government Telephones to place wires across C.N.R. at one point; G.T.P.R. at two points, and C.P.R. at three points.

9023, 9024. Dec. 22.—Authorizing Alberta Government Telephones to place wires across C.P.R. at two points.

9025. Dec. 22.—Authorizing Saskatchewan Government Telephones to place wires across C.P.R. at Gainsborough.

9026. Dec. 20.—Authorizing the city of Hamilton, Ont., to construct bridge across T.H. & B.R. at Garth St.

9027. Dec. 23.—Authorizing Dungannon municipality, Ont., to construct highway crossing over Central Ontario Ry., 300 ft. south of Boy's crossing, Hastings tp.

9028, 9029. Dec. 23.—Authorizing J. A. Steele, to lay pipe line under G.T.R., at two points in Humberstone tp., Ont.

9030. Dec. 22.—Authorizing C.P.R. to construct spur for J. H. Ashdown Hardware Co., Calgary, Alta.

9031. Dec. 2.—Dismissing application of J. Davy, Thorold, Ont., that the N.St.C. & T. Ry. refund him $219.83 on shipments from Nov., 1908, to Sept. 1909.

9032. Dec. 21.—Dismissing Montreal Board of Trade's application for order directing C.P.R. to publish tariffs covering milling-in-transit privileges on corn received at Montreal by rail from its Georgian Bay elevators.

9033. Dec. 24.—Approving change in Vancouver, Victoria and Eastern Ry. location at Hedley, B.C.

9034. Dec. 23.—Ordering Alberta Ry. and Irrigation Co. to provide station accommodation and facilities for traffic at five points.

9035. Dec. 24.—Authorizing Director of Surveys of Alberta to construct highway across C.P.R., n.e. ¼ sec. 3, tp. 10, r. 10, w. 4 m.

9036 to 9038. Dec. 27.—Authorizing Esquimalt, B.C., Water Works to lay water main under E. & N. Ry. at three points.

9039. Dec. 27.—Approving location of G.T.P.R. North Portal branch, mileage 50 to 100.

9040. Dec. 27.—Authorizing C.N.O.R. to use seven bridges on its Smallwood-Gowganda Division.

9041. Dec. 24.—Authorizing G.T.P.R. to construct branch on Government reserve, Edmonton, Alta.

9042 to 9045. Dec. 24.—Authorizing Bell Telephone Co. to place wires across C.P.R. at three points in Ontario and one in Quebec.

9046. Dec. 27.—Authorizing T. H. Herrington to place telephone wires across Bay of Quinte Ry., Napanee, Ont.

9047. Dec. 24.—Authorizing C.P.R. to construct spur across 23rd St., Saskatoon, Sask.

9048. Dec. 24.—Authorizing C.N.O.R. to construct bridge over Don River, York tp., Ont.

9049. Dec. 27.—Authorizing C.N.Q.R. to construct 10 highways in St. Jerome and St. Sauveur parishes and St. Jerome, Que.

9050. Dec. 24.—Authorizing Blenheim & South Kent Telephone Co. to place wires across M.C.R. at Charing Cross, Ont.

9051. Dec. 28.—Authorizing Manitoba Government Telephones to cross C.P.R. near Mowbray.

9052. Dec. 28.—Authorizing Leeds & Grenville Independent Telephone Co. to place wires across C.P.R. at Hawkins Crossing, Elizabethtown tp., Ont.

9053, 9054. Dec. 28.—Authorizing Wroxeter Rural Telephone Co. to place wires across C.P.R. in Howick and Turnberry tps., Ont.

9055 to 9057. Dec. 28.—Authorizing Manitoba Government Telephones to place wires across C.P.R. at three points.

9058. Dec. 28.—Authorizing Bell Telephone Co. to place wires across C.N.O.R. near Duncan station.

9059. Dec. 28.—Approving G.T.R. plan showing stress sheet for four 219-ft. truss spans over St. Lawrence River at Coteau, Ont.

9060. Dec. 28.—Authorizing M.C.R. to put into operation interlocking plant at east end yard, Windsor, Ont.

9061. Dec. 27.—Amending order 8976, Dec. 20, 1909, authorizing the C.N.O.R. to use, for construction purposes, G.T.R. crossing near Brooklin, Ont., by adding three clauses re appointment of watchman.

9062. Dec. 27.—Amending order 5973, Dec. 23, 1908, authorizing M.C.R. to cross Ross street, St. Thomas, Ont., by substituting new plans.

9063. Dec. 28.—Authorizing the C.N.R. and C.P.R. to operate trains over crossing of each railway at Gladstone, Man.

9064. Dec. 27.—Authorizing C.P.R. to construct spur for Joliette Sand & Gravel Co., in St. Felix parish, Que.

9065. Dec. 27.—Authorizing St. Maurice Valley Ry. to construct spur for Shawinigan Cotton Co., Shawinigan Falls, Que.

9066. Dec. 27.—Authorizing G.T.R. to construct branch for Bell Furniture Co., Southampton, Ont.

9067. Dec. 28.—Ordering C.P.R. to clean out and put in good order all ditches leading to and from culvert 89.9, near Crookston, Ont.

9068. Dec. 24.—Approving G.T.P.R. location, Prince Rupert easterly, mileage 235.675 to 299.15 Coast District, B.C.

9069. Dec. 28.—Authorizing C.N.Q.R. to build across public road on lots 96 and 97, Portneuf parish, Que.

9070. Dec. 28.—Authorizing N. St. C. & T. R. to use bridge over Government raceway, St. Catharines, Ont.

9071. Dec. 27.—Authorizing C.N.Q.R. to build across Savane Rd., St. Roch parish, Que.

9072. Dec. 28.—Authorizing C.N.R. to carry its Mayfield Branch across C.P.R. near Midale, Sask.

9073 to 9094. Dec. 28.—Authorizing C.N.O.R. to build across public crossings in Darlington, Hamilton, Scarboro, and Darlington tps., Ont.

9095. Dec. 29.—Approving supp. 2 to C.R.C. 26, Standard Passenger Tariff, C.N.O.R., to apply between Sellwood Jct. and Gowganda Jct., Ont.

9096. Dec. 29.—Authorizing C.N.O.R. to open for traffic the portion of its line from Sellwood Jct. to Gowganda Jct., Ont.

9097. Dec. 29.—Approving C.N.O.R. location west of Grafton, Ont.

9098. Dec. 29.—Authorizing C.N.O.R. to build across public road at Hillcrest Ave., Scarboro tp., Ont.

9099. Dec. 21.—Disallowing Supplement 3 to Special Tariff C.R.C. E. 937 of Quebec Central Ry. in re rates on iron and steel articles.

9100. Dec. 29.—Authorizing C.N.Q.R. to construct spur to Eastern Canada Portland Cement Co., Dombourg, Que.

9101. Dec. 28.—Authorizing G.T.R. to construct extension of siding along Falstaff St., Stratford, Ont.

9102. Dec. 29.—Authorizing Bell Telephone Co. to place wires across G.N.W. Telegraph Co.'s wires near Sombra Station, Ont.

9103. Dec. 29.—Authorizing Neal Baking Co. to lay drain under C.P.R. at Windsor, Ont.

9104. Dec. 30.—Authorizing city of Brantford, Ont., to place wires across G.T.R. on Clarence St.

9105, 9106. Dec. 29.—Authorizing the Saskatchewan Government Telephones to place wires across C.P.R. at Esterhazy, and between secs. 13 and 24, tp. 47, r. 1, w. 3 m.

9107. Dec. 30.—Authorizing city of Brantford, Ont., to place wires under G.T.R. at Elgin St.

9108. Dec. 29.—Authorizing Bell Telephone Co. to place wires across C.P.R. near Windsor Station, Ont.

9109. Dec. 29.—Authorizing C.P.R. to construct spur for Calgary Power & Transmission Co., Calgary, Alta.

9110. Dec. 29.—Approving C.N.O.R. revised location in Clarke tp., Ont.

9111. Dec. 30.—Approving proposed iron bridge at milepost 10.94, G.T.R., near St. Catharines, Ont.

9112, 9113. Dec. 30.—Authorizing C.P.R. to construct spurs for Nomining Pulp Wood Supply Co., Loranger tp., and McJinnin, Holmes & Co., Sherbrooke, Que.

9114. Dec. 30.—Extending until June 1, time within which C.P.R. may construct subway where it crosses Iberville St., Montreal.

9115. Dec. 29.—Directing G.N.R. to erect station and platform at Port Kells, B.C.

9116, 9117. Dec. 30.—Authorizing C.N.O.R. to build across roads in Whitby tp., and between Scarboro and Pickering tps., Ont.

9118. Dec. 30.—Authorizing C.P.R. to reconstruct bridge over Fraser River, Thompson section, B.C.

9119 to 9121. Dec. 31.—Authorizing C.N.O.R. to build across public road at three points in Nipissing district, Ont.

9122. Dec. 31.—Extending until May 31 time within which G.T.R. may install gates at College St., Lennoxville, Que.

9123. Dec. 31.—Authorizing C.N.O.R. to build across public road between lots 26 and 27, con. D, station 353, Scarboro tp., Ont.

9124, 9125. Dec. 31.—Authorizing C.P.R. to construct spurs for Manitoba Bridge & Ironworks, Winnipeg, and H. E. Parent & Co., Campbell tp., Que.

9126. Jan. 3.—Ordering that C.N.R. provide, at its own expense, day and night watchmen at Pembina St. Subway, Winnipeg.

9127. Jan. 3.—Authorizing C.N.O.R. to construct bridge over Little Rouge River, Scarboro tp., Ont.

9128. Dec. 21.—Rescinding order 653, July 5, 1905, directing C.P.R., G.T.R. and C.N.R. to establish commodity rates on metallic shingles; by directing them to equalize freight rates on metallic shingles and siding from eastern points to Manitoba, Saskatchewan, and Alberta, as against freight rates charged on the unmanufactured material.

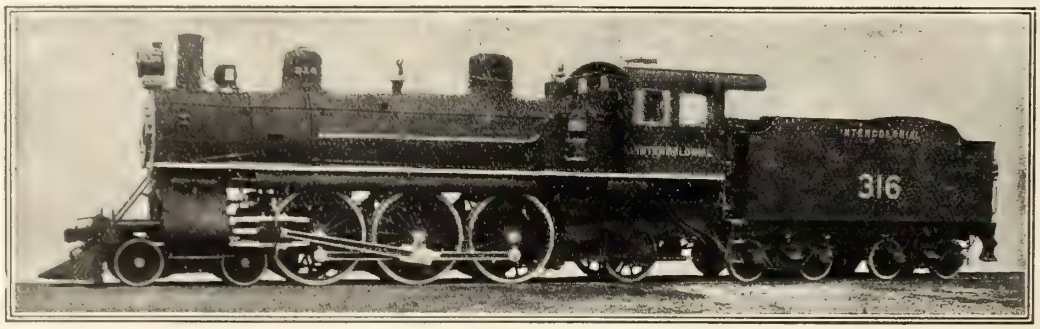
9129. Dec. 31.—Authorizing C.P.R. to operate branch in Etobicoke tp., Ont., and also connect with G.T.R.

9130. Dec. 17.—Authorizing C.N.Q.R. to build across Ste. Clair Rd., St. Sauveur parish, Que.

9131. Jan. 4.—Ordering M.C.R. to protect 14 crossings in Colchester, Tilbury East, Maidstone, Tilbury W., Rochester, Raleigh, Aldborough, Molton, Howard, Oneida, and Sandwich East tps., Ont., by watchmen from 7 a.m. to 7 p.m. each day.

9132. Jan. 3.—Approving Vancouver, Victoria & Eastern Ry. Standard Freight Tariff G.N., C.R.C. 663, between all its stations.

9133. Jan. 4.—Authorizing C.P.R. to construct spur for Standard White Lime Co., at Beachville, Ont.



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TORONTO, CANADA, FEBRUARY, 1910.

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The Manufacturers' Club of Buffalo, N.Y., on Jan 7, entered a formal complaint with the Interstate Commerce Commission, against the Pullman Co., asking for an order making the charge for upper berths in sleeping cars less than that for lower berths.

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(Continued from pg. 121.)

9134. Jan. 4,—Amending order 8896, Oct. 7, 1909, approving plans of crossings on C.P.R. Toronto-Sudbury branch.

9135. Jan. 3.—Authorizing Alberta Government to place telephone wires across C.P.R. Macleod branch at mileage 79.6.

9136. Jan. 4.—Authorizing Dereham Telephone Co. to place wires across C.P.R. in Dereham tp., Ont.

9137. Jan. 3.—Authorizing Canada Permanent Mortgage Corporation to place electric wires across G.T.R. at Queenston Quarry siding, Stamford tp., Ont.

9138. Jan. 3.—Authorizing Bell Telephone Co. to place wires across G.T.R. telegraph lines at Hammon, Ont.

9139. Jan. 4.—Authorizing Bell Telephone Co. to place wires across C.P.R. near Chatham station, Ont.

9140 to 9142. Jan. 4.—Authorizing Bell Telephone Co. to place wires across C.P.R. near Melrose, Chatham and Streetsville stations, Ont.

9143. Dec. 21.—Authorizing town of St. Louis, Que., to extend highway across C.P.R. at Atlantic Ave.

9144. Jan. 4.—Authorizing C.N.O.R. to construct sidings from G.T.R. main line to its right of way near its crossing of G.T.R., in con. D, Scarboro tp., Ont.

9145. Jan. 5.—Amending order 8755, Nov. 25, 1909, authorizing C.N.O.R. to carry its tracks across and to connect with G.T.R. near Brooklin, Ont., by adding additional clauses re junction track, cost of protection, and switching charge.

9146. Jan. 5.—Authorizing Capital Rural Telephone Co. to place wires across C.N.R. east of Regina, Sask.

9147. Jan. 5.—Authorizing Bell Telephone Co. to place wires across Hamilton Radial Ry. on Beach Road, Hamilton, Ont.

9148, 9149. Jan. 4.—Authorizing Manitoba Government Telephones to place wires across C.P.R. near Portage la Prairie, and across C.N.R. on Archibald St., St. Boniface.

9150. Jan. 5.—Approving G.T.P.R. proposed road diversion in sec. 12, tp. 48, r. 14, w. 4 m., Northern Alberta.

9151 to 9153. Jan. 5.—Authorizing J. P. Edwards for Ontario Public Works Department to construct overhead crossings of C.P.R., Sault Ste. Marie branch, in Baldwin, Hallam and Drury tps., Ont.

9154. Jan. 4.—Authorizing C.P.R. to construct bridge 1658 at Riviere a la Graisse, Que.

9155. Jan. 5.—Authorizing Vancouver, Victoria & Eastern Ry. to open for traffic portion of its line from Keremeos to Princeton, B.C.

9156. Jan. 3.—Ordering that Dominion Ex. Co. restore rate of ¼c. a pound on newspapers carried out of Winnipeg.

9157. Jan. 5.—Authorizing C.N.O.R. to build under and divert G.T.R. tracks near Brighton, Ont.

9158, 9159. Jan. 7.—Authorizing C.N.Q.R. to build aross boundary road between Ste. Julienne, St. Alexis and St. Jacques parishes, and to divert public road on lots 175, 176 and 177, Cap Sante parish at mileage 38.80 west from Quebec bridge.

9160. Jan. 6.—Ordering construction of shelters and stations and location of agents at certain western points. This order is given in full on another page.

9161, 9162. Jan. 7.—Approving plans of Osborne and Heidt drains to be constructed under G.T.R. in Southwold tp., Ont.

9163. Jan. 8.—Authorizing C.P.R. to use bridge 31.1, over Nomining River, Eastern Division.

9164. Dec. 22.—Amending Rule 4 in G.N.W. Telegraph Co.'s Supp. 1, C.R.C. 9, C.P.R. Telegraph Co.'s Supp. 2, C.R.C. 1, and Western Union Telegraph Co.'s C.R.C. 5, in connection with transmission of code messages between points in Canada.

9165. Jan. 7.—Authorizing Saskatchewan Government Telephones to place wires across G.T.P.R. near Zeneta.

9166. Jan. 7.—Authorizing Seymour Power & Electric Co. to place transmission line across G.T.R. in Seymour tp., Ont.

9167. Jan. 10.—Authorizing town of North Battleford, Sask., to place wires across C.N.R. near Victoria St.

9168 to 9172. Jan. 7.—Authorizing Pipestone municipality, Man., to place wires across C.P.R. at five points.

9173. Jan. 6.—Ordering C.N.R. to provide better facilities and accommodation for traffic between Rainy River and Fort Frances, Ont.

9174. Jan. 6.—Ordering C.N.O.R. to provide station and platform facilities at Barwick, Ont.

9175. Jan. 10.—Authorizing C.P.R. to construct industrial spurs across Ross Ave. and Xante St., Winnipeg.

9176. Jan. 10.—Authorizing Crow's Nest Southern Ry. to remove interlocking plant where its line crosses C.P.R. near Hosmer, B.C.

9177. Jan. 8.—Approving Rutland Road by-law authorizing C. Hartigan, G.P.A., and G. Cassidy, G.F.A., to prepare and issue tariffs of tolls.

9178. Jan. 8.—Amending order 8808, Sept. 30, 1909, certifying C.N.R. plan, as accepted, of completed railway in s.e. quar. sec. 24, tp. 43, r. 4, w. 3 m., by striking out range 4 and substituting 5.

9179. Jan. 10.—Approving road diversion by G.T.P.R. in sec. 26, tp. 28, r. 19, w. 2 m., Saskatoon district, Sask.

9180. Jan. 8.—Authorizing Chatham Gas Co. to lay pipe under G.T.R. at Lacroix St. crossing, Chatham, Ont.

9181 to 9184. Jan. 10.—Authorizing C.P.R. to build across public crossing at station 846.40, mileage 16.3; at station 825, mileage 15.6; station 42-75, mileage 0.80; and station 913.55, mileage 17.3, Cowichan branch.

9185. Jan. 10.—Approving Alberta Ry. & Irrigation Co. by-law appointing P. L. Naismith, General Manager, to prepare and issue tariff of tolls.

9186. Jan. 10.—Authorizing C.N.O.R. to build across public road between lots 20 and 21, con. 4, Hope tp.

9187. Jan. 7.—Ordering G.N.R., operating V. W. & Y. Ry., to forthwith publish and file joint rates on lumber and other articles covered by C.P.R. joint tariff C.R.C. W. 847.

9188, 9189. Jan. 8.—Authorizing C.P.R. to use bridges 31.1 and 33.2 on its Nomining section, and five other bridges on its Nomining extension.

9190. Jan. 8.—Authorizing C.N.O.R. to construct bridge over Bowman's Creek, Darlington tp.

9191. Jan. 6.—Ordering G.T.R. to file within 30 days plans of location of gates at intersection of its air loop line with Hamilton & Port Dover Rd., Jarvis, Ont.

9192 to 9198. Jan. 10.JAuthorizing C.P.R. to build across and divert public road at seven points on its Cowichan Lake branch, B.C.

9199 to 9202. Jan. 8.—Anthorizing Pipestone municipality, Man., to place wires across C.N.R. at four points.

9203, 9204. Jan. 10.—Authorizing Bell Telephone Co. to place wires across G.T.R. near Komoka station, and across Essex Terminal Ry. on McDougall St., Windsor, Ont.

9205. Jan. 10.—Authorizing Capital Telephone Co. to place wires across C.P.R. between secs. 28 and 29, tp. 17, r. 19, w. 2 m., Sask.

9206. Jan. 11.—Approving revised location of C.P.R. Cowichan Lake branch station 0 to 952-45.3.

9207. Jan. 7.—Authorizing Bell Telephone Co. to place wires across T.H. & B.R., Beach St., Hamilton, Ont.

9208 to 9213. Jan. 8.—Authorizing Pipestone municipality, Man., to place wires across C.N.R. at six points.

9214 to 9224. Jan. 11.—Authorizing Manitoba Government Telephones to place wires across C.N.R. at 10 points, and G.T.P.R. at one point.

9225. Jan. 11.—Authorizing Saraguay Electric & Water Co. to place wires across Bell Telephone Co.'s wires near Pointe aux Trembles, Que.

9226. Jan. 8.—Refusing Western Associated Press application for order directing C.P. and G.N.W. Telegraph Co.'s to furnish telegraph matter at rates established by them for delivery to and publication in one newspaper, and directing that tariffs of tolls covering all this class of telegraph service be filed with the Board not later than Feb. 1.

9227. Jan. 10.—Authorizing Hydro-Electric Power Commission of Ontario to place conduit system under M.C.R. in Stamford tp.

9228. Jan. 11.—Ordering G.T.R. to deepen existing culvert at mile post 1, from Palmerston, Ont.

9229. Jan. 10.—Authorizing C.P.R. to use eight bridges on the New Brunswick Southern Ry.

9230. Jan. 10.—Approving C.N.R. proposed location from mileage 0 to 14 down the Fraser River from Yale, B.C.

9231. Jan. 11.—Authorizing C.P.R. to construct extension across Timmins St., North Bay, Ont.

9232 to 9235. Jan. 11.—Authorizing Bell Telephone Co. to place wires across G.T.R. at four points near Hamilton, Ont.

9236. Jan. 11.—Authorizing Seymour Power & Electric Co. to place transmission line across Central Ontario Ry. in Rawdon tp.

9237. Jan. 4.—Authorizing Montreal Light & Power Co. to place wires across C.N.Q.R. and Montreal Terminal Ry. at Laurier Ave., Tetreaultville, Que.

9238. Jan. 11.—Authorizing R. S. Hudson to place wire across G.T.R. at Queenston quarry siding, Stamford tp., Ont.

9239. Jan. 7.—Refusing C.N.O.R. application for order directing G.T.R. and C.P.R. within a specified time to file tariff from U.S. frontier points to non-competitive points on C.N.O.R. in connection with passenger traffic from Pittsburg, Pa., to Muskoka district.

9240. Jan. 10.—Amending order 9026, Dec. 20, 1909, directing T.H. & B.R. to construct highway bridge over its line, at Garth St., Hamilton, Ont., by providing that the city of Tamilton be responsibble, pay land damages, if any, caused by raising the grade.

9241, 9242. Jan. 12.—Recommending to Governor in Council for sanction, Red Mountain Ry. and Nelson and Fort Sheppard Ry. by-laws re expectorating in and around station premises.

9243. Jan. 10.—Authorizing C.N.O.R. to construct sidings from G.T.R. main line to its right of way near crossing in con. D., Scarborough tp.

9244. Jan. 12.—Authorizing J. P. Edwards for Ontario Public Works Department, to construct overhead crossing of C.P.R. Sault Ste. Marie branch in lot 5, con. 1, Drury tp., Ont.

9245. Jan. 10.—Authorizing C.P.R. to construct spur for Byers & Anglin, Outremont, Que.

9246. Jan. 12.—Amending order 9031, directing N. St. C. & T.R. to restore joint rate of 2c. per 100 lbs. on wood pulp in carloads from Thorould, Ont., by extending time for its restoration.

9247. Jan. 12.—Ordering G.T.R. to install electric bell at Wallace Ave. crossing, Toronto.

9248 to 9250. Jan. 12.—Authorizing Bell Telephone Co. to place wires across P.M.R. at three points near Chatham station, Ont.

9251. Jan. 12.—Authorizing Seymour Power & [illegible] Co. to [illegible] across Bell Telephone Co.'s wires, at Stirling, Ont.

9252. Jan. 12.—Authorizing Bell Tele-

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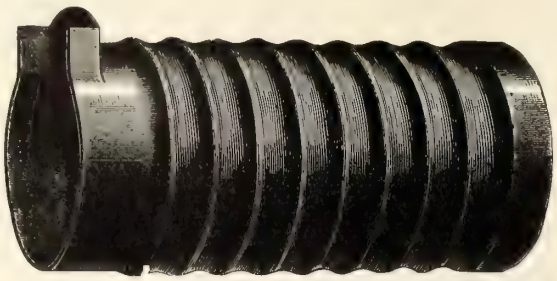

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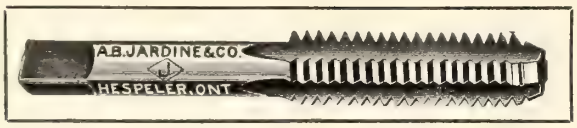

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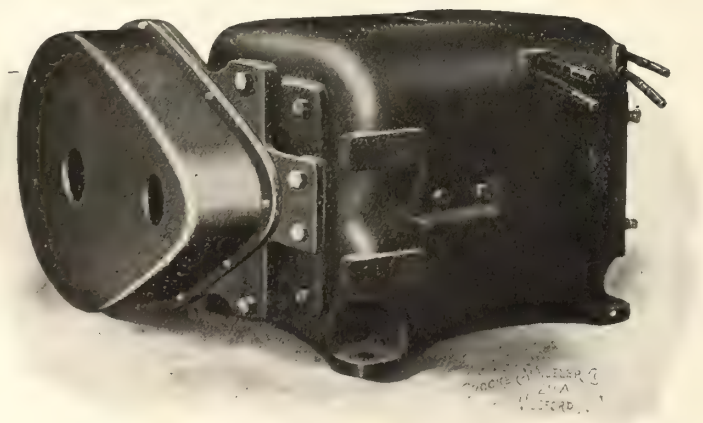

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CANADIAN CROCKER-WHEELER CO., Limited

Manufacturers and Electrical Engineers - 41 Street Railway Chambers, Montreal

phone Co. to place wires across C.P.R. nearf London, Ont.

9253. Jan. 12.—Authorizing Maidstone municipality, Ont., to place telephone wires across C.P.R. near Elmstead, Ont.

9254. Jan. 12.—Authorizing Bell Telephone Co. to place wires across C.P.R. at Waubeck St., Parry Sound, Ont.

9255. Jan. 13.—Approving G.T.P.R. crossings in Yorkton and Saskatchewan districts, Sask.

9258. Jan. 13.—Authorizing C.N.O.R. to build across public road between lot 6 and east half of lot 7, con. A., Hamilton tp.

9259. Jan. 12.—Authorizing Lindsay, Bobcaygeon & Pontypool Ry. to cut off bank of n.w. corner Galbraith's crossing, north of Burkton Jct., Ont.

9260. Jan. 5.—Authorizing T.H. & B.R. to construct two spurs for F. W. Bird & Son, Hamilton, Ont.

C.P.R. Betterments, Construction, Etc.

St. John to Halifax.—C. J. Willis, Amherst, N.S., writing to the daily papers, Jan. 6, says public meetings have been held in numerous municipalities in Nova Scotia with a view to securing an extension of the C.P.R. from its present terminus at St. John, N.B., to Halifax, and that the movement is meeting with public favor. A Halifax paper suggests that the Citadel be acquired by the city and offered to the C.P.R. as an inducement to the company to extend its line to Halifax.

St. John, N.B.—It has been decided by the City Council to send a deputation to Montreal to interview Sir Thos. G. Shaughnessy on the proposed sale to the company of the west side wharves. The construction of these wharves cost the city about $1,250,000.

Tobique and Campbellton Ry.—A contract has been signed, under the Act granting aid to certain railways, between the Dominion Government and the company, for the construction of a line from Plaster Rock, the terminus of the C.P.R. Tobique Valley line, to Riley Brook, a distance of 28 miles.

Windsor St. Station, Montreal.—The addition to this building, the foundations for which are now being put in, will extend from the present building down Windsor St. to St. Antoine St., 290 ft., with a frontage of 170 ft. on St. Antoine St.

Place Viger Station and Hotel, Montreal.—Plans have been completed for an extensive addition and alterations to be made to this building. The waiting rooms, ticket offices, &c., are to be removed from the present building, which fronts on Craig St., so that the whole of it may be utilized for hotel purposes. At the north end on the ground floor will be a dining-room 85 x 45 ft., a banquetting hall 60 x 35 ft., and kitchen 45 x 65 ft. In the centre of the building will be a rotunda 55 ft. in diameter. There will also be writing rooms, barber shop, lavatories, baggage room, news and cigars stands, parcel room and various offices, and the basement will be devoted to servants' dining rooms, locker rooms, laundry, machinery, &c. An octagonal entrance will be provided at the northwest corner of the present building to lead to the midway, and a four-story wing will be built, extending from the rear of the west end of the present building and running along Berrie St. for 300 ft., with a width of 50 ft. The basement will be utilized for storage, baggage, &c., and the whole of the ground floor for station purposes, including a waiting room 112 x 57 ft., with ticket, telegraph, telephone, agent's and other offices, a ladies' waiting room 30 x 30 ft., men's smoking room 35 x 15 ft., baggage room 70 x 83 ft., express room 95 x 25 ft., sleeping and dining car room 65 x 15 ft., lavatories, &c. The three stories above the ground floor will be devoted entirely to bedroom accommodation, each bedroom having a bath attached. On the second floor, which will include the present hotel dining-room space, there will be 52 bedrooms on the third floor 44 and on the fourth floor 26. At the rear of the hotel and station there will be nine passenger tracks and several storage tracks. These will run parallel with the back of the present hotel building instead of at an angle of about 45 degrees as at present. From the midway steps will be built to the level of Notre Dame St., and a new overhead foot bridge will be erected.

The Montreal City Council has finally adopted a report authorizing the closing of a number of street ends in the vicinity of Place Viger station, on property acquired by the company for yard extension. Under the agreement proprietors of certain other properties have the right of selling to the company at the city's valuation plus 30%, and the company is to build a bridge on Notre Dame St. from Lacroix St. to Montcalm St., continuing the present bridge at its present width.

Montreal to Toronto Second Track.—We are advised that the second track work from Montreal to Smith's Falls, Ont., has been completed, the portion between Vaudreuil, mileage 23.8, and Finch, mileage 79.1, being completed during 1909. The grading between Vaudreuil and St. Lazare, mileage 28.5, where some heavy grade revision work was done, was handled by the company's own forces. From St. Lazare to mileage 44.8, near Dalhousie Mills, the work was done by J. P. Mullarkey, Montreal; and from mileage 44.8 to Finch the work was done by Macdonald and Keefer, Monklands. The culverts and bridge superstructures for the entire distance were built by J. P. Mullarkey. The tracklaying, ballasting and surfacing was done by the company's own forces. C. W. P. Ramsey, Assistant Engineer, had charge of the work.

Toronto Sidings.—The C.P.R., as lessee and exercising the franchises of the Ontario and Quebec Ry., is making application to the Board of Railway Commissioners for authority to construct a branch line of railway along the east side of the Don river to Ashbridge's Bay, Toronto.

Guelph Station.—On a recent visit to Guelph, Ont., General Superintendent Oborne stated that a new station would be built there during this year.

London Roundhouse Improvements.—We are advised that the company has under consideration two or three schemes for roundhouse improvement at London, Ont., but that no decision has been reached. No proposition was made to Sir Thos. G. Shaughnessy on the matter on the occasion of his recent visit there, and consequently he did not make any statement, as reported in the daily press.

Georgian Bay and Seaboard Ry.—Application is being made to the Ontario Legislature by Tiny tp., Ont., for an act confirming a bylaw providing for a fixed assessment on the properties of the company in the township.

Souris, Man., Shops.—A press report states that the company has purchased 400 acres of land adjoining the town, presumably for a shop site to serve the southwestern lines which converge there.

Western Branch Lines.—The company is applying to the Dominion Parliament to authorize a change in the location of the branch line from Killam, Man., power to construct which was granted by sec. 1, chap. 95, of the statutes of 1908, by striking out range 13 and substituting therefor range 12, the starting point of the branch now being some point in tp. 44, ranges 12 or 14, west of the fourth meridian; and to construct the following additional branch lines:—from tp. 22, range 2, east of the principal meridian, northerly or northwesterly to tp. 34, ranges 5, 6 or 7, west of the principal meridian, and from near Asquith on the Pheasant Hills branch, Sask., to tp. 38 or 39, range 10, 11 or 12, a distance of about 20 miles. An extension of time for the construction of the branch authorized by sec. 1, chap. 55, of the statutes of 1900, sec. 2, chap. 73, of the statutes of 1905, and sec. 1 of chap. 95 of the statutes of 1908 (as amended by this act) is also asked.

Branch Line Plans Approved.—The Minister of Railways has approved plans for the construction of the company's Aldersyde branch, and for the Sedgwick and Ellerslie branch. The first named is under construction from Kipp, Alta., and the second starts from near Wetaskiwin and extends to Ellerslie, also on the Calgary and Edmonton Ry., about five miles from Strathcona, Alta. This branch is projected in connection with the high level bridge to give connection with Edmonton.

Calgary and Edmonton Ry.—Application is being made to the Dominion Parliament to extend the time within which the company may construct the branch lines authorized by chap. 89 of the statutes of 1903 and to authorize the construction of an extension of the Lacombe branch from its terminal point, as authorized by sec. 6, chap. 89, of the statutes of 1903, to a junction with the C.P.R. branch terminating at Outlook, Sask., a distance of about 200 miles.

Strathcona-Edmonton High Level Bridge.—Several contractors have had representatives in Edmonton recently looking over the ground with a view to tendering on the construction of the projected high level bridge over the Saskatchewan River from Strathcona to Edmonton. A deputation arrived in Ottawa Jan. 21 to interview the Dominion Government on the subject of a grant in aid of the project for the construction of general traffic facilities on the bridge.

Edmonton Land Purchases.—Reports from Edmonton, Jan. 11, stated that the company had purchased from the Hudson Bay Co. a considerable area of land in the vicinity of 18th and 29th streets.

Kootenay Central Ry.—It is reported that at a recent conference of C.P.R. officials in the west it was decided, subject to the approval of the directors, to provide for the construction of 50 miles of the K.C.R. during this year. If the plan is approved in Montreal, the report states that tenders will be asked for in Feb. and work will be started in March. The starting point, it is reported, will be at Warder, on the Crow's Nest Pass line, and the terminal at Golden, the length of the line being 160 miles. The surveys have been completed for this line for several years and show a maximum gradient of 0.4%.

Kootenay Lake Hotel.—We are advised that the company proposes to construct a small tourist hotel at Proctor, but that no plans or estimates have been prepared. Proctor is situated between Kaslo and Nelson, B.C., on one of the C.P.R. steamer routes on Kootenay Lake.

Empress Hotel, Victoria.—A new wing, 116 x 48 ft., is to be built over the present kitchen. It will contain 68 bedrooms, with 17 bathrooms.

Lytton to Hope, B.C.—Press reports state that the company has completed plans for the straightening of the line and the reduction of the gradients on the line between these two points. The location surveys, said to have been just completed, covered a distance of between 65 and 70 miles on the Thompson and Cascade sections. The principal part of the reconstruction will be in the Fraser Canyon, through which the railway runs for about 60 miles.

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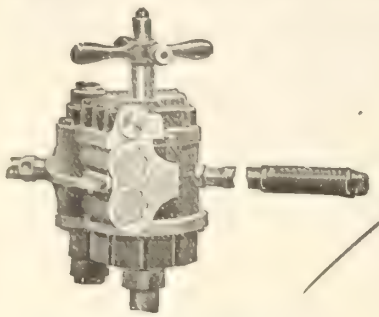

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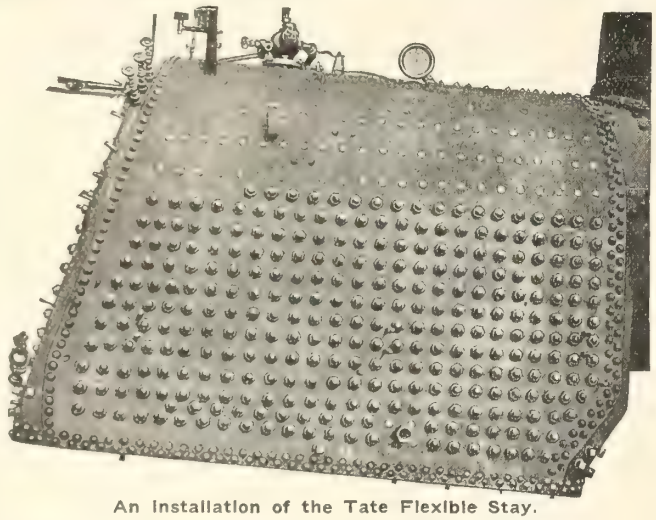

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Canadian Northern Ry. Construction, Etc.

Quebec and Lake St. John Ry.—A contract has been signed, under the act granting aid to certain railways, between the Dominion Government and the company for the construction of a line from the 35th mile of the La Tuque branch to La Tuque Falls, not to exceed five miles.

Canadian Northern Quebec Ry.—During 1909 the company completed its cut-off from Garneau to Quebec, 78 miles, thus giving it its own independent entrance into that city. It also constructed a branch from St. Jacques to Rawdon, Que., bringing into communication with Montreal one of the oldest settled districts to the north. A railway connection with Rawdon was first promoted in 1856, but nothing was done, and the district lay unopened. The company is operating a train service over the line from Hawkesbury to Ottawa, about 58 miles, which line, however, forms part of the mileage of the Canadian Northern Ontario Ry.

Canadian Northern Ontario Ry.—In connection with the company's line from Hawkesbury to Ottawa application was made Jan. 5 to the Board of Railway Commissioners for authority to divert the Ottawa and Montreal road at 29 miles west of Hawkesbury. It was pointed out that the company was seeking to divert a road which it did not have power to cross. The matter was adjourned in order that the township council might have an opportunity of looking into the situation.

The ballasting on the line has been completed and the Ottawa yards are being laid out. The station at Henderson Ave. is only a temporary one, and is being utilized until all the questions with regard to the entrance into the city are settled. The temporary roundhouse which is being erected at the foot of Henderson Ave. is expected to be completed early in Feb. It will accommodate 12 locomotives, and will have a repair shop attached.

The C.N.O.R. at present enters the Union Station, Toronto, by the Don Valley over the C.P.R., and it is reported in real estate circles that recent purchases of land indicate that the company is desirous of securing a line so that an entrance can be obtained on the west. The report states that the land secured will enable the company to construct a line which will connect with its present right of way for the Toronto-Buffalo line at the junction of Davenport Road and Dupont St. The project, however, is in the rumor stage yet.

In connection with the Toronto-Buffalo line the Hamilton City Engineer reported Jan. 14 that the company's engineers were staking out the property of the Electric Development Co.'s power line in the vicinity of Burlington Beach. A Hamilton press report states that Engineers Hanning and Wright are in charge of C.N.O. Ry. survey parties working in the neighborhood. The surveys now being made indicate a line "which will skirt Burlington and run parallel with the G.T.R. to the inlet at the Valley inn. The surveys have been made for low ground which would mean that the C.N.R. would pass underneath the G.T.R. a short distance west of the high level bridge where the G.T.R. tracks are built high. It would than head around in the direction of the marsh, crossing the Dundas canal on a low swing bridge. A short sharp grade would bring the line in connection with the C.P.R. tracks east of the canal and the C.N.O.R. would probably use those tracks for the western entrance into the city."

The reports circulated in St. Catharines Jan. 11 that a site had been purchased there for a station were, on the following day, stated to be without foundation.

The Board of Railway Commissioners issued an order, Jan. 1, authorizing the placing in operation of the line between Sellwood and Gowganda Jct., Ont., about 30 miles. A train service was put in operation Jan. 3.

Duluth Winnipeg and Pacific Ry.—The extension of the Duluth, Rainy Lake and Winnipeg Ry., from Virginia, Minn., southerly to Duluth, is to be constructed under the above title. The line has been located between the points named, 75 miles. It does not pass through any places of importance, but runs within a short distance of Eveleth. The work is generally heavy clay and gravel cuttings with about five miles of heavy rock work, including a tunnel of 500 ft. on the south 45 miles. The north 30 miles is lighter work, but passes through a number of swamps and muskegs, which will require draining. The bridging is generally light, excepting where the line enters Duluth, where a number of streets are crossed overhead. It is proposed to construct ore docks at West Duluth, which will require a fairly long trestle approach. D. B. Hanna, Third Vice President C.N.R., is President, and R. P. Ormsby, of Mackenzie, Mann & Co.'s Toronto legal office, is Secretary. H. T. Hazen, Duluth, is Chief Engineer. (Jan., pg. 43.)

The Canadian Northern Ry. has under construction a cut-off of about six miles at Kakabeka Falls, and in connection therewith is carrying out some grade revision work, which will have the effect of facilitating the movement of traffic between Port Arthur and Winnipeg. It is expected that the work will be completed this year.

Work on the Fort Garry station in Winnipeg is well advanced. This station will be used by the National Transcontinental Ry. as the terminus of its line from Moncton N.B., and by the G.T. Pacific Ry. as its terminus for the line to the Pacific coast.

The Winnipeg Board of Control was informed, Jan. 12, that a contract had been let to T. Kelly for the construction of the Pembina St. subway. The work will cost about $60,000.

A delegation representing the city council of Brandon, Man., had a conference with the C.N.R. officials at Winnipeg Jan. 12, with respect to the erection of the proposed station and hotel there.

A branch line has been completed into Dundee, Man., a distance of four miles, track being laid in 1909.

On the Oak Point branch a further distance of 36 miles has been graded, and is ready for the track. This it is expected will be laid early this year. Plans have been approved by the Minister of Railways for the revision of the route of this branch.

A line has been completed to St. Rose du Lac, southeast of Lake Dauphin, Man., a distance of 15 miles.

A further distance of 10 miles has been graded on the branch through the Turtle Mountain country, Man.

The branch from Hallboro, Man., has been constructed through Rapid City to the boundary of Saskatchewan, a distance of about 50 miles.

The Saskatchewan Legislature has under consideration a bill authorizing the Government to guarantee C.N.R. bonds for the construction of 575 miles of branch lines, of which 175 miles are to be constructed during next season. These lines include one from Moose Jaw, southeasterly to the provincial boundary, where it will join the branch from Maryfield, Man., about 100 miles; from the Brandon-Regina line westerly and northwesterly to Swift Current, 135 miles; from Humboldt to Melfort, 60 miles; from the Goose Lake branch southward, 60 miles; from the Prince Albert-Battleford line to Crooked Lake, about 60 miles.

The Rossburn branch has been extended from Russell, Man., for 50 miles, and it is proposed to further extend it to a junction with the Winnipeg-Edmonton line at Buchanan, mileage 318 from Winnipeg.

The Thunderhill branch has been extended from the Manitoba boundary for about 10 miles into Saskatchewan. It is proposed to extend this line to a junction with another projected line extending from near Aberdeen on the Winnipeg-Edmonton line to Fenton on the Prince Albert line.

During 1909 the company graded about 165 miles on the line projected from Maryfield near the Manitoba boundary, southern Saskatchewan and southern Alberta, to Lethbridge, and laid steel on 90 miles. The Saskatchewan Legislature proposes to guarantee the company's bonds in respect of the construction of this line through the province. Track was laid during 1909 on a spur line at Bienfait, Sask., 16.4 miles, and connecting with the Maryfield-Lethbridge line.

Track was laid during 1909 on the Goose Lake Branch for a further distance of 55 miles. A train service was put in operation over this branch in Oct., 1909, from Saskatoon to Rosetown, 72 miles. The grading is completed for 25 miles beyond Kindersley, which will be the divisional point on the line to Calgary. The Saskatchewan Government proposes to guarantee the company's bonds for the construction of this line.

During 1909 the company graded, according to a statement made by the Saskatchewan Minister of Public Works, 26.77 miles of the branch from Prince Albert; and the Chief Engineer reported, Jan. 13, that to Dec. 31, 1909, track had been laid on 12.5 miles. This line, it is intended, will be carried on to Battleford, from near the present end of track. A branch will be constructed northwesterly to Crooked Lake, on which the Minister of Public Works recently told the Saskatchewan Legislature that 45.37 miles of grading had been done. This latter line is one of those for which the Saskatchewan Government is asking authority to guarantee a bond issue.

The Saskatchewan Department of Public Works gives the following information respecting the combination railway and traffic bridge at Prince Albert: "This is a steel bridge on concrete piers consisting of five fixed spans of 150 ft. in length and one swing span 260 ft. in length over the navigable channel. The bridge connects Prince Albert with the north bank of the North Saskatchewan river to which point all roads from the north converge. The central portion of the bridge is devoted to the C.N.R. right of way. The highway traffic portion of the bridge consists of two 12 ft. roadway brackets situated on the outside of each truss."

The branch from Vegreville southerly has been completed for 20 miles, and is under construction for a considerable further mileage. It is intended ultimately to connect up this line with the line now under construction from Saskatoon, Sask., to Calgary, Alta., at a point about 80 miles from the latter point.

On the line from Edmonton to Athabasca Landing Alta., a further distance of 22 miles was graded during 1909. Track will be laid on this mileage during the current year. A despatch from Edmonton states that the Alberta Government has received assurances from the company that the line will be completed to Athabasca Landing, a further distance of 36 miles, during this year.

W. Mackenzie, President, reached Edmonton, Jan. 14, on his return from Victoria, B.C., and in the course of an interview stated that work on the main line west will be rushed next season and supplies are being pushed to the front now. The company is also preparing to build [illegible]

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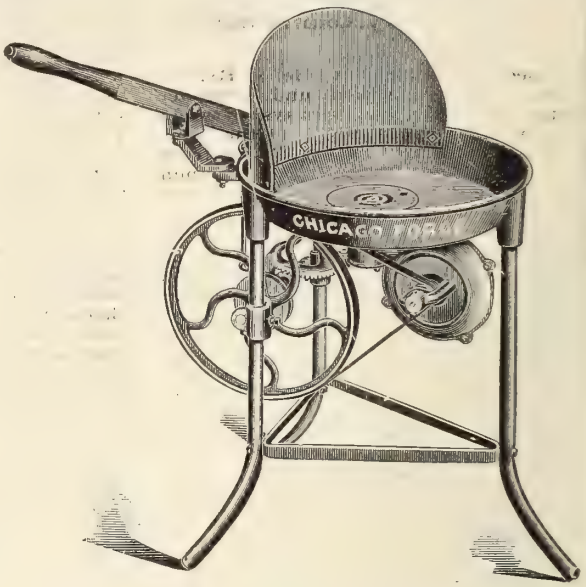

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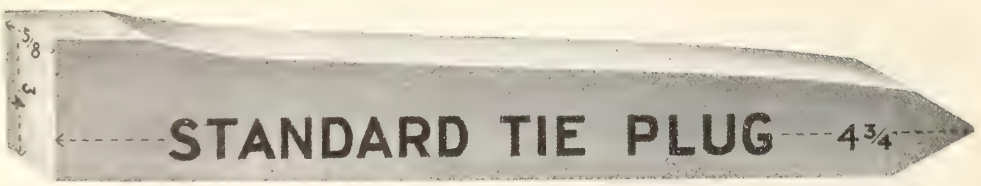

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summer and surveyors are now in the field running preliminary lines. The Alberta government has guaranteed bonds for this section.

With respect to the surveys for the extension of the line westerly from Edmonton to the Pacific coast, B. S. Scott, an engineer in the employ of the Pacific Pass Coal Co., is quoted as stating that the C.N.R. location surveys are being made in the vicinity of the McLeod River, and that the parties are working westerly to the Yellowhead Pass. These surveys are being made for the purpose of securing a route in place of that formerly located, which has been in part taken by the G.T. Pacific Ry.

W. Mackenzie, President; D. D. Mann, Vice President; A. D. Davidson, Land Commissioner, and F. H. Phippen, General Counsel, arrived in Victoria, Jan. 6, for the purpose of completing the agreement with the British Columbia Government for the construction of the section of the line from the western boundary of Alberta to Vancouver. Speaking at a dinner given by the Canadian Club, Jan. 6, Mr. Mackenzie said the C.N.R. had long aimed at reaching the Pacific coast, and now there was every assurance that this policy would be carried into effect. The Premier of British Columbia, who also spoke, said the Government would aim at securing for the people of the province competition with the existing line, and if this competition was secured by the construction of the C.N.R., as he believed would be the case, there would be a complete transformation in the province within five years. A deputation from the Boards of Trade of Vancouver and Victoria waited on the C.N.R. officers, Jan. 11, to discuss rates, and asked that a clause be inserted in the agreement with the Government with regard to freight and passenger rates. The negotiations were brought to a conclusion Jan. 12, and on the following day the Premier said the building of the line was assured.

A report from Vancouver, Jan. 12, states that the entire line between Hope and the Yellowhead Pass, via Kamloops, has been located, with the exception of a stretch of 50 miles between Tete Jaune Cache and the pass. The surveys for this section are being proceeded with under C. F. Hannington. A party under W. K. Gwyer completed a traverse survey of the proposed line through the Fraser River valley between Hope and the New Westminster bridge, about 70 miles. The results, T. H. White, Chief Engineer in charge, is quoted as saying, are very satisfactory. The maximum gradient is 0.4%, and this occurs at only two or three points near Hope. At other points it has been possible to obtain 0.1% gradient. Two small tunnels may have to be driven, one 15 miles below Hope, and the other at Sumas mountain. The first location survey was commenced Jan. 17. (Jan., pg. 43.)

Portland Canal Short Line Ry.—The charter for the construction of this railway is reported to have been secured by Canadian Northern Ry. interests. The line to be constructed will be about 15 miles long, and will connect up some collieries with tidewater on Portland canal, B.C. D. D. Mann, Vice President C.N.R., is reported to be interested in some of the mines which have been developed in the district. (Aug., 1909, pg. 575.)

Victoria and Barkley Sound Ry.—In an interview Jan. 6, W. Mackenzie, President, is reported to have stated that the C.N.R. interests would probably purchase this charter. Negotiations have been in progress between M. B. Carlin, representing the V. and B.S.R., and C.N.R. interests for the sale of the charter. The company has completed surveys for about 40 miles of its projected railway from Victoria. (Aug., 1909, pg. 577.)

Railway Rolling Stock Notes.

The Temiscouata Ry. has received one conductor's van and four box cars from Rhodes, Curry Co., Amherst, N.S.

The Ha Ha Bay Ry., Chicoutimi, Que., will be in the market shortly for two locomotives. J. F. Grenon is Chief Engineer.

The Montreal Locomotive Works has delivered one switching locomotive to the Michigan Central Rd., details of which we have already published.

The C.P.R., between Dec. 15, and Jan. 14, placed orders for the following rolling stock, at its Angus shops, Montreal:—five dining cars, three second class cars, one official car, one box baggage car, four stock cars and 40 box cars.

The I.C.R., between Dec. 12 and Jan. 17, received the following additions to rolling stock:—30 Hart-Otis steel dump cars from the Canadian Car and Foundry Co., Montreal, and six box baggage cars from Rhodes, Curry Co., Amherst, N.S.

The I.C.R., between Dec. 12 and Jan. 17, ordered five first class passenger coaches from the Preston Car and Coach Co., Preston, Ont.; two sleeping cars, three mail cars, two baggage cars, and three colonist cars from the Silliker Car Co., Halifax, N.S.

The 30 coal cars, mentioned in our Nov., 1909, issue as having been ordered from the Dominion Car and Foundry Co., Montreal, by the Intercolonial Ry., are of the Otis bottom drop door type, of 50 tons capacity and are being built under the Hart-Otis Car Co.'s patents.

Owing to an error in the specification supplied to us, of the two locomotives ordered from the Canadian Locomotive Co., Kingston, Ont., by the Quebec Central Ry., they were described in our last issue as moguls, whereas they should have been mentioned as ten-wheelers.

The C.N.R., between Dec. 15 and Jan. 15, received the following additions to rolling stock:—five snow plows from Rhodes, Curry Co., Ltd., Amherst, N.S.; 12 consolidation locomotives from Canadian Locomotive Co., Kingston, Ont., and two second class cars from Preston Car and Coach Co., Preston, Ont.

The C.P.R., between Dec. 15 and Jan. 14, received the following additions to rolling stock:—four M-4 locomotives, five sleeping cars, 68 box cars, 62 flat cars, five vans, 20 stock cars, two flangers, four snow plows, from its Angus shops, Montreal, and one wrecking crane from the U.S.

The 20 coal cars, mentioned in our Nov. issue as having been ordered from the Dominion Car and Foundry Co., Montreal, by the Esquimalt and Nanaimo Ry., are of the Otis bottom drop door type, and are being built under the Hart-Otis Car Co.'s patents. Their dimensions are:—length inside, 36' 9½"; width inside, 9' 7"; height 7 ft.; capacity 50 tons.

The G.T.P.R., between Dec. 16 and Jan. 15, received the following additions to rolling stock:—one large rotary snow plow, no. 395075, from Mussens, Ltd., Montreal; 175 box cars, nos. 310125 to 310299, and eight first class coaches, nos. 2018 to 2025, from the Canada Car Co., Montreal; three wide side door baggage cars, nos. 700 to 702, and two wide side and end door baggage cars, nos. 725 and 726, from Rhodes, Curry Co., Amherst, N.S.

In giving dimensions, etc., in our last issue, of the Pacific type locomotive which the Intercolonial Ry. recently ordered from the Montreal Locomotive Works, we quoted from two sources of information. In one case, the weight in working order was given as 198,500 lbs., and on drivers as 133,500 lbs., while in the other case, the weight in working order was given as 187,000 lbs., and on drivers as 126,000 lbs. The former two weights are the correct ones.

The C.N.R., between Dec. 15 and Jan. 15, ordered the following rolling stock:—1,000 box cars, 10 first class cars and two cafe-parlor cars, from the Canadian Car and Foundry Co., Montreal; 300 box cars, 50 stock cars, 25 cabooses and four parlor cars, from the Crossen Car Mfg. Co., Cobourg, Ont.; 300 box cars, three first class cars, five second class cars, and four combination passenger and baggage cars, from the Silliker Car Co., Halifax, N.S.; and 100 logging cars from the Russel Wheel and Foundry Co., Detroit, Mich.

Following are the chief particulars of the 1,000 forty ton steel frame box cars, which the Canadian Car and Foundry Co., Montreal, is building for the C.P.R., mention of which was made in our last issue:—

Length inside	36' 0"
Width inside	8' 6½"
Height inside	8' 0"
Centre to centre of truck	26' 10"
Length over buffers	38' 1¼"
Side door opening	5' 0"
Wheel base of truck	5' 4"
Top of rail to top of floor	4' 2"
Top of rail to top of running board	13' 4¾"
Top of rail to top of brakemast	13' 10"

The Temiskaming and Northern Ontario Ry. has ordered 12 cinder cars of the Otis bottom drop door type, which are being built under the Hart-Otis Car Co.'s patents, by the Canadian Car and Foundry Co., Montreal. Following are chief particulars:—

Length inside	36' 9½"
Width inside	9' 6"
Height inside	3' 10"
Centre to centre of truck	26' 0"
Length over end sills	38' 10"
Height top of rail to top of side	8' 3"
Air brakes	Westinghouse.
Couplers	Tower, 5" by 7"
Draft springs	M.C.B. Class G.
Truck wheel base	5' 6"
Truck bolsters	Simplex.
Side bearings	Susemihl frictionless.
Brake beams	Simplex.
Wheels	Cast iron.
Axles	Steel.
Journals	5" by 9"
Journal boxes	McCord M. I.

Following are details of the 100 Otis bottom drop door steel ore cars, which are being built, under patents of the Hart-Otis Car Co., Ltd., Montreal, by the Canadian Car and Foundry Co., Montreal, for the Canadian Northern Ontario Ry., as mentioned in our last issue:—

Length inside	19' 1"
Width inside	9' 6"
Height inside	4' 6"
Height from rail to top	8' 11"
Height from rail to floor	4' 5"
Centre to centre of truck	11' 11"
Wheel base of truck	5' 6"
Centre to centre of coupling	24' 0"
Height from top of rail to top of sides	8' 11"
Height from rail to top of floor	4' 5"
Capacity	50 tons.
Brasses	Canadian Bronze Co.
Journal boxes	McCord & Co.
Bolsters and brake beams	Simplex
Side bearings	Susemihl
Couplers	Janney.
Air brakes	Westinghouse.
Brake shoes	Steel back.

The three steel snow plows, which were mentioned in our Nov., 1909, issue, as having been ordered by the C.P.R. at its Angus shops, Montreal, are similar to the standard wooden plows in use by the company. The frames for these plows were made by the Dominion Car and Foundry Co. Following are the chief particulars:—

Length	57' 6"
Width	10' 0"
Height at eaves	11' 6½"
Height at cupola	14' 10½"
Distance between truck centres	18' 0"
Front truck wheel base	4' 2"
Rear truck wheel base	5' 3"
Frame	Steel channel bars.
Outside sheathing	Steel plate.
Inside lining and floor	Wood.
Truck bolsters	Samson.
Side bearings	Susemihl
Air brakes	Westinghouse
Hand brakes	Inside clutch and [illegible]
Couplers	Sampson.
Headlight	Pyle National Electric.
Wheels and axles	[illegible]

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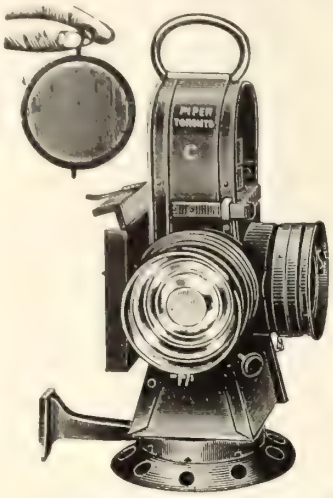

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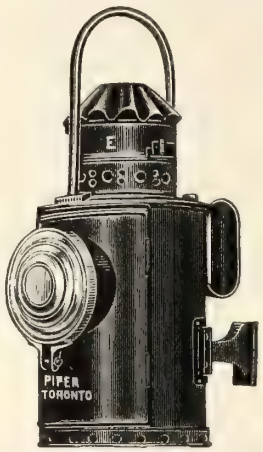

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ARTHUR M. GRANT,
MANAGER

MAINLY ABOUT PEOPLE.

Sir William C. VanHorne spent a short time at his St. Andrews, N.B., home, early in Jan.

Mrs. A. E. Killam, wife of the I.C.R. Bridge Inspector, Moncton, N.B., died there recently.

R. Forget, Montreal, and A. E. Ames, Toronto, have been elected directors of the Duluth-Superior Ry.

W. D. Reid, President Reid Newfoundland Co., was a visitor to New York, during the early part of Jan.

R. W. Reford was elected Second Vice President of the Montreal Board of Trade, by acclamation, Jan. 14.

C. T. Long, at one time Manager of the Northern Navigation Co., of Ontario, died at Calcutta, India, Jan. 10, aged 47.

The engagement is announced of Miss Clara Hays, daughter of the President of the G.T.R. and G.T.P.R., to H. C. Scott.

Sir Thos. G. Shaughnessy, who has been spending a short holiday in Europe, is expected to return to Montreal, Feb. 11.

G. M. Bosworth, Fourth Vice President C.P.R., left Montreal early in Jan., for England, to meet Sir Thos. G. Shaughnessy.

Jas. A. McAvity, a director of T. McAvity & Son, Ltd., manufacturers of railway supplies, etc., St. John, N.B., died there Jan. 16, aged 72.

H. R. Hammond, son of the late H. C. Hammond, President Northern Navigation Co., was married at Winnipeg, Jan. 5, to Miss A. M. Lemon.

W. Magee, formerly chief clerk Department of Marine, Ottawa, died at Ottawa, Jan. 7, aged 70. He retired from active service Apr., 1908.

Miss Margaret Haney, second daughter of M. J. Haney, Contractor, Toronto, was married there, January 6, to Dr. A. H. Spohn, of Penetanguishene, Ont.

Mrs. and Miss Bosworth sailed for England Jan. 14, to join G. M. Bosworth, Fourth Vice President C.P.R., who sailed a week or two previously.

The following ticket agents have become members of the Canadian Ticket Agents Association recently:—E. C. Higginson, C.N.Q.R., Hawkesbury, Ont.

R. Laurence, who died in Toronto, Jan. 20, aged 71, was in early life engaged in contracting work and constructed a section of the old Northern Ry.

W. D. Matthews, President St. Lawrence & Chicago Steam Navigation Co., left Toronto Jan. 5, with Mrs. and Miss Matthews, for a Mediterranean trip.

J. McCullough, father-in-law of J. W. Norcross, Managing Director Montreal Steamship Co., died at the latter's residence in Toronto, Jan. 4, aged 75.

A. R. Creelman, K.C., General Counsel C.P.R., and the Misses Creelman, returned to Montreal, Jan. 12, from Bermuda, where they had been spending a few weeks.

W. R. Baker, Secretary, and Assistant to the President C.P.R., and Mrs. Baker, were among the Governor General's guests at Government House, Ottawa, Jan. 12.

B. D. D. Rorison, an engineer employed on the construction of the Detroit River tunnel, fell into a shaft at the approach on the Canadian side, Jan. 8, and was instantly killed.

W. Downie, General Superintendent C.P.R. Atlantic Division, St. John, N.B., was presented with an address by officials and employes of the division recently on the occasion of his wedding.

F. H. McGuigan, of the F. H. McGuigan Construction Co., Toronto, and formerly Fourth Vice President G.T.R., has been elected President of the St. Lawrence Power Co., Cornwall, Ont.

W. Stitt, General Passenger Agent C.P.R., Montreal, was one of the principal speakers at the recent annual dinner of the Boston Railway and Steamship Agents' Association in Boston, Mass.

Lord Strathcona has contributed $5,000 towards a fund of $100,000, which is being raised to meet the expenses of the proposed Eucharistic Congress to be held in Montreal, towards the end of this year.

Dr. J. Richardson, who died in Toronto, Jan. 15, was father of Dr. W. A. Richardson who has charge of the medical work in the Grand Trunk Pacific Ry. construction camps west of Edmonton, Alta.

F. E. Barbour, who recently resigned the General Passenger Agency of the Rutland Rd. to enter commercial life, has been elected an honorary member of the Eastern Canadian Passenger Association.

E. H. Pepper, formerly Toronto agent Niagara, St. Catharines & Toronto Navigation Co., died, Jan. 24, at Saskatoon, Sask., having removed to the northwest on account of ill health. He was buried at St. Thomas Ont.

M. McGlade, a C.P.R. locomotive engineer, was fined $100 and costs, or six months' imprisonment, by the Police Magistrate at Perth, Ont., Jan. 7, for being intoxicated while in charge of a freight train.

M. Leggat, who died at Hamilton, Ont., Jan. 2, aged 81, was, at various times, associated with the Hamilton and Northwestern Ry., and the Hamilton Steamboat Co., for some years being President of the latter.

C. H. F. Plummer, Manager Canadian Lake Transportation Co., Toronto, died there, Jan. 3, aged 32, after an illness lasting about three months, during which he underwent two operations for appendicitis.

D. B. Dover, for 14 years agent G.T.R., at Berlin, Ont., was presented with $500 and a signet ring by a number of residents recently, on his leaving for Winnipeg, where he has been appointed local freight agent G.T.P.R.

J. D. Barnett, formerly Master Mechanic in charge of the G.T.R. shops at Stratford, has been re-elected a member of the Water Commission for Stratford. He was Chairman of the commission during the past year.

R. Wilson, roundhouse foreman I.C.R., Truro, N.S., was presented with a gold watch, chain and locket by the employes recently, for his work in connection with the establishment of a school of instruction for employes there.

A Steele, General Superintendent Quebec Central Ry., died at Sherbrooke, Que., Jan. 10, suddenly, while engaged in his office, aged 65. He was one of the company's oldest employes, and had been General Superintendent since 1875.

W. Gillespie was presented recently by the G.T.R. car shop employes at Stratford, Ont., with a fur-lined coat on the occasion of his transfer from the position of general car foreman there, to a similar position in the company's shops at Ottawa.

G. H. Webster, consulting engineer, Vancouver, and formerly Division Engineer Pacific Division C.P.R., has been appointed Consulting Engineer for the Port Alberni extension of the Esquimalt & Nanaimo Ry. on Vancouver Island, B.C.

A. L. Lyle was presented recently with a purse of gold by the employes on giving up the position of foreman of the Central Vermont Ry. boiler shop at St. Albans, Vt. He has returned to Stratford, Ont., where his wife has been ill for some time.

H. Wallace, recently appointed General Agent C.P.R., Fort William, Ont., was presented with an address, accompanied by a silver and pearl dessert set, a cut glass bowl and fern centre piece, Jan. 1, by the local freight department staff, Winnipeg, where he was Assistant Local Freight Agent.

A. A. Wiley, President of the Canadian Northwest Steamship Co., which owns the s.s. Neebing, died at the Prince George Hotel, Toronto, Jan. 15, of pneumonia, after four days' illness, aged 50, and was buried at Port Arthur, Ont. He was the surviving partner of T. Marks & Co., steamship and real estate owners.

C. W. Carey, Air Brake Instructor, C.P.R., Montreal, and T. Hay, C.P.R. Claims Agent, North Bay, Ont., were two of those who lost their lives in the accident on the C.P.R. at Webbwood, Ont., Jan. 21, when the train left the track at the entrance to the bridge across the Spanish River. The latter died Jan. 27, as the result of injuries received.

G. E. Graham, who has been appointed Superintendent District 2, C.P.R. Pacific Division, Vancouver, B.C., was presented with a silver service by the business men of Port Arthur, and an illuminated address and $300 by the business men of Fort William, Ont., recently, on his leaving the dual ports, where he had been Superintendent C.P.R. Terminals.

R. Seeman, of London, Eng., who was largely interested in land development in the western provinces, and who acquired a large tract of land from the Manitoba and Northwestern Ry., of which he subsequently disposed, died recently, at St. Boniface, Man. D. B. Hanna, Third Vice President C.N.R., acted as agent for him there for some time.

G. Robinson, a well known C.P.R. agent, recently retired, died suddenly in Vancouver, B.C., Jan. 8, aged 60. He was first employed by the C.P.R. as chief clerk in the Auditor's office, Montreal, and was subsequently agent at Quebec, Que., Morden, Reaburn, Otterbourne, Stonewall, Emerson and Selkirk, Man. Two of his sons are at present in C.P.R. employ and one with the C.N.R.

C. Hartigan, recently appointed General Passenger Agent, Rutland Rd., St. Albans, Vt., and formerly General Agent, Passenger Department, New York Central Lines, Montreal, was entertained to dinner, Jan. 12, by officials of various lines centred in Montreal. In the course of the evening a set of cut glass table ware and a bouquet of roses were presented to Mrs. Hartigan on behalf of Montreal transportation men, by W. E. Davis, Passenger Traffic Manager G.T.R.

T. B. Hawson, who died in New York, Dec. 31, aged 71, was for some years in the G.T.R. service. He came to Canada in 1861, from England, with W. Wainwright, now Second Vice President G.T.R., where both had been in the Manchester, Sheffield and Lincolnshire Ry. service. He was general Auditor of the G.T.R., and was subsequently connected with one of the fast freight lines, with headquarters in Chicago, Ill. He retired from active service some years ago.

M. M. Reynolds, who has been appointed Third Vice President G.T.R., was for 11 years prior to Jan., 1892, Auditor Mexican National Rd., Mexico, at which date he was appointed General Auditor Central Vermont Ry., St. Albans, Vt., which position he held for a number of years, subsequently returning to Mexico, on the amalgamation of several Mexican railroads under the name of the National Lines of Mexico, as Comptroller. He was appointed Fifth Vice President G.T.R., and Third Vice President G.T.P.R., in Apr., 1908, the former position being held to Jan. 7, 1910.

R. S. Logan, who has been appointed Assistant to the President G.T.R., Mont-

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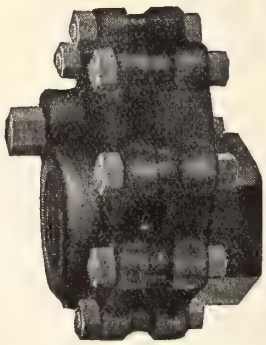

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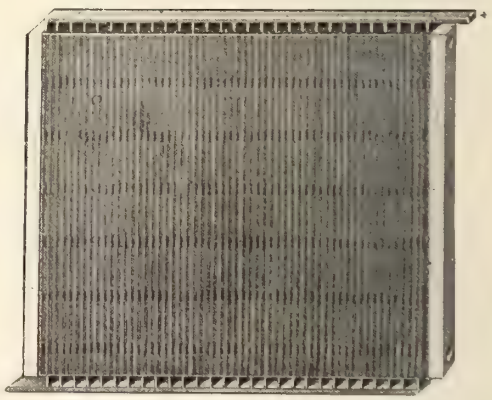

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real, was born Feb. 13, 1864, and was educated in the public schools, St. Louis, Mo. He entered railway service in 1885, with the Receivers of the Wabash, St. Louis and Pacific Ry., as clerk in the General Manager's office, since when he has been, Dec. 1, 1890, secretary to General Manager Wabash Rd.; July 1, 1896, secretary to General Manager G.T.R.; Jan. 1, 1901, Assistant to General Manager G.T.R.; Mar. 15, 1901, Vice President and General Manager Central Vermont Ry.; Mar. 17, 1902, to Jan. 7, 1910, Assistant to Second Vice President and General Manager G.T.R.

A. W. Campbell, who has been appointed Deputy Minister of Railways and Canals and Chairman Government Railways Managing Board, was born at Wradsville, Ont., in 1863, and was admitted to membership in the Canadian Society of Civil Engineers in 1888. He was appointed city engineer of St. Thomas, Ont., in 1891, and was for some years one of the editors of the Municipal World. From 1896 to 1902 he was Provincial Commissioner of Highways, and in the latter year was appointed Deputy Minister of Public Works for Ontario, which position he held to the date of his present appointment. He has also acted as supervising engineer of the Temiskaming & Northern Ontario Ry. construction.

Lord Strathcona has contributed $25,000 to the emergency fund which was started recently to deal with an epidemic of typhoid fever at Montreal. He has also offered to contribute $100,000 toward the cost of a water filtration scheme, should such be adopted by the city council. Among other subscribers to the fund are: J. Ross, ex-President Dominion Coal Co., $1,000; Sir Wm. C. VanHorne, Chairman C.P.R. Board, $500; Hugh Paton, President Shedden Forwarding Co., $500; H. and A. Allan, $500; C. M. Hays, President and General Manager G.T.R., $250; Sir Thos. G. Shaughnessy, President C.P.R., $1,000; C. R. Hosmer, director C.P.R., $1,000; Mrs. Hosmer, $500; A. A. Allan, $50.

W. H. Biggar, K.C., who has been appointed General Counsel G.T.R. and G.T.P.R., at Montreal, was born at the Carrying Place, near Trenton, Ont., Sept. 19, 1852, and was educated at Trenton Grammar School and Upper Canada College. He began the study of law in 1875, after having engaged for a short time in mercantile pursuits, and was called to the bar in 1880. He became associated with John Bell, Q.C., then General Counsel G.T.R., in general practice in 1881, and was appointed Assistant General Counsel G.T.R., at Montreal, Jan., 1903, and General Solicitor, Dec., 1904. He was elected Mayor of Belleville, Ont., in 1887, represented West Hastings in the Ontario Legislature from 1890 to 1897, and was made a Q.C. in 1900.

Dr. H. T. Bovey, F.R.S., has resigned the Rectorship of the Imperial College of Science and Technology, England. Before receiving this last mentioned appointment, he was for many years resident in Canada, having been appointed Professor of Civil Engineering and Applied Mechanics at McGill University, Montreal, in 1887. At that time the engineering courses in the University were managed as a branch of the Faculty of Arts, and were without buildings or equipment. The following year, however, a department of applied science was constituted, with Professor Bovey as dean, and to his management and advice the science department owes its development. He was one of the founders of the Canadian Society of Civil Engineers.

E. H. Fitzhugh, who has been appointed First Vice President G.T.R., was born in Montgomery County, Mo., Feb. 1, 1853. He entered railway service in 1873, as clerk in the Master Car Builder's office, St. Louis, Kansas City and Northern Ry., since when he has been consecutively, in car mileage office, same road; to 1889, chief clerk to Superintendent, Western Division, Wabash, St. Louis and Pacific Ry.; 1889 to Jan., 1896, Master of Transportation, Wabash Rd., successors to the W., St. L. and P. Ry., Moberley, Mo.; Jan., 1896, to May, 1899, Superintendent Middle Division G.T.R. Toronto; May, 1899, to Dec., 1904, Vice President and General Manager Central Vermont Ry., St. Albans, Vt.; Dec., 1904, to Jan. 7, 1910, Third Vice President G.T.R., Montreal, and Vice President Central Vermont Ry.

G. McL. Brown, who has been appointed European Manager C.P.R., London, Eng., was born at Hamilton, Ont., Jan. 29, 1865, and entered railway service in 1882, since when he has been sucessively: 1882 to 1885, freight department Northern and Northwestern Ry.; 1885 to 1887, Superintendent's office and other departments G.T.R.; Sept., 1887, to 1902, C.P.R. service at Vancouver as ticket agent, district passenger agent, and executive agent; July, 1902, to Nov., 1905, Superintendent Dining, Sleeping and Parlor Cars and News Service, Montreal; Nov., 1905, to Dec., 1908, General Passenger Agent C.P.R. Atlantic Steamship Lines, Montreal, and from Dec., 1908, General Traffic Agent, London, Eng., in which position he will also continue to act.

R. Armstrong, who has been appointed Superintendent C.P.R. Terminals at Fort William, Ont., was born at Kingston, Ont., Jan. 27, 1865, and entered railway service July 4, 1886, since when he has been, to June 1, 1894, consecutively, operator and agent at Calabogie Ont.; Agent at Lavant, Ont.; ticket and billing clerk at Kingston, Ont., and Agent at Renfrew, Ont., for the Kingston and Pembroke Ry. After two years in private business, he was from June 9 to 30, 1896, operator on the C.P.R. at Weyburn, Sask.; for four years, operator and agent Mountain Section, Pacific Division C.P.R.; two years relieving agent and dispatcher Kootenay Section; four years yard agent, Vancouver; one year agent Vancouver Wharf; and to June 1, 1908, agent, same road, Vancouver; June 1, 1908, to Dec. 31, 1909, General Agent same road, Fort William, Ont.

W. Downie, General Superintendent C.P.R. Atlantic Division, St. John, N.B., whose portrait appears on the first page of this issue, was born at Rock Currie, Ireland, Nov. 12, 1850, and entered railway service 1869, since when his record has been: 1869 to 1870, telegraph messenger Northern Ry. of Canada; 1870 to 1871, telegraph operator same road; 1871 to 1876, train dispatcher same road; 1876 to Oct., 1879, Assistant Superintendent same road; Oct., 1879, to July, 1886, Chief Train Dispatcher Northern and North Western Ry.; July, 1886, to May, 1887, Assistant Superintendent Pacific Division C.P.R. Port Moody, B.C.; May, 1887, to 1897, Assistant Superintendent Pacific Division C.P.R., Vancouver, B.C.; 1897 to Mar., 1901, Superintendent C.P.R. at Vancouver, B.C.; Mar., 1901, to May, 1903, Superintendent C.P.R. lines and steamers in the Kootenay district, Nelson, B.C. He was appointed to his present position in May, 1903.

W. Wainwright, who has been appointed Second Vice President G.T.R., was born in Manchester, Eng., April 30, 1840, and entered railway service Jan., 1858, with the Manchester, Sheffield and Lincolnshire Ry. (now the Great Central Ry.) Manchester, serving successfully as junior clerk Chief Accountant's office, senior clerk same office, and secretary to Assistant General Manager and General Manager. In 1862 he joined the staff of the G.T.R., serving one year as senior clerk in Accountant's office; three years as Managing Director's Secretary; six years as senior clerk to Managing Director and in charge of the car mileage department; eight years and five months General Passenger Agent; May, 1881 to Jan., 1891, Assistant Manager; Jan., 1891 to May 1896, Assistant General Manager; Apr., 1883, to Sept., 1895, also General Manager North Shore Ry.; May, 1896, to July, 1907, General Assistant; Dec., 1900, to July, 1907, also Comptroller; July, 1907, to Dec. 31, 1909, Fourth Vice President. He is also Second Vice President G.T.P.R.

Archer Baker, European Manager C.P.R., London, Eng., whose death occurred Jan. 15, from bronchial pneumonia, after an illness of a few days, was born at York, Eng., June 21, 1845. He entered railway service, Sept. 24, 1869, since when he had been, to Nov. 1870, clerk to President Missouri Valley Rd; Nov., 1870, to Mar., 1871, clerk to Superintendent Brockville and Ottawa Ry.; Mar., 1871, to July, 1873, Accountant same road and Canada Central Ry.; July, 1873, to Dec., 1876, Secretary and Treasurer same companies; Dec., 1876, to Apr., 1878, Secretary and Treasurer Brockville and Ottawa Ry.; Apr. to July 1878, Assistant General Manager same road and Canada Central Ry.; July, 1878, to June, 1881, General Manager Canada Central Ry.; June, 1881, to May, 1885, General Superintendent C.P.R. eastern Division; May, 1885, to Aug., 1904, European Traffic Agent C.P.R., London, Eng.; Aug., 1904, to July, 1905, European Traffic Manager, same road; and from July 1, 1905, European Manager. The funeral took place at Eltham, Kent, where he resided, and was attended by Sir Thos. G. Shaughnessy and other officials. On instructions, flags were flown at half mast at every C.P.R. chief point from the European continent to Hong Kong. He leaves a widow and one son, A. D. Baker, who is in the C.P.R. Stores Department, Toronto, also two brothers, W. R. Baker, Secretary, and Assistant to the President, Montreal, and F. Baker, Paymaster C.P.R. Pacific Division, Vancouver, B.C.

Randolph Macdonald, who died at Toronto, Jan. 21, was born at Drummondville, Ont., Mar. 30, 1849, and was educated at Galt Grammar School, and at Hellmuth College, London, Ont. He went into railway service in connection with the construction of the Cleveland and Mahoning Branch Rd., in Ohio. Then he was associated with his father and brother in a contract on the Jamestown and Franklin Ry., in Pennsylvania. In 1870 he became a partner with his brother under the firm name of W. E. Macdonald & Co. They built sections of the Intercolonial Ry., sections 1 and 2 of the Lachine canal, the Wellington basin near Montreal, and the Fenelon Falls part of the Trent Valley canal. In 1887 he was awarded the Don improvement contract by the city of Toronto and continued this work in partnership with Alex. Manning under the firm of Manning & Macdonald. From 1891 to 1903 they built the Port Dalhousie harbor works the G.T.R. Midland Division to Campbellford, Ont., the Toronto Esplanade works, the C.P.R. section of the Don River, the Toronto Belt Line Ry., section 13 of the Soulanges canal, at Coteau Landing, and section 9 at Coteau du Lac, these two sections costing $1,200,000, and the St. Lawrence River improvements at Cornwall, Ont. Mr. Macdonald bought out Mr. Manning's interests and carried out a harbor contract at Three Rivers, Que., and in 1907-08, built a 40-mile section of the Walkerton and Lucknow Ry. for the C.P.R., from Proton to Walkerton, Ont., under the firm of Randolph Macdonald Co., which at present holds contracts for the Rosedale section and Rice Lake division of the Trent Valley canal, and for the Cobourg harbor works, Ont.

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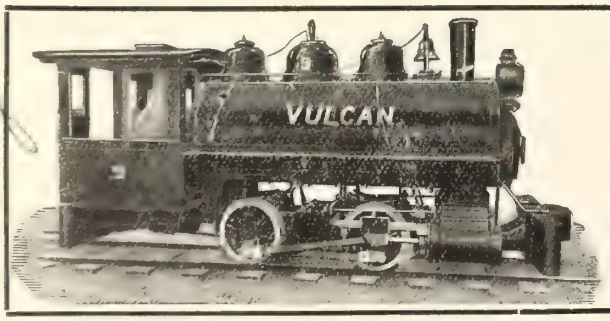

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Reports from New Brunswick, Jan. 5, stated that track had been laid west to Nappadoggan Lake; that work was then going on, and would be continued throughout the winter, unless the weather became too severe. On the section from Moncton westerly for 50 miles, work was closed down Jan. 5. On this section only 10 miles more track has to be laid to complete it. Ballasting will be commenced early in the spring, and it is expected to have everything fully completed by Aug. 18, when the line has to be handed over to the original contractor, the G.T. Pacific Ry. Co.

Replying to a question in the House of Commons, Jan. 19, the Minister of Railways stated there was no record of the amounts claimed by the contractors on District A, but the amounts returned by the engineers, from Dec. 13, 1908, to Jan. 13, 1910, under the terms of the respective contracts, and paid by the Commissioners were shown in the statement following:—

	Contract	Name of Contractor	Solid Rock	Loose Rock	Common Excavation.	Total Amount Paid.
			$ cts.	$ cts.	$ cts.	$ cts.
1.	Mileage 0-50 from Moncton,	Grand Trunk Pacific Ry.	49,963 50	294,851 21	10,176 30	894,732 22
2.	Mileage 50 to 58	J. W. McMannus & Co.....	26,500 50	12,971 25	1,053 68	153,227 55
3.	Mileage 58 to 164... . ..	Grand Trunk Pacific Ry.	47,813 63	99,425 70	33,608 97	454,714 35
4.	" " "	Grand Trunk Pacific Ry.	514,435 58	228,989 84	39,443 04	1,113,723 82
5.	Mileage 164 to 195..... ...	Willard Kitchen & Co.	549,937 40	71,955 14	1,879 20	1,235,677 62
6.	Mileage 195 to 255..... .	Lyons & White	99,623 25	110,667 60	18 850 05	519,171 51

J. D. McArthur, contractor, stated in Ottawa recently that the section of the line between Winnipeg and Lake Superior Jct., Ont., would be handed over to the Commisioners July 1. Considerable ballasting and incidental work has still to be done.

Quebec Bridge.—The contract for the clearing of the debris of the collapsed uncompleted central span of the projected bridge near Quebec, has been let by the Department of Railways to Capt. Koenig, the work to be completed by Mar. 1. The steel work overhanging the shore piers, and in the bed of the river where it fell, has to be removed. Work was commenced clearing away the steel on the south side of the river Jan. 4.

In the meantime M. P. and J. T. Davis are engaged in getting ready all their material and plant for the changes in piers. It will be some little time before they will be able to get at the piers themselves, as the fallen steel work has first to be cleared away.

The alternative plans prepared by the Commission of Engineers for the reconstruction of the bridge, have been on exhibition at the offices of the Commission, in Montreal, since Jan. 3, to enable representatives of bridge building firms to obtain the necessary data to prepare for tendering. It is expected that it will take two or three months for the plans to be thoroughly examined and prices worked out.

Replying to questions in the House of Commons, Jan. 17, the Minister of Railways said the total cost of the commission in connection with the inquiry into the collapse of the Quebec bridge was $31,765.44; and the total cost to Dec. 31, 1909, of the board of engineers in preparation of plans, etc., was $123,469.03.

Quebec Terminal Station.—S. N. Parent, Chairman National Transcontinental Ry. Commission, in an interview in Quebec, Jan. 8, said that owing to the recent fire which destroyed the Harbor Commissioners' properties, a change of plan in connection with the proposed terminal station had been decided on. In connection with this matter he decided to consult the representatives of the various interests concerned. The building of the station and its approaches would necessitate the expenditure of about $5,000,000. A proposal made is that the property owned in the city by the Richelieu and Ontario Navigation Co. be acquired as part of the terminals site.

GRAND TRUNK PACIFIC RY.

The Board of Railway Commissioners has issued an order allowing the company to withdraw its filed plans for right of way within the Winnipeg city limits. These plans were filed before the arrangement was made for the use by the G.T.P.R. of the joint terminals at Fort Garry, now being constructed by the Canadian Northern Ry.

H. H. Brewer, General Superintendent, returned to Winnipeg from a trip of inspection over the line, Jan. 10. He stated that 40 miles of steel had been laid west of the Pembina River, and if the weather continued favorable, track would be laid to Edson, the crossing of the Macleod River, by the end of Jan. Edson is 65 miles west of the Pembina River, and 130 miles west of Edmonton. The crossing of the Pembina River is at Entwhistle, the bridge being 900 ft. long, and 213 ft. above water level. As soon as track has been laid to the Macleod River, material will be rushed forward for the construction of the bridge, and to enable the grading for the next section of 150 miles to Tete Jaune Cache to be pushed forward.

With respect to the line under construction easterly from Prince Rupert, it was reported Jan. 9, that it was expected to start tracklaying by the end of Feb. Steel for tracklaying and bridge building is being delivered, and rolling stock is on the way. A tunnel about 400 ft. long is being drilled near Omineca, on the Upper Skeena River, and at all other sections of the line inland, the rock work is being pushed ahead. Contracts for clearing the right of way to Moricetown, 30 miles up the Bulkley Valley, have been let, the work to be completed during the winter.

Speaking recently in the Saskatchewan Legislature, the Minister of Public Works said the Government had already guaranteed the bonds of the G.T.P. Branch Lines Co. for the construction of about 200 miles of branch lines in the province. Of these, about 50 miles had been completed, and some miles of grading had been done on which track had not been laid. Unavoidable delays had arisen in connection with the starting of work on the line from Battleford to Biggar, which should have been completed in 1909.

The Saskatchewan Legislature has under consideration a bill authorizing the Government to guarantee the G.T.P. Branch Lines Co.'s bonds for the construction of 375 miles of branch lines in the province, of which 50 miles must be constructed during next season. The lines to be constructed are:—From Regina southeasterly to the International boundary, about 150 miles; from Waterous to Prince Albert, about 110 miles; and from Moose Jaw northwesterly for about 110 miles.

With reference to the projected line from Prince Albert and Waterous, Sask., we are advised that the surveys have not been completed, and the company has not yet started to purchase the right of way. The construction of the line will involve the erection of a bridge over the south branch of the Saskatchewan at St. Louis. It is not certain whether this line will be constructed this year or not.

A Winnipeg press report states that right of way has been purchased for the projected line from Regina, southerly to the International boundary. This line will be a continuation of the branch now under construction northerly and southerly from Melville. It is expected that construction will be started this year.

The Minister of Railways has approved of general route plans for the following branch lines:—From Apollo, on the main line west of Pembina River, crossing southwesterly towards the headwaters of the Little Pembina River, Alta. (Jan., pg. 31.)

G.T.R. Betterments, Construction, Etc.

Sherbrooke Yards.—We are advised that the company does not contemplate making any change in its yards at Sherbrooke, Que., and that it is not proposed to make any changes, as stated in press reports, involving the abandonment of the divisional points at Island Pond, Vt.

Montreal East End Improvements.—R. S. Logan, Assistant to the President, stated Jan. 8, that the company proposed to seek from the city council power to close up the ends of Lafontaine, De Montigny and Logan Streets, as it was in negotiation for the acquisition of the land fronting on these streets. So far as level crossings are concerned, Mr. Logan added that there would be only one of these in a street which is comparatively little used, and even now the engineers were working on a plan which would obviate even this level crossing. In the outlying districts where there are farm lands on either side it might be found necessary in one or two instances to overcome grades with crossings, but so far as the thickly settled portions of the city were concerned, there was no intention of having level crossings. Some part of the work projected is in connection with the Lachine, Jacques Cartier and Maisonneuve Ry.

Ottawa Station and Hotel.—At a meeting of directors in London, Eng., it was reported that it was expected to have the new passenger station at Ottawa completed this year, and that good progress would be made with the erection of the Chateau Laurier Hotel near the station.

Kingston, Ont.—E. H. Fitzhugh, Vice President, met the Kingston Board of Trade, Jan. 12, and discussed the question of better facilities. He stated that with the construction of the Kingston, Smith's Falls and Ottawa Ry., which it was hoped would be undertaken at an early date, Kingston would be made a divisional point, and it would then be possible to make improvements. He could not promise that the construction of the line would be started this year.

London, Ont., Improvements.—G. A. Mountain, Chief Engineer Board of Railway Commissioners, and E. L. Cousins, Resident Engineer, Middle Division, G.T.R., were in London, Jan. 13, and made an inspection of the company's lines in the city for the purpose of preparing a preliminary report respecting level crossings. The elimination of the level crossings brings up the question of the elevation of the tracks, which has been agitated for some years. (Jan., pg. 47.)

Dominion Subsidy Contracts.—Agreements have been entered into between the Dominion Government and the following companies under the act granting aid to certain railways:—Dec. 14. Tobique and Campbellton Ry., for a line from the C.P.R. Tobique Valley line at Plaster Rock, N.B., to Riley Brook, 28 miles. Jan. 10. Quebec and Lake St. John Ry., for a line from mileage 35 of the La Tuque branch, on the River St. Maurice, to La Tuque Falls, Que., not exceeding five miles.

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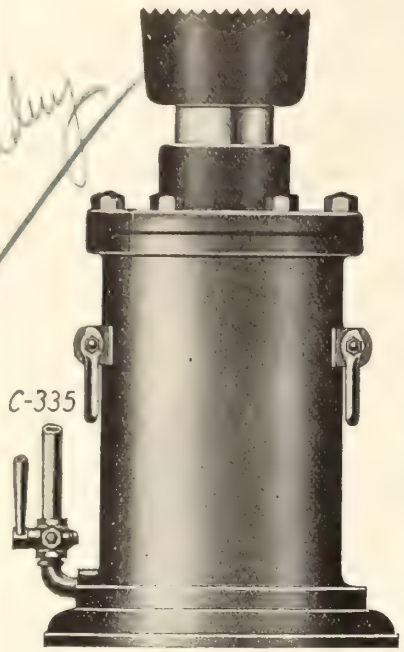

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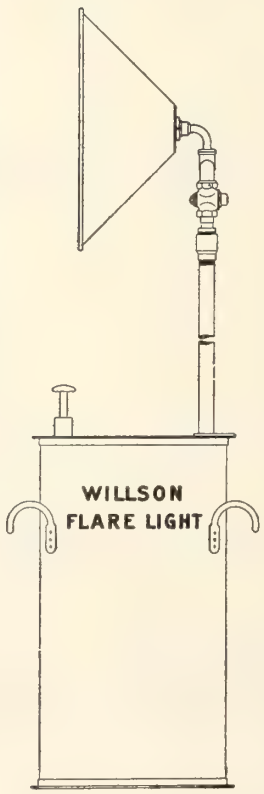
For literature and general or special information inquire of the information Bureau, Canadian Northern Railway System, Toronto.



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TRANSPORTATION APPOINTMENTS.

The information under this head, which is almost entirely gathered from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Board of Railway Commissioners.—J. H. Shinnick, heretofore brakeman on the G.T.R., Brockville, Ont., has been appointed an inspector in the Operating Department.

Canada Atlantic Transit Co.—See Grand Trunk Ry.

Canadian Northern Ry.—W. I. Munroe has been appointed Chief Dispatcher, District 3, Dauphin, Man., vice C. D. Fisher promoted.

Canadian Pacific Ry.—E. E. Lloyd, heretofore chief clerk to Auditor of Stores and Mechanical Accounts, has been appointed Assistant Auditor of Stores and Mechanical Accounts. Office, Montreal.

H. C. Grout, heretofore Assistant Superintendent District 3, Ontario Division, West Toronto, has been appointed Assistant Superintendent District 1, Ontario Division, vice D. Carmichael transferred. Office, Havelock, Ont.

D. S. Taylor, heretofore Locomotive Foreman at Port Burwell, Ont., has been appointed Locomotive Foreman at Havelock, Ont., vice E. J. Murphy transferred.

F. G. Martyn, heretofore Assistant Superintendent District 2, Ontario Division, London, Ont., has been appointed Assistant Superintendent District 3, Ontario Division, vice H. C. Grout transferred. Office, West Toronto.

E. J. Murphy, heretofore Locomotive Foreman at Havelock, Ont., has been appointed Assistant Foreman at West Toronto, vice W. H. Kirkby transferred.

D. Carmichael, heretofore Assistant Superintendent District 1, Ontario Division, Havelock, Ont., has been appointed Assistant Superintendent District 2, Ontario Division, vice F. G. Martyn transferred. Office, London, Ont.

W. H. Kirkby, heretofore assistant foreman at West Toronto, has been appointed Locomotive Foreman at Port Burwell, Ont., vice D. S. Taylor transferred.

H. Wallace, heretofore Assistant Local Freight Agent, Winnipeg, has been appointed General Agent at Fort William, Ont., vice R. Armstrong promoted.

A. G. Hebb, heretofore road foreman, has been appointed District Master Mechanic, District 2, Central Division. Headquarters, Winnipeg. This is a new position.

G. Self has been appointed Assistant Local Freight Agent, at Winnipeg, vice H. Wallace promoted.

L. Fisher, heretofore Road Foreman, has been appointed District Master Mechanic, District 4, Central Division. Headquarters, Souris, Man. This is a change in title only.

T. F. Patterson, heretofore Locomotive Foreman at Kenora, Ont., has been appointed District Master Mechanic at Moose Jaw, Sask., vice L. E. W. Bailey assigned to other duties.

F. D. Warner, heretofore Locomotive Foreman at Field, B.C., has been appointed night foreman at Revelstoke, B.C.

G. McL. Brown, heretofore General Traffic Agent, London, Eng., has been appointed European Manager, vice Archer Baker deceased. Office, London, Eng. He will continue in charge of traffic matters.

E. J. Armstrong, heretofore agent at Manchester, Eng., has been appointed Travelling Freight Agent, with office at 62 Charing Cross, London, Eng., reporting to the General Freight Agent there. The Manchester, Eng., office has been closed. All correspondence hitherto addressed there should be sent to 24 James St., Liverpool, Eng.

Central Vermont Ry.—See Grand Trunk Ry.

Dominion Atlantic Ry.—R. U. Parker, heretofore acting General Passenger Agent, has been appointed General Passenger Agent. Office, Kentville, N.S.

W. J. Johnson has been appointed Assistant Marine Superintendent.

Great Northern Ry.—F. Bell, heretofore Superintendent St. Cloud and Fergus Falls Division, Melrose, Minn., has been appointed Assistant General Superintendent Eastern Division. Office, St. Paul, Minn.

M. Nicholson, heretofore Superintendent Butte Division Great Falls, Mont., has been appointed Superintendent St. Cloud and Fergus Falls Division, vice F. Bell promoted. Office, Melrose, Minn.

C. O. Jenks has been appointed Superintendent Butte Division, vice M. Nicholson transferred. Office, Great Falls, Mont.

Grand Trunk Ry.—E. H. Fitzhugh, heretofore Third Vice President, has been appointed First Vice President.

W. Wainwright, heretofore Fourth Vice President, has been appointed Second Vice President.

M. M. Reynolds, heretofore Fifth Vice President, has been appointed Third Vice President.

R. S. Logan, heretofore Assistant to the Second Vice President and General Manager, has been appointed Assistant to the President.

W. H. Biggar, K.C., heretofore General Solicitor, has been appointed General Counsel. Office, Montreal. The office of General Solicitor is abolished. All reports, etc., formerly addressed to the General Solicitor, will, in future, be addressed to the General Counsel.

M. K. Cowan, K.C., heretofore Assistant Solicitor, has been appointed Solicitor. Office, Montreal.

H. M. Baker has been appointed Commercial Agent G.T.R. Portland route, and Central Vermont Ry., New London route, and will also represent the National Despatch Fast Feight Line, Great Eastern Fast Freight Line and Canada Atlantic Transit Co. Office, 82 Wall St., New York.

F. G. Bement has been appointed Trainmaster districts 25, 27 and 28, vice O. F. Clark, transferred. Office, Durand, Mich.

O. F. Clark, heretofore Trainmaster, Durand, Mich., has been appointed Trainmaster District 29 and Pontiac, Oxford and Northern Ry. Office, Pontiac, Mich.

The following agents have been appointed:—Berlin, Ont., J. Milhausen; Walkerton, Ont., N. J. Dore; St. Polycarpe, Que., J. A. Francoeur; Greenfield, Ont., F. O. Parent; Admaston, Ont., G. F. Pepper; Rock Lake, Ont., J. T. Boss.

Grand Trunk Pacific Ry.—W. H. Biggar, K.C., heretofore General Solicitor, has been appointed General Counsel. Office, Montreal. The office of General Solicitor has been abolished.

D'Arcy Tate, heretofore Assistant Solicitor, has been appointed Solicitor. Office, Winnipeg.

D. B. Dover, heretofore agent G.T.R., Berlin, Ont., has been appointed local freight agent G.T.P.R., Winnipeg.

Government Railways.—A. J. Tingley has been appointed Special Agent I.C.R. and P.E.I.R. Office, Moncton, N.B.

Intercolonial Ry.—See Government Railways.

Michigan Central Rd.—F. E. Robson has been appointed General Attorney, with charge of litigation and of such other matters as may be referred to him by the Vice President or the General Counsel. Assistants in the general offices will report to him. Office, Detroit, Mich.

J. W. Dohany has been appointed Attorney at Detroit, Mich. He will perform such duties as may be assigned to him by the General Counsel or the General Attorney.

T. E. Elsman has been appointed Chief of Tariff Bureau. Office, Detroit, Mich.

R. M. Huddleston has been appointed General Auditor. Office, Chicago, Ill.

National Despatch Fast Freight Line, Great Eastern Fast Freight Line.—See Grand Trunk Ry.

New York Central and Hudson River Rd.—N. Mooney has been appointed General Agent Passenger Department, Montreal, vice C. Hartigan, resigned to enter the Rutland Ry. service.

New York Central Lines.—B. B. Mitchell, heretofore General Freight Traffic Manager, Chicago, Ill., has been appointed Assistant to Vice President. Office, New York. The office of General Freight Traffic Manager has been abolished.

Northern Navigation Co.—C. A. Macdonald, heretofore Comptroller, has been appointed Assistant Manager. Office, Collingwood, Ont.

E. W. Holton, heretofore chief clerk Sarnia office, has been appointed Eastern Passenger Agent. Office, Sarnia, Ont.

R. V. Robinson, heretofore chief clerk Claims Department, has been appointed Eastern Freight Agent. Office, Sarnia, Ont.

W. J. McCormack, heretofore agent at Point Edward, Ont., has been appointed agent at Sarnia, Ont.

Prince Edward Island Ry.—See Government Railways.

Quebec Central Ry.—The position of General Superintendent being vacant owing to the death of A. Steele, Jos. Fortin, heretofore agent at Levis, has been appointed acting Superintendent. It is probable that a Superintendent of Transportation and a Superintendent of Permanent Way and Structures will be appointed in the near future.

Quebec Ry. Light and Power Co.—C. E. A. Carr, heretofore Assistant General Manager, has been appointed General Manager, vice E. A. Evans, General Manager and Chief Engineer, who has resigned the former position.

E. A. Evans, heretofore General Manager and Chief Engineer, having resigned the former position, has been appointed Chief Engineer over all the Company's interests.

Railways and Canals Department.—M. J. Butler, Deputy Minister and Chief Engineer of Railways and Canals, and Chairman Government Railways Managing Board, has resigned to become General Manager Dominion Iron and Steel Co., and Dominion Coal Co., Sydney, N.S., the resignation to become effective Feb. 5. A. W. Campbell, heretofore Deputy Minister of Public Works for Ontario, has been appointed Deputy Minister of Railways and Canals and Chairman Government Railways Managing Board, effective Feb. 5. The position of Chief Engineer of the Department of Railways and Canals had not been filled up to Jan. 28.

Rutland Rd.—C. Hartigan, heretofore General Agent Passenger Department New York Central and Hudson River Rd., Montreal, has been appointed General Passenger Agent, Rutland Rd., Rutland, Vt., vice F. E. Barbour, resigned.

Temiskaming and Northern Ontario Ry.—A. J. Parr, heretofore Assistant Freight and Passenger Agent, has been appointed Freight and Passenger Agent, vice W. D. Cunneyworth, resigned. Office, North Bay, Ont.

West Shore Rd.—E. A. Cousino has been appointed General Western Agent, Chicago, Ill., vice Neil Mooney, promoted to Montreal.

The Canadian Pacific Ry. Co. has given notice of calls on all shareholders who subscribed to the recent issue of $30,000,000 new stock, authorized Oct. 7, 1908, and upon which 20% has been deposited, as follows:—20%, or $25 a share, on Mar. 9; 20% on May 9; 20% on July 8, and 20% on Sept. 7.

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BARNES—**Ice Formation.** With Special Reference to Anchor-ice and Frazil. 8vo, x+257 pages, 40 figures. Cloth, $3.00.

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Steam Railway Track Laid in 1909.

In our last issue we gave a preliminary statement of the steam railway track laid in Canada in 1909. The figures given for the Canadian Northern Ry., and the Canadian Pacific Ry. have been revised and completed. These figures show that 1588.47 miles of new track were laid during the year by the different companies against 1505.95 in 1908. The mileage laid by the different companies is as follows:—

	Miles.	Miles.
ALBERTA RY. AND IRRIGATION CO.		
From Raley to Wolford		8.00
ATLANTIC, QUEBEC AND WESTERN RY.		
From Port Daniel to Grand Pabos	20.00	
From Grand Pabos to Grand River	10.00	
From Gaspe to Douglastown	6.00	
		36.00
(1) CANADIAN NORTHERN ONTARIO RY.		
Hawkesbury to Ottawa	57.08	
Udney to Orillia	2.39	
Parry Sound spur	1.00	
Sellwood Jct. northerly	30.02	
		90.49
CANADIAN NORTHERN QUEBEC RY.		
Garneau-Quebec cut off, Quebec end	17.10	
St. Jacques to Rawdon	11.00	
		28.10
CANADIAN NORTHERN RY.		
Dundee branch, Man.	4.00	
St. Rose du Lac, branch, Man.	14.90	
Hallboro branch	69.28	
Rossburn branch, Sask.	45.91	
Goose Lake Line	52.20	
Maryfield Line	68.39	
Bienfait spur, Sask.	16.40	
Prince Albert-Battleford Line, Sask.	12.50	
Vegreville extension, Alta.	19.47	
		303.05
(2) CANADIAN PACIFIC RY.		
From mileage 31.6 to Duhamel, Que.	3.14	
From Tenlon north, Man.	2.40	
From Mowbray to Windygates, Man.	6.80	
From Virden, Man., north	13.60	
From Weyburn to Forward, Sask.	25.20	
From Asquith to ballast pit, Sask.	7.00	
From Wilkie to Hardisty, Sask.	131.30	
From Wynyard to Lanigan, Sask.	37.10	
From Regina north, Sask.	2.80	
From Kipp to Carmangay, Alta.	28.20	
From Stettler to Castor, Alta.	35.40	
From Langdon north, Alta.	5.80	
Lethbridge cut-off	20.30	
Hector cut-off	4.80	
		323.84
CENTRAL ONTARIO RY.		
From end of steel, near Maynooth, north		1.00
DIAMOND RY. COAL CO.		
From Kipp to Diamond City		6.00
ESQUIMALT AND NANAIMO RY.		
From Wellington to Parksville		18.00
GRAND TRUNK PACIFIC RY. AND BRANCHES.		
From Irmar to Clover Bar	102.00	
From Edmonton to Wolfe Creek	122.00	
From Melville to Balcarres	34.00	
From Melville to Yorkton	25.00	
From Tofield to Camrose	26.00	
		309.00
GREAT NORTHERN RY		
From Cloverdale to Sumas	2.00	
Burrard Inlet line	1.93	
From Keremeos to Princeton (est.)	42.00	
		45.93
HA HA BAY RY.		
From Waterside to Jonquieres		2.00
INTERNATIONAL RY. OF N. B.		
From mileage 62 to 85		23.00
MANITOULIN AND NORTH SHORE RY.		
From mileage 13 west of Sudbury to mileage 14.14		1.14
NATIONAL TRANSCONTINENTAL RY.		
Moncton westerly	13.00	
Chipman westerly	5.00	
Intercolonial crossing, e. and w.	27.00	
Quebec-N.B. boundary, e. and w.	30.00	
Quebec bridge, e. and w.	49.00	
T. & N. O. Jct., e. and w.	44.00	
Ontario and Man. boundary, east	144.00	
		312.00
NORTHERN NEW BRUNSWICK & SEABOARD RY.		
Between Nipisiquit Jct. and Drummond Mines	4.00	
From Newcastle Jct. to ore dock	1.00	
		5.00
PACIFIC COAST MINES (LTD.)		
From Boat Harbor to Fiddicks Jct.		5.67
QUEBEC CENTRAL RY.		
From St. George to St. Justine		27.00
SUPERIOR AND WESTERN ONTARIO RY.		
From Superior Jct. to O'Brien		8.00
WINNIPEG CITY POWER PLANT LINE.		
From Lac du Bonnet to Point du Boise	24.00	
From Station 1187 to gravel pit	1.25	
		25.25

Of this mileage 1376.48 miles were laid in connection with three systems as follows, the second column showing the mileage laid by the same lines in 1908:—

Transcontinental Ry.	312.00	170.00
G. T. Pacific Ry.	309.00	460.50
	621.00	630.50
Canadian Northern Ontario Ry.	90.49	11.50
Canadian Northern Que. Ry.	28.10	60.90
Canadian Northern Ry.	303.05	167.80
	421.64	240.20
Canadian Pacific Ry.	323.84	389.88
Total of the three systems.	1,376.48	1,260.58

Divided by provinces, the track laid during the year compares with that laid in 1908, as follows:—

	1909. Miles.	1908. Miles.
Saskatchewan	457.80	659.70
Alberta	373.17	74.90
Ontario	288.63	238.04
Quebec	171.24	227.14
Manitoba	136.23	166.30
New Brunswick	87.00	67.00
British Columbia	74.40	56.87
Nova Scotia		9.00
Yukon		7.00
	1,588.47	1,505.95

(1) On the Canadian Northern Ontario Ry.'s Hawkesbury-Ottawa line 53 miles were laid in 1908 and the balance, 4.08 miles, in 1909. The 53 miles were not included in the figures received from the company a year ago, so the whole mileage is now included in the 1909 returns.

(2) The C.P.R. Lethbridge-Macleod cut-off has a total length of 35.24 miles, and supersedes the original line of 38.66 miles. Track was laid on 14.83 miles in 1908, and on the remaining 20.40 miles in 1909.

The length of line which the C.P.R. grade revision between Hector and Field supersedes was 4.1 miles, so that the revision adds 4.1 miles to the length of the line.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers to distinctly understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

The Northern Engineering Works, Detroit, Mich., has purchased additional land near its present premises for extensions of its northern cranes plant.

The Falls Hollow Staybolt Co., Cuyahoga Falls, Ohio, has issued its January calendar, the first of a series of 12 subjects by Stuart Fraser, which it intends to send out monthly during the year.

Tate Bifunctional Accumulators have been specified for the electric lighting of the private car now under construction by the Preston Car & Coach Co. for the Temiskaming & Northern Ontario Railway Commission.

The American Locomotive Co. has issued a bulletin on Mallet articulated compound locomotives, illustrating a number of different designs built by the company for various railways, and giving general specifications, hauling capacity, etc.

In our last issue L. S. Hough was spoken of as sales agent on the staff of Taylor & Arnold of Montreal, General Sales Agents for the Ontario Iron & Steel Co. and the Canadian Railway Equipment Co. The position referred to is held by L. S. Rough.

Wm. Abbott, Montreal, has been appointed agent for Canada and Newfoundland for the Stahlwerk Becker, A. G., Krefeld, Germany, manufacturers of high speed and high grade steel, tungsten and nickel alloys, which are made by the Girod electric process.

Taylor & Arnold, Montreal, have sold to the Silliker Car Co. and to the Preston Car & Coach Co., the heavy cast steel double body and truck bolsters for use under the seven sleeping, three colonist and three mail cars which the I.C.R. recently ordered from these companies. We are advised that these will be the first bolsters of this description made in Canada.

The Dominion Car & Foundry Co. has decided that in future their various works will be designated as follows:—The Dominion Car & Foundry Co.'s plant at Blue Bonnets, near Montreal, will be known as the Dominion Works, —. Ditchfield remaining as Superintendent. The Canada Car Co.'s plant at Turcot, near Montreal, will be known as the Turcot Work, S. King remaining as Superintendent. The Rhodes, Curry & Co.'s plant at Amherst, N.S., will be known as the Amherst Works. W. M. Robertson, heretofore of the Canada Car Co.'s staff, has been appointed Superintendent at Amherst.

The Canadian Crocker-Wheeler Co., Ltd., which is the Canadian end of the Crocker-Wheeler Co., of Ampere, N.J., which has been manufacturing electrical equipment for 22 years, is establishing a manufacturing plant at St. Catherines, Ont. It has secured eight acres of land adjacent to the G.T.R. and the N. St. C. & T.R. on which are buildings with 30,000 ft. of floor space, which were built by the city for the J. M. Rose Co., manufacturers of traction engines. The Canadian Crocker-Wheeler Co. is remodelling these buildings and will erect additional ones within a short time, so as to be fully equipped for manufacturing a complete line of electric apparatus.

The Canada Bolt & Nut Co., Ltd., with a capital of $2,500,000 and head office at Toronto, has taken over the Toronto Bolt & Forging Co., with bolt mills at Swansea (Toronto) and Gananoque, and rolling mills at Sunnyside, Toronto, the Brantford Screw Co., Brantford, the Belleville Iron & Horseshoe Co., Belleville, and the Gananoque Bolt Co., Gananoque. Lloyd Harris, M.P., of the Brantford Screw Co., is President of the new company, and T. H. Watson, heretofore of the Toronto Bolt and Forging Co., Vice President and General Manager. G. Gillies, President of the Toronto Bolt & Forging Co., having disposed of his holdings, it is intended to concentrate the manufacture of certain lines of work in certain plants, so as to avoid duplication, and the Swansea works will probably be enlarged.

Temiskaming and Northern Ontario Ry.—Owing to the change by which the fiscal year for this railway will in future be closed Oct. 31, the figures here given for 1909 represent 10 months only, as compared with 12 months for the year 1908. Total passenger revenue, $483,110.89; total freight revenue, $756,141.66; other revenue from transportation, $121,972.33; total revenue, $1,361,224.88; operating expenses, $794,796.88; net operating revenue, $566,428.00; received from ore royalties, $108,516.68; total income, $674,944.68; hire of equipment, $19,073.47; net result, for 10 months ended Oct. 31, 1909, $655,871.21, against $366,504.53 passenger revenue; $471,203.41 freight revenue; $135,357.67 other revenue from transportation; $973,065.61 total revenue; $688,397.43 operating expenses; $284,668.18 net operating revenue; $134,820.27 received from ore royalties; $419,488.45 net result, for 12 months ended Dec. 31, 1908.

Diamond Coal Co.—Application is being made to the Alberta Legislature to empower the company to acquire and operate the railway constructed from Kipp to Diamond City, by a company affiliated with it. The company finds from experience that it would be much better to have the railway with the mine and all its auxiliaries joined together in one company.

The Grand Trunk Pacific Ry. Co. has issued through Glyn, Mills, Currie & Co., London, Eng., £1,000,000 of 4% debenture stock, the proceeds of which will be applied to the purchase of additional rolling stock, to be delivered during the current year, for use on the prairie section and on the Lake Superior branch. The issue price is £92-10, and the stock will rank pari passu with £3,000,000 of such stock already issued, and is subject to redemption at £105 by the company any time after Mar. 1, 1936, on giving one year's notice. The issue forms part of an issue of $25,000,000 (£5,136,900) authorized by chap. 100 of the Dominion statutes of 1906, is secured by a lien on the company's property, and ranks next after the company's second mortgage bonds and Lake Superior Branch bonds. In addition the G.T.R. Co. under an agreement of Jan. 10, has guaranteed the payment of interest on the £2,136,980 of the stock yet unissued, out of the net earnings of the G.T.R. of each year, after making certain deductions. The subscription list closed Jan. 19.

Essex Terminal Ry.—Application is being made to the Dominion Parliament to extend the time for the completion and putting in operation of the authorized railway; to authorize the company to operate vessels; to enter into agreements with other similar companies; to increase the capital stock and bonding powers, and to change the date of the annual meeting. J. H. Coburn, Walkerville, Ont., is the solicitor.

Buctouche Ry. and Transportation Co.—Application is being made to the Dominion Parliament to incorporate a company with this title to construct a railway between Buctouche and Richibucto, N.B., and in connection therewith to operate vessels, and build wharves, docks, etc. Barnhill, Ewing and Sanford are solicitors for applicants.

At a meeting of the Engineers Club of Toronto, Jan. 6, W. Chipman, who had previously been elected President for the current year, declined the position, and C. M. Caniff was elected in his place.

The Governor General visited the C.P.R. Angus shops, Montreal, Jan. 7, where he presented certificates and diplomas to the employes who had passed St. John's Ambulance Association's examination during the past year.

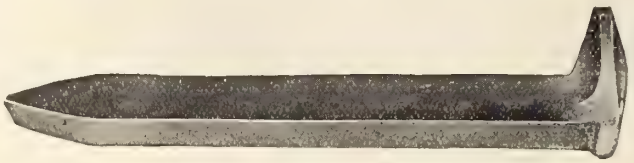
The Canadian Society of Civil Engineers Toronto Branch held its annual meeting, Jan. 6. The officers for the current year are:—Chairman, A. W. Campbell; Secretary-Treasurer, P. Gillespie; Councillors, T. S. Scott, T. C. Irving, Jr., O. W. Smith, N. H. McLeod and A. W. Connor.

During Nov., 1909, 46 employes were killed in the course of their employment on Canadian railways. Twenty-nine deaths were due to derailments (22 being caused in one accident due to a washout in B.C.); seven to being run over; four to falls; two each to collisions and while coupling; and one each to an explosion of boiler and to falling material.

NOTICE is hereby given that the Grand Trunk Railway Company of Canada will apply to the Parliament of Canada, at its present session, for an Act authorizing that company to acquire by purchase or otherwise, and hold, hypothecate, sell, or otherwise dispose of bonds, debentures, or other securities, issued by the Ottawa Terminals Railway Company, by the Lachine, Jacques Cartier and Maisonneuve Railway Company, and by the Grand Trunk Pacific Terminal Elevator Company, Limited, respectively.

W. H. BIGGAR,
Solicitor for the applicants.

Dated at Montreal, this 4th day of January, A.D. 1910.



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ELECTRIC RAILWAYS.

Canadian Street Railway Association.

PRESIDENT, D. McDonald, Manager, Montreal St. Ry.; VICE-PRESIDENT, J. Anderson, Manager, Sandwich, Windsor and Amherstburg Ry.; SECRETARY-TREASURER, Acton Burrows, Managing Director, Railway and Marine World.

ASSOCIATION'S OFFICE, 157 Bay St., Toronto.

EXECUTIVE COMMITTEE:—P. Dubee Secretary, Montreal St. Ry.; E. A. Evans, General Manager, Quebec Ry. Light and Power Co.; R. J. Fleming, General Manager, Toronto Ry.; H. M. Hopper, Secretary-Treasurer, St. John Ry.; J. E. Hutcheson, Superintendent and Purchasing Agent, Ottawa Electric Ry.; C. B. King, Manager, London St. Ry.

ASSISTANT SECRETARY, Aubrey Acton Burrows, Secretary and Business Manager, Railway and Marine World.

OFFICIAL ORGAN, THE RAILWAY AND MARINE WORLD.

Electric Railway Statistics for 1908-09.

The report of the Comptroller of Railway Statistics for the year ended June 30, 1909, states that during the year a complete re-organization of the basis of reporting by electric railways took place. The schedules which were sent out by the Department in 1901, when the collection of statistics was first commenced, was probably the best that could be devised; each railway company followed its own method of accounting, and as a result important and useful details were lacking. Mr. Payne adds "The time was opportune for the installation of a new and carefully considered system in relation to statistics. Classifications and schedules were printed and distributed; but this heavy task could not be carried out until nearly six months of the railway year had passed. It had been my privilege, however, to meet the members of the Canadian Street Railway Association on Nov. 11, 1908, and to explain to them the general features of the proposed changes. They heartily approved of the new plan, and expressed their willingness to co-operate. I desire in this way to gratefully recognize the response of electric railway corporations to the demands made upon them under circumstances which must have been exceedingly inconvenient to many of them."

The total mileage of electric lines in Canada is put at 988.97, a decrease of 3.06 miles, whereas there was actually an increase. There has heretofore been some confusion on the part of reporting lines as to the proper method of computing mileage. This difficulty has been removed and hereafter the facts in relation to mileage will be returned on a uniform basis. In addition to the 988.97 miles of main track, there were on June 30, 1909, 215.05 miles of second main track, 83.62 miles of sidings and turnouts, making altogether a total of 1,287.65 miles computed as single track. The paid-up capital aggregated $91,604,989, of which $51,946,433 is represented by stocks, and $39,658,556 by funded debt. The subsidies paid by governments and municipalities amount to $493,346. The gross earnings from operation were made up as follows:—Passenger, $14,080,755; freight, $386,092; mail and express, $110,452; other earnings, $34,185. Adding surplusses and other source of income the gross aggregate incomes of the companies amounted to $15,799,850.93. From this has to be deducted the following items:—Operating expenses (including $246,192.77 of net loss by certain lines), $8,885,235.70; taxes, $843,959.70; interest on funded debt, $1,213,142.24; interest on floating debt, $104,573.13; other deductions, $36,631.99; a total of $11,083,542.18; leaving a net income of $4,716,308.75. This net income is equal to a 5.13% on the capitalization. The operating expenses were equal to 59.93 of the gross earnings, against 62.08 in the previous year.

The various lines carried 314,026,671 fare passengers and 81,670,945 transfer passengers, making 395,697,616 in the aggregate. In previous years the fare passengers only were reported, the total for the year ended June 30, 1908, being 299,099,309. The total car mileage was 60,152,846 of which 737,720 was in connection with the carrying of freight mails and express. There were of all classes 3,544 cars in the service, of which 3,043 were passenger cars; 20 mail, express and baggage; seven combination passenger and freight; 85 work cars; 54 snow ploughs; 90 sweepers, and 93 miscellaneous. The number of employes was 10,557, to whom was paid $6,761,281.12, equal to 77.84% of the total operating expenses. Of the employes, 545 were employed in general administration; 3,620 in maintenance; and 6,392 in transportation.

During the year 68 persons were killed and 2,139 injured, against 67 killed and 1,937 injured in the preceding year.

Electric Railway Track Laid in 1909.

In our last issue we gave a summary of reports received from electric railway companies showing track laid during 1909 by 12 companies. Returns have since been received from the Niagara, St. Catharines & Toronto Ry., bringing the total mileage laid up to 57.50 miles, as follows:—

	Miles.	Miles.
BRITISH COLUMBIA ELECTRIC RY.		
Extensions in Vancouver, etc., est.	5.00	
New Westminster to Cloverdale, est.	12.00	17.00
CALGARY (MUNICIPAL) ELECTRIC RY.		
Various lines (estimated)		5.00
CHATHAM, WALLACEBURG & LAKE ERIE RY.		
Pain Court Jct. to Pain Court		4.00
EDMONTON RADIAL RY.		
Alberta ave. to packing plant	2.52	
9th and Jasper to 21st street	.50	
1st st. to 8th and Vermillion	1.00	
Syndicate to Namayo and Jasper	1.15	5.17
HULL ELECTRIC CO.		
Laurier ave. to Main st.		2.25
INTERNATIONAL TRANSIT CO.		
Upton rd. to Pine st., S. S. Marie		0.31
MONTREAL & SOUTHERN COUNTIES RY.		
Montreal to St. Lambert	3.50	
St. Lambert to Montreal South	1.50	5.00
MONTREAL ST. RY.		
Short extensions on various streets		1.60
MONTREAL PARK & ISLAND RY.		
Henderson to St. Vincent de Paul	2.55	
St. Denis	1.39	
Pie IX.	.43	
Cote La Visitation	.96	5.33
NIAGARA, ST. CATHARINES & TORONTO RY		
From Welland to Port Colborne, Ont.		9.00
PORT ARTHUR & FT. WILLIAM E. RY.		
Extension in Port Arthur	1.00	
Extension to Canada Iron Corp.	1.50	2.50
SARNIA ST. RY.		
George st. to Wellington st.		0.34
Total (in part estimated)		57.50
WINNIPEG ELECTRIC RY.		
Dufferin ave.	2.59	
Academy road	0.46	
Osborne st.	0.33	
Marion st.	0.52	
Notre Dame ave. west	0.17	4.07

Electric Ry., Finance, Meetings, Etc.

British Columbia Electric Ry.—Gross earnings for Nov. 1909, $244,520; operating expenses, $157,880; net operating earnings, $86,640; renewal funds, $16,394; net earnings, $70,246; approximate income from investments, $16,500; net income, $86,746, against $202,378 gross earnings; $124,621 operating expenses; $77,757 net operating earnings; $14,443 renewal funds; $63,314 net earnings; $13,550 approximate income from investments; $76,864 net income for Nov. 1908. Aggregate gross earnings for five months ended Nov. 30, 1909, $1,211,692; net earnings, $541,042, against $937,589 gross and $433,074 net for same period 1908.

Halifax Electric Tramway.—Traffic receipts for Dec. 1909, $16,107.26, and for two weeks ended Jan. 14, $6,991.77, against $15,312.78 and $6,416.72 for Dec. 1908, and two weeks ended Jan. 14, 1909.

London St. Ry.—Gross earnings for Dec. 1909, $21,674.21; expenses, $15,469.06; net earnings, $6,205.15; deductions, $2,441.75; net income, $3,763.40, against $20,558.16 gross earnings; $14,848.66 expenses; $5,709.50 net earnings; $2,544.56 deductions; $3,164.94 net income for Dec, 1908. Aggregate gross earnings for 12 months ended Dec. 31, 1909, $243,359.39; expenses, $169,830.44; net earnings, $73,528.95; deductions, $28,887.56; net income, $44,641.39, against $235,932,40 gross earnings; $167,566.72 expenses, $67,465.68 net earnings; $28,454.74 deductions; $39,010.94 net income for same period 1908.

Montreal St. Ry.—Passenger earnings for Dec. 1909, $333,135.21; miscellaneous earnings, $4,407.97; total earnings, $337,563.18; operating expenses, $212,006.44; net earnings, $125,556.74; city percentage on earnings, $15,599.94; interest on bonds and loans, $14,382.01; rent leased lines, $498.62; taxes, $4,000; total charges, $34,480.57; surplus, $91,076.17; expenses per cent. of earnings, 62.80, against $301,329.27 passenger earnings; $3,555.57 miscellaneous earnings; $304,884.84 total earnings; $203,118.97 operating expenses; $101,765.87 net earnings; $12,275.79 city percentage on earnings; $15,306.25 interest on bonds and loans; $444,46 rent leased lines; $2,700 taxes; $30,276.50 total charges; $71,039.37 surplus; 66.62 expenses per cent. of earnings for Dec. 1908. Aggregate total earnings for three months ended Dec. 31, 1909, $1,026,441.40; expenses, $586,878.97; net earnings, $439,562.43; total charges, $96,344.84; surplus, $343,217.39; expenses per cent. of earnings, 57.18, against $935,071.10 aggregate total earnings; $549,195.02 expenses; $385,876.08 net earnings; $90,568.93 total charges; $295,307.15 surplus; 58.73 expenses per cent. of earnings, for same period, 1908.

Niagara Gorge Rd.—The annual meetings of this company and the Lewiston and Youngstown Frontier Ry., were held Jan. 14, at Niagara Falls and Buffalo, N.Y., respectively. Following are the directors for the N.G. Rd. Co. for the current year:—J. T. Jones, H. P. Bissell, B. L. Jones, R. E. Powers, J. A. Jones, F. V. Greene, W. H. Hotchkiss, C. M. Bushnell, R. R. Hefford, W. G. Case, G. C. Rilxey. For the L. and Y.F.R. Co. the directors are the same, with the exception of the last two mentioned. The election of officers will take place at the meeting in Feb. We are advised that there will probably be no change.

Toronto Suburban Ry.—Application is being made to the Ontario Legislature for power to re-arrange and confirm the bond issue, and to grant an increase in the capital stock.

Winnipeg Electric Ry.—Gross earnings for Nov. 1909, $252,200; expenses, $125,700; net earnings, $126,500, against $229,100 gross earnings; $105,100 expenses; $124,000 net earnings for Nov. 1908. Aggregate gross earnings for 11 months ended Nov. 30, 1909, $2,340,100; net earnings, $1,171,400, against $1,964,600 gross earnings, and $993,900 net earnings for same period 1908.

Militia versus Street Cars.

In our July, 1909, issue, we gave particulars of an important issue which had arisen in Winnipeg as to whether the militia or electric railway cars had the right of way on the streets, the Police Magistrate having taken the ground that the militia had and having fined one of the Winnipeg Electric Ry. Co.'s motormen $5 for not stopping his car during a 90th Rifles parade.

The case was appealed and we are advised that the County Judge has not given any definite decision, but intimated that he would quash the conviction by the Police Magistrate. The solicitor for the 90th Rifles made an application for a stated case before the Court of Appeal, but the County Judge has not decided as to this.

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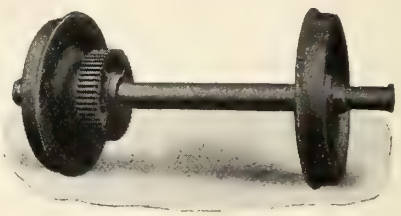

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ELECTRIC RAILWAY STATISTICS FOR YEAR ENDED JUNE 30, 1909.

The following abbreviations are used in the names of railways—E., electric; E.R., electric railway; E.S.R., electric street railway; Ry., railway; S.R., street railway. The minus mark (—) in the column for net income or deficit, shows that there was a deficit in the operations of the line to the extent of the figures given. The numbers in brackets—thus (1)—after the name of a railway refer to notes below.

Name of Railway	Mileage	Gross Earnings	Operating Expenses	Taxes, Interest, etc.	Net Income or Deficit	Passenger Car Mileage	Freight Car Mileage	Fare Passengers Carried
Berlin & Waterloo S.R. (1)	3.12	$ 29,564	$ 22,797	$ 5,338	$ 1,428	89,987	....	590,705
Leased Berlin & Bridgeport Ry. (1)	2.40	5,324	4,880	1,024	579	34,400	....	128,010
Brantford & Hamilton E.R. (2)	23.00	84,039	63,666	57,509	—37,136	246,915	39,141	247,195
British Columbia E.R. (3)	77.78	1,410 007	895,565	.....	514,442	4,647,797	414,934	25,183,739
Cape Breton Electric Co. (24)	11.58	84,919	53,944	47,175	44,720	324,570	.....	1,524,437
Chatham, Wallaceburg & L. Erie (4)	34.00	62,200	28,383	28,925	4,892	104,623	21,932	257,276
Cornwall S.R.	4.00	26,432	23,915	.....	2,516	192,284	12,882	381,536
Egerton Tramway Co. (5)	7.90	43,770	28,526	16,733	5,156	132,887	5,023	916,142
Galt, Preston & Hespeler S.R. (6)	17.81	117,613	68,190	8,026	41,396	223,725	29,251	730,880
Leased Preston & Berlin (6)	....	.....	.....	.....	.....	.....	.....	.....
Grand Valley Ry. (7)	38.29	77,221	70,150	1,990	5,080	467,061	....	693,778
Guelph Radial Ry. (8)	6.00	27,847	22,982	.....	5,064	200,800	....	567,413
Halifax E. Tramway Co. (9)	9.90	184,927	108,785	9,240	67,009	814,375	.....	4,162,986
Hamilton & Dundas S.R. (2)	7.00	41,192	32,117	15,139	—3,268	119,271	589	423,257
Hamilton, Grimsby & Beamsville E.R. (2)	22.00	92,305	74,573	9,940	9,594	275,801	37,257	431,699
Hamilton Radial E.R. (2)	25.00	119,224	95,950	72,907	—49,632	392,880	21,788	1,013,900
Hamilton S.R. (2)	22.00	327,702	223,657	59,530	44,515	1,620,418	....	8,076,511
Hull E. Co. (6)	11.51	75,731	76,534	891	29,710	529,837	24,198	955,230
International Transit Co. (10)	3.68	38,071	32,436	30,482	—12,128	283,284	....	895,198
Kingston, Portsmouth & Cataraqui E.R.	8.00	31,742	30,600	1,664	—1,068	199,680	....	753,265
Levis County Ry.	10.25	59,691	51,196	12,337	11,842	288,920	6,100	1,555,775
London S.R. (11)	25.73	238,685	162,493	34,034	42,347	1,426,339	....	6,460,709
Montreal Park & Island Ry. (12)	26.74	272,201	187,249	143,846	58,895	954,316	3,817	3,438,693
Montreal S.R. (12)	74.68	3,765,137	2,187,190	.....	1,577,947	14,314,541	100,311	93,381,633
Montreal Terminal Ry. (12)	18.22	109,216	98,848	38,972	—29,205	627,670	22,077	1,632,158
Nelson Tramway Co	....	....	.....	.....	.....	.....	.....	.....
Niagara Falls Park & River Ry. (13)	10.02	133,514	70,315	32,332	37,492	356,652	.....	1,180,882
Niagara St. C. & Toronto Ry. (14)	40.06	231,704	155,934	56,938	18,831	666,969	81,429	2,360,107
Oshawa Ry.	4.00	55,370	41,727	5,824	8,541	40,284	17,203	126,999
Ottawa E.R. (15)	23.40	644,100	417,481	45,472	181,146	3,675,888	15,000	14,216,621
Peterborough Radial Ry.	5.10	28,746	25,001	4,052	—307	257,450	.....	622,145
Port Arthur S.R. (16)	9.32	103,410	65,986	.....	37,423	389,420	....	....
Quebec Ry., Light and Power Co.								
Citadel Division	17.22	287,494	196,509	....	90,985	1,394,744	....	6,859,679
Montmorency Division (17)	30.00	151,386	104,246	.....	47,139	327,156	....	1,271,622
Sandwich, Windsor & Amherstburg Ry. (21)	35.81	171,749	102,203	26,214	77,541	838,673	....	2,911,358
Sarnia S.R. (22)	8.25	40,264	29,047	3,848	7,369	143,990	....	645,463
Sherbrooke S.R.	7.00	31,176	32,593	6,637	—8,054	288,020	....	734,319
Southwestern Traction Co. (23)	28.50	92,865	60,517	35,836	—3,515	304,928	35,611	497,195
St. John Ry. (18)	12.50	163,749	145,713	51,620	65,169	983,648	....	3,691,809
St. Stephen S.R. (19)	7.00	29,649	26,480	5,524	—2,354	183,960	....	590,717
St. Thomas S.R. (20)	7.50	18,690	22,235	.....	—3,544	333,032	....	455,480
Sydney & Glace Bay Ry. (24)	20.98	97,566	60,525	23,858	13,551	256 193	11,154	1 937,880
Toronto Ry. (25)	49.65	3,750,283	1,870,434	791,567	1,088,282	14,839,474	....	92,850,010
Toronto Suburban Ry.	9.84	40,966	30,147	9,559	1,467	204,344	....	891,203
Toronto & York Radial Ry. (25)	72.42	333,588	196,182	101,714	35,691	950,200	82,803	3,595,892
Windsor, Essex & L. Shore Rapid Ry.	36.16	85,276	61,818	48,112	24,657	191,130	55,220	244,280
Winnipeg S.R. (26)	61.62	1,008,614	517,151	353,454	856,072	4,279,590	....	23,940,885
Yarmouth S.R.	2.00							
	988.97	$14,824,936	$8,884,690	$2,198,306	$4,962,501	59,415,126	737,720	314,026,671
					—246,192			
					$4,716,309	60,152,846		

Notes to Electric Railway Statistics

The companies also carried 81,670,945 transfer passengers, making a total of 395,697,616 passengers carried. One-half of the companies reporting divide the number of passengers carried, into the two classes, the number of transfer passengers carried on the lines reporting being as follows: Berlin and Waterloo, 21,876; Cape Breton Electric Co., 359,219; Grand Valley Ry., 60,564; Halifax Electric Tramway Co., 342,210; Hull Electric Co., 73,000; International Transit Co., 3,789; Kingston Portsmouth and Cataraqui, 145,872; Levis County Ry., 34,229; London St., 1,020,242; Montreal Park and Island Ry., 341,266; Montreal St., 31,577,363; Montreal Terminal Ry., 115,931; Niagara, St. Catharines and Toronto, 18,605; Quebec Ry., Light and Power Co., Citadel Division, 3,266,000; Sandwich, Windsor and Amherstburg Ry., 343,324; Sherbrooke St., 108,951; South-Western Traction Co., 22,259; St. John Ry., 1,318,894; St. Stephen S.R., 23,389; St. Thomas S.R., 151,820; Sydney and Glace Bay, 22,220; Toronto Ry., 34,951,318; Toronto Suburban Ry., 40,648; Winnipeg, 7,307,956.

(1) The Berlin and Waterloo St. Ry. is owned by the town of Berlin, Ont. It leases the Berlin and Bridgeport Ry. from a company.

(2) The Dominion Power and Transmission Co., owns or controls the Brantford and Hamilton Ry.; Hamilton and Dundas Ry.; Hamilton, Grimsby and Beamsville Electric Ry.; Hamilton Radical Ry., and Hamilton St. Ry.

(3) The British Columbia Electric Ry. operates local lines in Vancouver, New Westminster and Victoria, and interurban lines radiating from Vancouver. It has 13.44 miles of second track, and operates over 21 miles of leased lines.

(4) The Chatham, Wallaceburg and Lake Erie Ry. added $9,141.67 to reserves and special charges, and paid $14,040 in dividends out of net income.

(5) The Egerton Tramway Co. paid $5,000 in dividends out of net income.

(6) The Galt, Preston and Hespeler Ry. which also operates the Preston and Berlin Ry. under lease, has 1.36 miles of second track. It is operated in connection with the C.P.R. under a lease. The C.P.R. also owns the Hull Electric Co. This company has 11.51 miles of second

track and operates over 1.82 miles of leased track.

(7) The Grand Valley Ry. mileage includes the lines of the Brantford St. Ry., the G.V. Ry., and the Woodstock, Thames Valley and Ingersoll Ry., which were reported separately in previous years.

(8) The Guelph Radial Ry. is owned by the City of Guelph.

(9) The Halifax Electric Tramway Co. has 3.09 miles of second track.

(10) The International Transit Co.'s line, owned by the Lake Superior Corporation at Sault Ste. Marie, Ont., connects with the Trans St. Mary's Ry. at Sault Ste. Marie, Mich., owned by the same company.

(11) The London St. Ry. has 6.79 miles of second track. It paid $32,711.76 in dividends out of net income.

(12) The Montreal St. Ry. has 57.18 miles of second track, and operates over 8.58 miles of leased tracks. It reports a surplus of $1,577,947.17. It owns the Montreal Park and Island Ry., which has 14.61 miles of second track, and paid $32,711.76 dividend out of the latter's net income. It also owns the Montreal Terminal Ry., which has 4.66 miles of second track.

(13) The Niagara Falls Park and River Ry. has 9.31 miles of second track. It is owned by and operated in connection with the International Ry. of Buffalo, N.Y.

(14) The Niagara, St. Catharines and Toronto Ry. mileage includes the Niagara Falls, Wesley Park and Clifton Ry., and the Port Dalhousie, St. Catharines and Thorold Electric St. Ry., formerly reported separately.

(15) The Ottawa Electric Ry. has 20.64 miles of second track, and operates over 2.22 miles of leased track. It paid $149,697.34 in dividends out of net income.

(16) The Port Arthur St. Ry. has 6.45 miles of second track. It is operated by a commission appointed by the city councils of Port Arthur and Fort William, Ont.

(17) The Quebec Ry., Light and Power Co. has 6.30 miles of second track on its Montmorency Division. A steam freight service is operated over the Montmorency Division, the returns for which are given in the steam railway statistics.

(18) The St. John Ry. has 6.50 miles of second track. It paid $48,000 in dividends out of net income.

(19) The St. Stephen S.R. operates over 3.00 miles of leased tracks.

(20) The St. Thomas St. Ry. is owned by the city of St. Thomas, Ont.

(21) The Sandwich, Windsor and Amherstburg Ry. owns and operates the Windsor and Tecumseh Electric Ry. The S.W. and A. Ry. is in turn owned by the Detroit United Ry.

(22) The Sarnia St. Ry. paid $4,847.18 in dividends out of net income.

(23) The South Western Traction Co. has trackage rights over 2.28 miles of the St. Thomas St. Ry.

(24) The Sydney and Glace Bay Ry. added $5,299.97 to reserves and special charges, and paid $10,000 in dividends out of net income. It is owned jointly by the Cape Breton Electric Co. and the Dominion Coal Co.

(25) The Toronto Ry. reports 49.654 miles of "first main track" and 53.205 of "second main track." It added $150,000 to reserves and special charges account, and paid $499,805.65 in dividends out of net income. The T. Ry. owns the Toronto and York Radial Ry.

(26) The Winnipeg St. Ry. paid $614,496.10 in dividends out of net earnings.

F. G. Rumball, of London, Ont., who was interested in the inauguration of the Southwestern Traction Co., recently returned from Honduras, where he has been viewing the country with a view to the building of a railway there.

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Map No. 1—Winnipeg to Second Meridian	$ 8.00 to $15.00 per acre.
Map No. 2—South-Eastern Saskatchewan, 2nd to 3rd Meridians	10.00 to 25.00 per acre.
Map No. 3—Main Line, 3rd Meridian to Range 10, W. 4th Meridian (generally)	8.00 to per acre.
Map No. 5 South-Western Alberta	8.00 to 15.00 per acre.
Map No. 6—Part of Alberta, Edmonton, Battle and Saskatchewan Rivers Districts—4th Meridian to Range 7, West 5th Meridian	10.00 to 25.00 per acre.
Map No. 7—Part of Western Saskatchewan, 3rd to 4th Meridians	10.00 to 25.00 per acre

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160	Acres at	$ 8.00	per acre,	cash payment	$191.70	first year's interest	$ 65.28	and nine instalments of	$160.00
"	"	9.00	"	"	213.70	"	"	"	73.46	"	"	180.00
"	"	10.00	"	"	239.70	"	"	"	81 62	"	"	200.00
"	"	11.00	"	"	263.60	"	"	"	89.78	"	"	220.00
"	"	12.00	"	"	287.60	"	"	"	97.96	"	"	240.00
"	"	13.00	"	"	311.55	"	"	"	106.10	"	"	260.00
"	"	14.00	"	"	335.60	"	"	"	114.32	"	"	280.00
"	"	15.00	"	"	359.50	"	"	"	122.44	"	"	300.00

Purchasers who do not undertake to go into residence on the land are required to pay one-sixth of the purchase money down, balance in five equal annual instalments with interest at the rate of six per cent. per annum.

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F. T. GRIFFIN, Land Commissioner, Winnipeg.

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British Columbia Electric Ry.—It is proposed to construct about two miles of extensions to the lines in Vancouver city during the year.

In connection with the line connecting Vancouver and New Westminster, D. J. McQuarrie, local manager, stated that there would be an expenditure of $315,000 upon betterments during the current year. A considerable proportion of this will be expended upon the construction of second track in New Westminster.

The Fraser Valley line, which has been completed to Cloverdale, was placed in operation early in Jan. Tracklaying has been completed to Abbotsford, and grading is being gone on with beyond that point. It is expected that the line will be completed by the fall to Chilliwack, where terminal yards will be laid out, and a power station erected.

The company has purchased property for a terminal site in Victoria, for the proposed extension of its lines to the Saanich district. (Jan., pg. 57.)

Berlin and Waterloo to Conestogo.—As a result of a meeting in Waterloo, Ont., Jan. 7, a committee was appointed to interview the President of the Preston and Berlin St. Ry., with a view of ascertaining the terms upon which the company would extend its line from Berlin to Conestogo.

Dunnville, Wellandport and Beamsville Electric Ry.—Application is being made to the Ontario Legislature to authorize the company to construct an extension of its authorized line of railway from Jordan Harbor to St. Catharines, Ont. J. R. Roaf, Toronto, is the solicitor. (Sept., 1909, pg. 683.)

Fort Erie Ferry Ry.—Application is being made to the Ontario Legislature to consolidate the various acts relating to the company, and to change its name to the Buffalo and Fort Erie Ry. The company also asks power to acquire lands for park or pleasure purposes. The Legislature is also being asked to validate a proposed mortgage to secure a proposed issue of bonds for $300,000; to extend the company's powers so as to enable it to acquire shares and guarantee the obligations of certain companies, or of any other company with similar objects whose business may be carried on in conjunction with that of the company.

Fort William, Ont.—The city council of Fort William is applying to the Ontario Legislature to authorize among other things, to raise $137,000 for the improvement of the street railway system within the city. The work proposed to be done with the money obtained will be the construction of a second track on certain streets and some short additional lines. (See Port Arthur and Fort William Electric Ry., Jan., pg. 59.)

Grand Valley Ry. Southwestern Traction Co.—Negotiations for the purchase of the S.W.T. Co.'s line and franchises by the Grand Valley Ry. are reported to be in progress. The interests controlling the S.W.T. Co. are applying to the Dominion Government for a charter, with the title of the London and Lake Erie Transportation Co., and it is stated that as soon as the act authorizing the incorporation of this company is passed, the arrangement will be completed for the merging of the two companies. The lines which the L. and L.E.T. Co. desires power to construct cover those constructed by the Grand Valley Ry. and its allied lines, the Brantford Ry. and the Woodstock Thames Valley and Ingersoll Ry., and the South Western Traction Co.

Hamilton, Waterloo and Guelph Ry.—The owners of property along the right of way of this projected railway have been given notice that possession will be required by April 1. It is reported that construction will be started early in the spring, and the line completed to Galt by the end of 1911. The company is making application to the Dominion Parliament for an act authorizing it to make a number of extensions of its lines, including one to Toronto. The Toronto city council has given instructions to its legal department to oppose this part of the bill. (Dec., 1909, pg. 929.)

Hurontario Ry.—Application is being made to the Ontario Legislature to incorporate a company with this title to construct a line from Collingwood, Ont., through Nottawasaga, Sunnidale, Flos and Vespra tps., to Barrie. W. T. Allan is solicitor for applicants.

London and Lake Erie Transportation Co.—The Dominion Parliament is being asked to incorporate a company with this title for the purpose of constructing and operating a railway from Aylmer, via St. Thomas to London, with a branch from St. Thomas to Port Stanley; through London westerly to Glencoe; from Delaware northwesterly to Strathroy; and from London easterly to Ingersoll, with branches from Ingersoll to Thamesford and to the southern boundary of West Zorra tp., and from London easterly to Brantford, Paris and Woodstock, Ont. These various lines, it is asked, shall be declared to be for the general advantage of Canada. Power is asked to acquire the South-Western Traction Co. lines, which extend from London to Port Stanley, via St. Thomas. The capital of the company is fixed at $2,000,000, and power is asked to issue bonds for $25,000 a mile. The lines proposed to be constructed or acquired cover those which have been constructed by the Grand Valley and its allied companies, and by the South Western Traction Co. (Jan., pg. 57.)

Montreal and Southern Counties Ry.—Arrangements have been made for the leasing by this company of the Central Vermont Ry.'s branch from St. Lambert to Waterloo, Que., 59 miles, which is to be electrified, so that both freight and passenger traffic will be operated by electricity.

Morrisburg and Ottawa Electric Ry.—See Morrisburg Electric Ry.

Morrisburg Electric Ry. Co.—Application is being made to the Ontario Legislature to authorize this company to change its name to the Morrisburg and Ottawa Electric Ry. Co. and to extend the time for the construction of the lines authorized. These consist of lines in the vicinity of Morrisburg authorized by chap. 130 of the statutes of 1908, and an extension to Ottawa, authorized by chap. 136 of the statutes of 1909. The company also asks that its capital stock may be reduced to $500,000 and that it may be authorized to issue bonds to the amount of $20,000 per mile constructed, and to arrange and contract with any existing railway company for trackage from near Ottawa into that city. I. Hilliard, Morrisburg, Ont., is the solicitor.

J. McFarland, a director, is quoted as saying that arrangements would be made with the New York Central & Hudson River Railroad for a direct connection with its system; that options had been secured on several falls on the Ottawa River west of the city, from which the necessary power would be developed for the operation of the company's lines; that the location surveys had been completed for 18 miles, and estimates were in preparation, so that the grading could be started at an early date, and that the preliminary surveys showed the line would be almost straight from Ottawa to Morrisburg.

The line of railway being promoted by this company is not connected in any way with the projected belt line railway from Ottawa, passing through Morrisburg, for which the Ottawa and St. Lawrence Electric Ry. has a charter. Some confusion has taken place in regard to these two companies in the past owing to the fact that the one company was generally referred to as the Ottawa and Morrisburg Electric Railway, and not the Morrisburg Electric Ry. With the change of name no further confusion is likely to occur. (Nov., 1909, pg. 849.)

Niagara, St. Catharines and Toronto Ry.—There are before the Board of Railway Commissioners seven applications by this company for locations in Port Colborne and the townships of Crowland and Humberstone, Ont. The applications were adjourned to enable the Board's Chief Engineer to make an examination and report. (Jan., pg. 59.)

North Midland Ry.—Application is being made to the Ontario Legislature for an extension of the time for the commencement and completion of the line authorized by 4 Edward VII., chap. 84, and for other purposes. T. H. Luscombe, London, Ont., is the solicitor.

People's Ry.—Application is being made to the Ontario Legislature to authorize the company to construct the following lines in addition to those already authorized:—From Stratford via Exeter to Grand Bend, with a branch to St. Marys; from near Stratford via Sebringville, Seaforth and Clinton to Goderich, with a branch from Clinton to Bayfield; from Mitchell to Listowel; from New Hamburg to Wellesley; from Baden to Wellesley; from Petersburg via New Dundee to Ayr and from Guelph via Hespeler to Puslinch Lake. (Jan., pg. 59.)

Regina, Sask.—A letter was read at the meeting of the city council, Jan. 3, from solicitors representing local parties who stated that they were prepared through the Western Trust Company of Winnipeg and in conjunction with J. D. McArthur to install a street railway. The council decided to advertise that the city is prepared to consider proposals relative to the granting of franchises for the operation of street railway and gas works, subject to the right of the city to take over the undertakings at the expiration of a definite term of years at a realization to be fixed by arbitration and subject to conditions with regard to charges to be made by the company's outstanding franchises. (See Regina Interurban Tramway Co., Feb., 1909, pg. 137.)

Simcoe Ry. and Power Co.—The Ontario Legislature is being asked to confirm a bylaw of the county of Simcoe and a bylaw of the township of Matchedash, allowing the company the use of certain roads and road allowances for the purposes of a pole line. The company also is asking the Legislature for an extension of time within which it may construct the railway authorized to be constructed by its act of incorporation. W. Finlayson, Midland, Ont., is the solicitor. The Simcoe county council and the Matchedash tp. council are parties to the application for the confirmation of the bylaws. (May, 1909, pg. 367.)

The Toronto city council is promoting a bill in the Ontario Legislature for a variety of purposes, in which it is also asking power to construct and operate surface railways on the streets in territory added to the city since Sept. 1, 1891; to construct a system of underground railways, and issue debentures therefor on obtaining the consent of a majority of qualified ratepayers; to construct and operate surface railways on streets upon which the Toronto Ry. Co. fails or refuses to construct its railway, or which the company may abandon under the agreement of Sept. 1, 1891; and to acquire (expropriating if necessary) the lands, buildings and appliances

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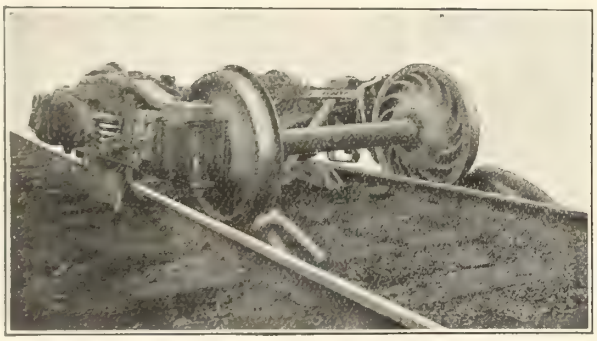

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necessary for the operation of the Toronto Ry. Co., including the right to operate a street railway system in Toronto until Aug. 31, 1921.

Toronto Suburban Ry.—The Ontario Legislature is being asked to authorize the company to construct an extension of its authorized line from Brampton to Guelph, and giving it permission to amalgamate or enter into running arrangements with other companies or railways. (May, 1907, pg. 369.)

Western Central Ry.—Application is being made to the Ontario Legislature to authorize the company to guarantee the securities of other companies, the issue of its bonds over acquired railways, constructed or unconstructed; the increase of its bonding powers for its double track, and for an extension of time within which it may construct its authorized lines. Mowat, Langton and MacLennan, Toronto, are the solicitors.

Winnipeg Electric Ry.—The Manitoba Legislature is being asked to pass an act ratifying an agreement entered into between the company and the municipality of Kildonan, on Oct. 25, 1904. (Jan., pg. 59.)

Electric Railway Notes.

The taxpayers of North Toronto on Jan. 1, voted in favor of Sunday cars by a majority of 146.

The Montreal and Southern Counties Ry. has received two interurban cars and one double broom sweeper from the Ottawa Car Co., Ottawa.

The Montreal St. Ry. dividend of 2½% for the quarter ended Dec. 31, 1909, making 10% for the year is payable to shareholders of record Jan. 13, on Feb. 1.

The Ottawa Electric Ry. gave 5,000 free car tickets for the use of school children, for whom the Mayor made arrangements for a visit to the recent fat stock show at Ottawa.

The Toronto Ry. is reported to have decided to put into service during Feb. a number of pay-as-you-enter cars. They will probably be given a trial on some of the busy routes.

A petition has been sent to the Montreal city council, asking it to compel the Montreal St. Ry. to stop its cars on the farther side of a crossing instead of the other, as at present.

The Hull Electric Co. has received one double broom sweeper from the Ottawa Car Co., Ottawa, and has ordered three 50 ft. double truck summer cars, for May delivery, from the Preston Car and Coach Co., Preston, Ont.

C. E. A. Carr has been appointed General Manager Quebec Ry., Light and Power Co., vice E. A. Evans, General Manager and Chief Engineer, who has resigned the former position, and will continue to act as Chief Engineer.

The Calgary St. Ry. has ordered three cars of the pay-as-you-enter type, 46 ft. 6 in. long over all, with 24 stationary seats, from the Ottawa Car Co., Ottawa, and also three similar cars from the Preston Car and Coach Co., Preston, Ont.

The London city council has granted the London St. Ry., the theatre and amusement privileges at Springbank Park for seven years, with the option of renewal for a further three years, in return for a 10c. fare with stopover privileges.

W. E. Middleton, K.C., has been engaged by the Toronto city council to represent the city under an English counsel in the Toronto Ry. appeal on the question of new lines in the city, before the Judicial Committee of the Privy Council in London, Eng., in Feb.

The disputes between Port Arthur and Fort William relative to the operation of the street railway, are again being discussed, and it has been decided that the whole matter shall again be laid before the Ontario Railway and Municipal Board.

A Vancouver, B.C., dispatch says that on account of complaints from lady passengers the B.C. Electric Ry. Co. has posted a notice that no smoking will be allowed in city cars. Smoking has heretofore been permitted on the rear platforms.

The St. Thomas city council is applying to the Ontario Legislature to repeal the act appointing its Board of Street Railway Commissioners, to abolish the Board, and to place the management and control of the street railway in the council's hands.

A conductor on a British Columbia Electric Ry. car at Vancouver, is said to have been held up, Jan. 5, by two masked and armed men, and robbed of $15 and his ticket box. It is stated that there was one passenger on the car at the time, and the motorman, neither of whom witnessed the occurrence, nor were disturbed.

J. T. Goldthorpe, one of those interested in the origin of what is now being constructed at the Ontario West Shore Ry., recently sued J. W. Moyes, the engineer responsible for the construction, for the non-fulfilment of a contract. On the case coming before the courts, Jan. 10, it was announced it had been settled out of court.

The Montreal & Southern Counties Ry. will be in the market shortly for eight cars, including motors and trailers, six motor freight cars and six motor flat cars for carrying building material. As soon as it electrifies the Central Vermont Ry.'s St. Lambert-Waterloo branch, which it is leasing, it will require more cars and some electric locomotives.

The Montreal Recorder recently dismissed the action of the city council against the Montreal St. Ry., for overcrowding its cars, and in doing so, stated that the company warned the city of the state of congestion three years ago, and the city has done nothing to alleviate it, and added that the city was suing the company for a state of things for which the city itself was responsible.

The Winnipeg city council has abolished the position of city inspector of street railway service on the ground that no results are following the regular inspection of equipment and service. It was stated that during the past year, the points made by the inspector had received little attention from the company, and it was considered that the service would be the same whether the inspector was on duty or not.

The Hamilton St. Ry. has ordered from the Ottawa Car Co. nine double truck cars, of which the following are the chief particulars:—

Length over end sills	50′ 0″
Length of rear vestibule	6′ 0″
Length of front vestibule	6′ 0″
Length over all	43′ 0″
Width over side sills	7′ 8″
Width at belt rail	8′ 2″
Seats	Longitudinal.
Upholstering	Rattan.
Inside finish	Cherry.
Seating capacity	44

The Winnipeg city council has sent an account to the Winnipeg Electric Ry., for $2,552.47, which includes a claim for taxes on some cars on which a tax has not yet been paid, and also amounts covering the cost of repairs to breaks to water mains alleged to have been caused by electrolysis, due to electricity escaping from the company's rails. The company repudiates the claim, stating that every reasonable precaution has been taken to guard against electrolysis, and that the city is charging for breaks in mains, whether that was the cause or not. The city solicitor has intimated that unless the company agrees not to take advantage of the statutory limitations, the city will at once sue for recovery of the amount.

The Toronto Board of Control, Jan. 11, discussed the question as to whether the Toronto and York Radial Ry. should be given permission to lay double tracks in the centre of the road on the Metropolitan division, instead of a single track on the west side as at present. Objection was taken to this, as it was considered that no such permission should be given until an arrangement had been made with the Toronto Ry. for a single fare from the city to Mount Pleasant, which is reached by the Metropolitan Ry., operated by the Toronto and York Radial Ry. Co. The matter was dropped on the city engineer intimating that there was some talk of the C.P.R. elevating its tracks in the north part of the city, and if this were done, the crossing of the C.P.R. on the level would be obviated.

The case of J. McR. Selkirk and W. Simpson against the Windsor, Essex and Lake Shore Rapid Ry., to which W. Newman and A. J. Nelles had been added by an order of the court, came up before Justice Riddell at Toronto, Jan. 9. The plaintiffs claimed $1,000 under an agreement, for which consideration they were to cease all operations in support of the Essex and Kent Radial Ry. Co., or any other electric railway company in opposition to the W.E. and L.S.R. Ry., and to assist in procuring franchises from Leamington and Mersea. The action as against the company was dismissed, and judgment entered for the plaintiffs against the other two defendants, for the amount claimed. W. Newman and A. J. Nelles signed the agreement as President and Secretary of the company, the liability thus becoming a personal one, it being held that they had misrepresented themselves, being only provisional directors, as the company had not then been organized.

The Canadian Street Railway Association's Executive Committee had a conference with the Board of Railway Commissioners' Chief Operating Officer, A. J. Nixon, at Ottawa, Jan. 11, in reference to the proposed action of the Board to require the equipment of all electric cars with air brakes. The subject was discussed at considerable length, D. McDonald, President; J. Anderson, Vice President, J. E. Hutcheson, Ottawa, and C. B. King, London, presenting the Association's views. E. P. Coleman, Manager Railways Dominion Power & Transmission Co., and E. F. Serxas, Niagara, St. Catharines & Toronto, also specially represented their respective companies. The various companies have no objection to the equipment of double truck cars with air brakes, in fact nearly all such cars are now so equipped, but they object to the use of air brakes on light single truck cars and advanced a number of powerful reasons against such a proposal. It was decided that a series of tests of air and hand brakes be made, and the further hearing of the matter, which was fixed by the Board for Feb. 1, has been postponed to May 3.

Grading Operations at Lorne Park, Ont.—Some grading work is being done on and near the Electrical Development Co.'s power line right of way. Contracts for teams and men to work ploughs and graders were let to farmers in the vicinity of Lorne Park, some 15 miles from Toronto, early in Jan., but how much work is to be done or what it is for no one seems to know. The power right of way is understood to form the right of way for the Canadian Northern Ry. line from Toronto to Buffalo, and the route of the Hamilton Radial Ry.'s projected line to Toronto, comes in contact with it near Lorne Park. Whatever it is for the work is not regarded as being in the nature of real construction.

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Dominion Marine Association.

PRESIDENT, F. Plummer, Toronto; COUNSEL, F. King, Kingston, Ont.

Great Lakes and St. Lawrence River Rate Committee.

CHAIRMAN, E. E. Horsey, Kingston, Ont.
SECRETARY, Jas. Morrison, Montreal.

International Water Lines Passenger Association.

PRESIDENT, W. M. Lowrie, New York.
SECRETARY, M. R. Nelson, New York.

The Shipping Federation of Canada.

PRESIDENT, H. A. Allan, Montreal; MANAGER, AND SECRETARY, T. Robb, 526 Board of Trade, Montreal.

Northern Navigation Co. of Ontario, Ltd.

Following is the report for the year ended Dec. 31, 1909, presented at the annual meeting in Toronto, Jan. 25:—

"Navigation opened on Lake Superior on April 27 and the Georgian Bay on May 1, for the Company's steamers, which were about the same dates as in 1908. Our statement shows an increase of about $114,000 in gross receipts and $41,455 in net receipts, as compared with the previous year. This was accasioned by the addition of the steamers Hamonic and Waubic to our fleet, which increased the volume of our passenger business very materially. Last year eight steamers appeared in the balance sheet valued at $887,955. This year it shows a fleet of 10 steamers valued at $1,485,394. This difference is accounted for by the addition of two new steamers, the Hamonic and Waubic, which when fully completed will be valued at $550,000 for the former, and $58,000 for the latter. The amount spent on them up to this date is on the Hamonic $542,040, and on the Waubic $55,398.

"The gross earnings of the Company were $649,297.21 and the expenditure $505,202.65, which with the balance at the credit of profit and loss account last year of $49,637.09, leaves a balance of $193,731.65, less appropriation for President and directors of $2,740. Out of this amount your directors have made the following appropriations:—

Claims for 1908 paid in 1909	$2,490.47
Interest on renewal and insurance funds	3,299.16
Renewal fund	24,000.00
Repair and maintenance fund	10,000.00
Written off special improvement account	2,100.00
Interest on advances	10,460.36

and dividend at the rate of 8% per annum, amounting to $80,000, leaving a balance to be carried forward at credit of profit and loss account of $58,641.66. The reserve funds now stand as follows:—

Renewal account	$94,440.78
Marine insurance fund	16,202.31
Profit and loss credit	58,641.66
Total	$169,284.75

The percentage of expenses of gross earnings (not including claims paid for previous years) are as follows:—1903, 94.16%; 1904, 89.71%; 1905, 80.73%; 1906, 77.73%; 1907, 77.63%; 1908, 80.73%; 1909, 77.80%.

The steamer Hamonic, which went into commission in June, 1909, between Sarnia, Port Arthur, Fort William and Duluth, has proven herself to be a very successful venture, and she is admitted to be by the general travelling public what was claimed for her in our last report. The steamer Waubic, which was constructed last year to operate on the Midland-Penetang-Parry Sound route is in the same class as the Hamonic for the traffic she was intended, and has fully come up to our expectations in speed and adaptability.

The company's steamers sailing from Sarnia to Lake Superior ports consume about 20,000 tons of coal each year, on which the cost of handling at their docks at Point Edward was 40c. per ton. Your directors, realizing the necessity for cheaper handling of fuel, have built at Point Edward (three miles from Sarnia) a fuelling plant which shows a saving of 25c. per ton in the cost of handling, in addition to saving about four hours' time each trip of each steamer in obtaining her coal.

Your directors being anxious for as many of the shareholders as possible to inspect the company's property propose to offer this year a reduction of 20% off the regular passage rates for any shareholder of record May 15 and any members of their family travelling with them, for one one-way or round trip passage

P198 H. H. GILDERSLEEVE,
Manager Northern Navigation Co. of Ontario.

on any of the Company's steamers during June and July.

ASSETS

Ten steamers	$1,485,394.18	
Buildings and furniture	14,671.84	
Fuel and supplies	11,934.00	
Insurance unexpired	17,592.78	
Accounts receivable	53,603.96	
Stocks and bonds	1,500.00	
Bills receivable	2,000.00	
Repair and maintenance	10,937.54	
Special improvement account	4,300.00	
Fuelling plant	19,226.38	
		$1,621,160.68

LIABILITIES

To Shareholders:		
Capital stock	$1,000,000.00	
Renewal fund	94,440.78	
Marine insurance fund	16,202.31	
Profit and loss	58,641.66	
Dividend	80,000.00	
To the public		
Bills payable	340,527.70	
Accounts payable	4,368.06	
Traders Bank of Canada	26,980.17	
		$1,621,160.68

PROFIT AND LOSS ACCOUNT

Balance from 1908	$49,637.09	
Appropriation for President and Directors	2,740.00	
		$46,897.09
Gross earnings of steamers	645,291.71	
Less total expenditure	505,202.65	
Net earnings of steamers	140,089.06	
Dividends on stocks and bonds	95.50	
Premium on stock sold	3,910.00	
Total net receipts for year		144,094.56
		$190,991.65

APPROPRIATIONS

To Shareholders:	
Dividend 8%	$80,000.00
Steamers' renewal fund	24,000.00
Interest on renewal fund $68,058.73 one year at 3½%	2,382.05
Interest on insurance fund $15,285.20 one year at 6%	917.11
Written off special improvement account	2,100.00
Appropriated for repair and maintenance account	10,000.00
Claims 1908, paid 1909	2,490.47
Interest on advances	10,460.36
Balance carried forward	58,641.66
	$190,991.65

The President in moving the adoption of the report said the new stock when issued would be offered first to the shareholders. A bylaw was passed fixing the President's salary at $1,500, five members of the executive committee at $300 a year each, and a director's fee of $10 for each meeting attended, with travelling and hotel expenses. The directors were unanimously re-elected, the current year's board being constituted as follows:—President, W. J. Sheppard; Vice President, H. Y. Telfer; Secretary Treasurer, C. E. Stephens; other directors, W. E. Davis, Hon. J. S. Hendrie, F. A. Lett, W. D. Matthews, H. B. Smith.

At a special meeting held immediately afterwards a bylaw increasing the capital stock from $1,000,000 to $1,500,000 was confirmed, the President stating that the new stock when issued would be offered first to the shareholders. Another bylaw changing the name to Northern Navigation Co., Ltd., was also confirmed.

Dominion Marine Association.

The annual meeting was held in Ottawa Jan. 27 under the presidency of C. J. Smith, Richelieu & Ontario Navigation Co.

The Vice President, H. H. Gildersleeve, declined election to the presidency owing to lack of time to devote to the duties. F. Plummer, Canadian Lake Transportation Co., was elected President; J. Playfair, Midland Navigation Co., First Vice President; and D. Murphy, Ottawa Transportation Co., Second Vice President.

The Executive Committee is composed as follows: Elected in 1909 for three years, two years yet to serve:—A. B. Mackay, Inland Navigation Co.; S. C. Calvin, Calvin Co.; J. W. Norcross, Mutual Steamship Co. D. Murphy was elected for the remaining two years in place of R. W. Shepherd, who has resigned from the Ottawa River Navigation Co. Elected in 1909 for two years, one year yet to serve:—H. H. Gildersleeve, Northern Navigation Co.; L. Henderson, Montreal Transportation Co.; F. Plummer, Canadian Lake Transportation Co.; J. Playfair, Midland Navigation Co. The following were elected for three years at the recent meeting:—H. W. Richardson, H. W. Richardson & Sons; J. P. Cavanagh, Ogdensburg Transportation Co.; W. F. Wasley, Muskoka Lakes Transportation & Hotel Co.; G. B. Green, Upper Ottawa Improvement Co.

A bill providing for the placing of a load line on vessels trading in Canadian waters was given a first reading in the House of Commons, Nov. 18.

The Prince Rupert Sand and Gravel Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $50,000, to operate sand and gravel quarries, and in connection therewith, to own and operate steam and other vessels, wharves, docks, &c., and to carry on the businesses of general trader, shipowner and carrier by land and water.

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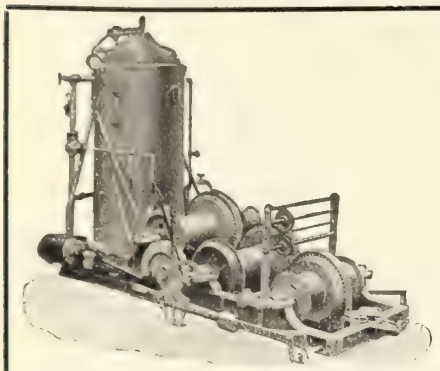

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Niagara Navigation Co., Ltd.

Following is the report for the year ended Nov. 30, 1909, presented at the annual meeting in Toronto, Jan. 11:—

The purchase of the dock at Lewiston, referred to in the last annual report, has been completed, at a cost of $25,000, this sum being added to real estate and wharves account. The Company now owns a landing place at each of its Niagara River ports of call. The cost of restoring and improving the wharves damaged by the ice jam last spring has been charged against operating expenses for the year. This, with the inconvenience caused by obstruction to navigation early in the season, accounts for the reduction shown in net earnings. The steamers and all the Company's property have been fully maintained. An opportunity is now open to the Company to obtain the ownership of, or a controlling interest in, suitable dock property in Toronto, and your approval of the Board taking steps to secure this important advantage will be asked for. After providing for the dividend, interest on debentures, writing $25,000 off steamer values, and placing $5,000 to renewal and betterment fund, the balance to credit of profit and loss account stands at $133,714.02.

ASSETS.

Steamers		$859,725.33
		$834.725.33
Less written off	25.000.00	
Real estate, wharves, etc.		75,000.00
Accounts receivable		1.835.56
Cash in Dominion Bank		93,527.59
		$1,005,088.48

LIABILITIES

Capital stock authorized. $1.000 000.00		
Subscribed and paid		$701 700.00
Debentures outstanding 4½%	122,000 00	
Accrued interest on same	2,287.50	
		124.287.50
Reserve for renewals and betterments		15,000.00
Accounts payable		2,318.96
Dividend 4% payable Jan. 3, 1910..		28,068.00
Balance at credit of profit and loss..		133,714.02
		$1,005,088.48

PROFIT AND LOSS ACCOUNT.

Balance Dec. 1, 1908		$133,394.48
Net earnings for year		91,956.79
		$225,351.27
Interest on debentures		$5,501.25
Written off steamers		25,000.00
Reserve for renewals and betterments.		5,000.00
Dividend 4% paid July 2, 1909	$28,068.00	
Dividend 4% payable Jan. 3, 1910	28,068.00	
		56,136.00
Balance carried forward		133.714.02
		$225.351.27

Note.—The net earnings in 1908 were $102,510.28, against $91,956.79 in 1909.

The shareholders authorized the directors to acquire the Yonge St. wharf, hitherto leased by the Richelieu and Ontario Navigation Co., and which had already been purchased from the Freeland Estate by the President, E. B. Osler. It was also intimated at the meeting that the company has acquired a dock at Youngstown, N.Y., opposite Niagara-on-the-Lake.

Following are the officers and directors for the current year:—President, E. B. Osler; Vice President, F. B. Cumberland; other directors, Hon. J. J. Foy, C. Cockshutt, J. B. Macdonald, W. D. Matthews, Hon. J. S. Hendrie.

G.T.P.R. S.S. Prince Rupert.

The s.s. Prince Rupert, which was launched at Wallsend-on-Tyne, Eng., Dec. 19, has been built specially to meet the requirements of the Pacific Coast service. When completed, she will present a smart appearance, with straight stem and cruiser stern. There will be two pole masts and three funnels, the centre one bearing the flag device of the company, a maple leaf in a circle traversed by a band bearing the initials G.T.P. The rounded cruiser stern has been adopted in order to obtain the best lines to give a high speed. In service she will run at 17 to 18 knots an hour, though she may be run at 19 knots an hour. The principal dimensions are: length over all, 320 ft.; breadth, 42 ft. 2 in.; depth, to main deck, 18 ft. She is being built to the highest class under the British Corporation Survey and will also comply with the Board of Trade regulations for passenger steamers. Her gross tonnage will be about 2,859 tons. The machinery will consist of two sets of triple expansion engines balanced on the latest improved systems, ensuring smooth and steady running and the reduction of vibration to a minimum. The accommodation will consist of staterooms, each of two berths, for 220 first class passengers, on the shelter and shade decks, with a few staterooms en suite placed amidships on the shelter deck. Second class passengers will be carried on the main deck forward, and when occasion arises, 1,500 excursionists can be taken aboard. The dining saloon on the main deck is placed at the extreme after end of the vessel, the rounded shape of the cruiser stern making an extremely handsome room, which will be furnished and panelled in oak, the tables being small and placed in bays. The smoking room, at the after end of the shade deck will be furnished and panelled in fumed oak. The music room will be decorated in white enamel and light colors. An observation room will be provided on the shade deck forward of the funnels. It wil be pannelled in maple and sycamore, and will be very lofty and well lighted by large square windows giving an uninterrupted view of the scenery en route. The vessel is being equipped with wireless telegraph installation, electric light, steam heating and complete refrigerating plant. The rudder is of the balanced type, wholly below the water line, and will be actuated by a telemotor steering gar.

Improvements at Port Colborne

The question of the cost of the improvements at Port Colborne, Ont., was raised in the House of Commons, Jan. 17. The Minister of Public Works stated that the works, so far as they affected his department were complete but, eventually, the superstructure of the inner portion of the western breakwater, which was built of wood, would require to be renewed in concrete at an estimated cost of $250,000. The Department of Railways and Canals has represented to his department the advisability of constructing a spur from the western breakwater to the extermity of the Welland Canal, which would cost about $350,000, and the matter was under discussion. The construction of breakwaters had cost $905,057.82. And the Minister of Railways and Canals stated that $1,709,946.73 had been spent by his department on the work at Port Colborne since 1901, and the amount necessary to complete the works contemplated, not including the elevator, was $104,000. The main improvements made are:—deepening of the harbor and canal entrance to 22 ft., cost $870,602; building docks and piers, $816,571; building elevator siding, $36,707. The cost of the elevator and equipment was $817,737.94; it had a capacity of 800,000 bush., but it had been constructed in such a way as to provide for an extension to a capacity of 2,000,000 when justified by sufficient business. The elevator was first used Oct. 6, 1908; in that season 365,033 bushels of grain were handled, and in 1909 there were handled 1,747,550 bush. The cost of operating the elevator in 1909 was $19,310.24, and the revenue was $9,477.

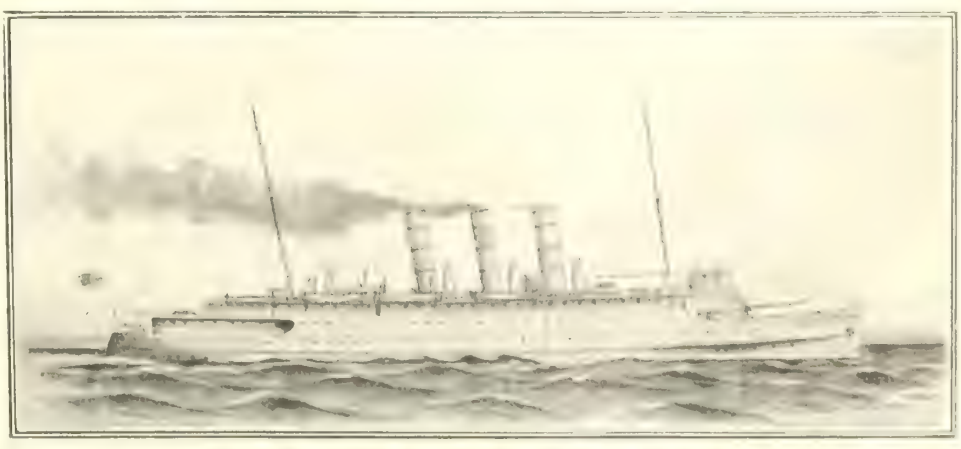
In connection with the Port Colborne improvements and the question of deepening the Welland Canal the Minister of Railways stated Jan. 17, in reply that $20,000 had been expended upon surveys to ascertain the most desirable route for a possible new canal or enlargement of the old canal. These surveys are not yet completed and it is estimated that $25,000 will be required to complete them.

The Montreal, Ottawa and Georgian Bay Canal Co. is applying to the Dominion Parliament for an Act repealing sections in its Acts of 1896 and 1898, and adding a new paragraph to sec. 8 of the Act of 1894, defining the route of the proposed canal as follows: From the River St. Lawrence near Montreal, by way of the Ottawa River, Mattawa River, Lake Talon, Turtle Lake, Trout Lake, Lake Nipissing and the French River, or any of the branches or tributaries of these rivers, with such deflections as may be necessary to overcome obstacles to navigation, to the navigable waters of Georgian Bay. Authority is asked to increase the number of directors from 15 to 25, the minimum number to be nine, instead of eight, as heretofore; and it also asks an extension of time within which it may construct the canal. The rights of the Government of Canada secured by sec. 5, Chap. 128, of the statutes of 1906, are not to be affected or impaired by anything in the new Act.

Maritime Provinces and Newfoundland.

The St. John's, Nfld., pilots have chartered Job Bros.' steam tug Tommy for their use until a steam pilot boat can be purchased.

The Newfoundland Government received tenders Jan. 15, for the mail service for the districts of Fogo and Fortune Bay. For the former service the steamer



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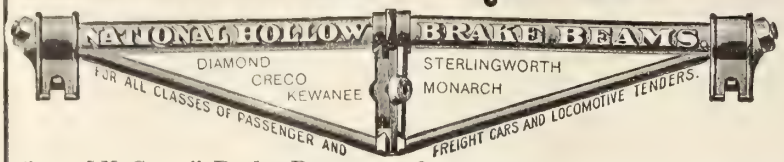

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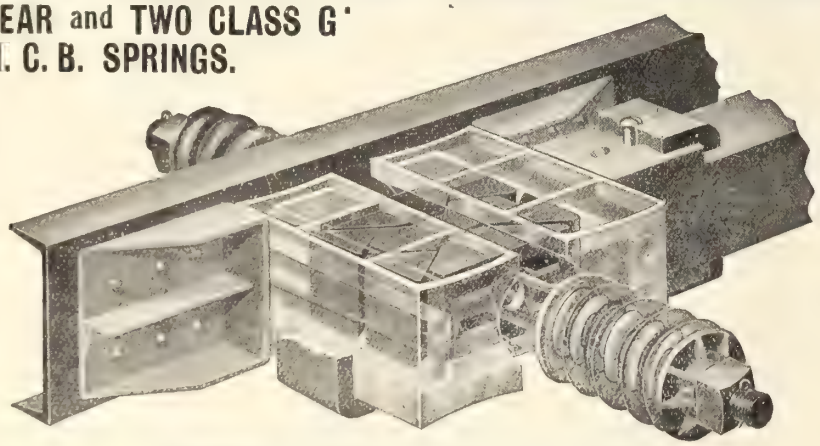

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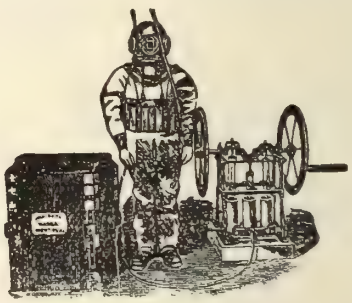

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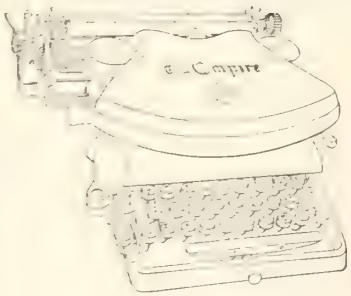

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desired is to be between 120 and 150 tons, and for the latter service, from 80 to 100 tons.

The annual meeting of the St. John, N.B., Pilot Commissioners was held, Jan. 7. During 1909, 336 British and 239 foreign vessels were liable to pilotage dues, from which there was collected $29,974.61 British and $8,262.86 foreign, total $38,237.41. There are 24 pilots on the active roll, two under superannuation, and 11 widows are being provided for out of the funds.

Bruce Stewart and Co. are applying to the P.E.I. Legislature for incorporation, to carry on the business of engineers, ship owners and contractors for the construction of boats, bridges, elevators, railways, wharves, etc., and in connection therewith to own and operate steam and other vessels. The applicants are, B. Stewart, A. McNair, C. L. McKay, F. R. Heartz, Charlottetown and J. McLean, Souris, P.E.I.

The question of the formation of a company to build a vessel for operation between Fredericton and Woodstock, N.B., is being considered. It is proposed to have a vessel about 80 ft. long, with 18 ft. beam, equipped with two gasolene engines of 50 h.p. each, and with an adjustable stern wheel, for about 21 ins. wrought, at an estimated cost of $7,000. W. E. Vaughan, Fredericton, N.B., is interested in the matter.

In our last issue it was stated that the Dominion Iron and Steel Co., was reported to have ordered two vessels for its ore carrying trade. We are advised that two vessels are being built in Great Britain, specially adapted for the ore carrying trade, for cargoes of not less than 10,500 tons each on a maximum draught of 25 ft. They will have an average speed of 10 knots an hour, and dimensions, length overall, 452 ft., breadth, 58 ft. They will be operated by the Dominion Iron and Steel Co., under charter for the ore carrying season only, say from May to Nov., inclusive.

Province of Quebec Marine.

The s.s. Turret Bell was libelled, Jan. 11, at the instance of a firm of Levis merchants, who are suing for the supply of necessaries. The Turret Bell was wrecked about three years ago at Prince Edward Island, and was raised last fall, and was berthed at Levis for the winter.

The annual meeting of the Fraserville Navigation Co. was held at Riviere du Loup, Dec. 31, 1909. Following are the officers and directors for the current year:—President, J. Hamel; Vice President, L. Fortin; other directors, Messrs. Lacombe, Charette and Aubin; Manager, G. St. Pierre. G. G. Grundy, General Manager Temiscouata Ry., who was Vice President of the company at its inauguration, resigned last summer, and has not since been connected with it.

The Quebec Harbor Commissioners are taking action against the estate of the late E. Dussault and the President of the Legislative Council of the Province for the recovery of certain beach lots near the mouth of the St. Charles River. The Commissioners claim to have a title to these lots under the Statutes passed before Confederation, and it is anticipated that an interesting controversy will arise between the Federal and Provincial Governments as to the disposition of beach lots in the Quebec harbor.

La Compagnie de Navigation des Pelerinages has been incorporated with a capital of $90,000 and office at Montreal, to carry on the business of general carriers of passengers and freight on the rivers and lakes of Canada, and in connection therewith to construct, acquire and operate steam and other vessels. The provisional directors are: J. C. Desautels, E. A. Marchildon, J. Beaulac, O. Brunet and J. A. Parent, Montreal. It is anticipated that the company will acquire or lease either one or more vessels for the operation of a service between Montreal, Cap Magdelen and Ste. Anne de Beaupre during the summer months in connection with pilgrimages from points in Quebec, Ontario and the U.S. to the shrine at Ste. Anne de Beaupre.

Ontario and the Great Lakes.

Capt. A. Muir, a well known lake mariner and shipbuilder of Port Dalhousie, died there Jan. 2, aged 91.

The St. Clair and Erie Ship Canal Co.'s bill was read a second time in the House of Commons, Jan. 18.

LIST OF STEAM VESSELS REGISTERED IN CANADA DURING DEC., 1909.

Name	No.	Where and When Built.	Engines, etc.		Length	Breadth	Depth	Tons Gross	Tons Net	Port of Registry	Owners
Alice R	126,290	The Range, N.B., 1909.	Screw	40 n. h. p	44.7	18.0	6.6	75	51	St. John, N.B.	A. B. and W. S. Ruddock, St. John, N.B.
Amappah	126,689	Montreal, 1909	"	7 "	31.2	10.9	7.6	29	18	Montreal	J. W. Duncan, Montreal.
Atlalautk	126,612	Hartley Bay, B.C., 1909	"	1 "	31.5	8.0	3.3	9	6	Prince Rupert, B.C	C. A. G. Robinson, Hartley Bay, B.C.
Charles Lemcke	125,058	Lion's Head, Ont., 1909	"	26 "	92.0	17.6	9.1	101	69	Owen Sound, Ont.	Lemcke Tug Co., Lion's Head, Ont.
Chemainus	126,500	Chemainus, B.C., 1909	"	40 "	93.4	22.0	9.8	153	71	Victoria	Victoria Lumber and Mfg. Co., Victoria, B.C.
Derry	126,056	Canoe Cove, P.E.I., 1909	"	2 "	38.4	9.2	3.9	6	3	Charlottetown, P.E.I	J. T. Inman, Canoe Cove, P.E.I.
Heathcote	129,040	Sunderland, Eng., 1898.	"	210 "	300.0	42.2	20.2	2345	1595	Sydney, N.S.	H. McInnes, Halifax, N.S.
Lutin	126,691	Montreal, 1907	"	1 "	21.6	7.7	1.0	1	1	Montreal	A. Decary, Montreal.
MacKelvie	125,260	Campbellton, N.B., 1909	Paddle	1 "	60.0	15.0	4.6	44	22	Chatham, N.B.	W. H. Miller, Campbellton, N.B.
*Minorn	126,602	Baltimore, U.S., 1904.	Screw	45 "	95.0	20.6	9.5	141	77	Chatham, N.B.	R. Loggie, M.O., Loggieville, N.B.
†Reliable	126,693	Wilmington, U.S., 1901.	"	68 "	90.0	23.0	11.0	192	99	Chatham, N.B.	R. Loggie, M.O., Loggieville, N.B.
Somono	126,636	Steveston, B.C., 1909	"	2 "	35.3	7.8	3.9	10	7	Vancouver, B.C.	A. Mearns, Vancouver, B.C.
Stoddart	125,05-	Manitowaning, Ont., 1909.		2 "	45.0	12.0	4.0	11	7	Owen Sound, Ont.	Rixon, Ainslie, Stoddart, Co., Owen Sound, Ont.
Troilene	126,277	New Westminster, B.C., 1909	Screw	14 "	36.9	8.0	1.8	7	5	New Westminster B.C.	J. P. H. Bole, New Westminster, B.C.

*Formerly Lurcher. †Formerly American.

LIST OF SAILING VESSELS AND BARGES REGISTERED IN CANADA DURING DURING DEC., 1909.

Name	No.	Where and When Built		Tons Gross	Length	Breadth	Depth	Tons Net	Port of Registry	Owners
A. M. 7	125,633	Vancouver, B.C., 1909	Scow	72.0	58.0	30.0	7.0	135	Vancouver, B.C.	R. Armstrong, Vancouver, B.C.
A. B. Barteaux	117,169	Canning, N.S., 1909	Schr.	145.0	35.0	12.5	8.8	208	Windsor, N.S.	W. H. Baxter, M.O., Canning, N.S.
A. F. Davison	126,017	Annapolis Royal, N.S., 1909	"	171.9	36.0	12.9	10.3	203	Annapolis Royal, N.S.	A. D. Richard, M.O., LaHave, N.S.
A. Miellette	126,688	St. Anne de Sorel, Que., 1909	Sloop	89.3	22.6	6.5	7.9	79	Montreal	A. Miellette, St. Anne de Sorel, Que.
Alice Mattatall	103,808	Tatamagouche, N.S., 1909	Schr.	56.4	17.6	6.1	4.6	46	Pictou, N.S.	H. Mattatall et al, Tatamagouche, N.S.
C.P.R. No. 1	126,507	Vancouver, B.C., 1909	Barge	120.0	30.0	8.5	8.5	252	Victoria	C. P. R. Co., Montreal.
Cluaran Beag	126,565	Ingonish, N.S., 1909	Schr.	41.0	14.5	6.0	4.8	18	Sydney, N.S.	J. E. McLeod, Ingonish, N.S.
Dombrico No. 2	126,692	Lachine, Que., 1909	Scow	87.3	60.8	30.1	8.1	373	Montreal	Dominion Barging Co., Lachine, Que.
Dump Scow No. 320	126,696	Coteau, Que., 1897	"	79.3	20.9	6.7	6.0	90	"	G. de Serres, Montreal, Que.
Dump Scow No. 322	126,697		"	79.4	21.0	6.7	6.0	90		
Dump Scow No. 323	126,698	"	Barge	54.3	13.9	3.7	3.7	15		
E. C. No. VIII	126,635	Vancouver, B.C., 1908	Scow	97.7	24.0	6.0	6.0	68	Vancouver, B.C.	E. C. Co.
G. D. No. 1	126,695	Grenville, Que., 1903	Barge	75.8	18.1	4.2	4.2	45	Montreal	G. Dansereau, Grenville, Que.
Invader	*126,604		Dred.	75.0	30.0	7.0	7.0	147	Chatham, N.B.	R. Loggie, M.O., Loggieville, N.B.
J. B. Young	126,584	Lunenburg, N.S., 1909	Schr.	107.2	26.3	10.2	8.0	100	Lunenburg, N.S.	J. B. Young, M.O., Lunenburg, N.S.
Jack Canuck No. 3	126,652	Midland, Ont., 1909	Dred.	63.0	24.2	6.0	5.0	113	Midland, Ont.	[illegible]
Joseph Doucet	116,689	Jardineville, N.B., 1909	Schr.	34.6	11.6		3.0	10	Richibucto, N.B.	A. Doucet, Jardineville, N.B.
L. 7	126,605	Loggieville, N.B., 1909	Barge	74.0	22.6	6.0	6.0	112	Chatham, N.B.	R. Loggie, M.O., Loggieville, N.B.
L. 8	126,606	"	"	74.0	22.6	6.0	6.0	112		
Loze	126,601	Caraquet, N.B., 1909	Schr.	35.0	11.5			13		E. Cormier, Upper Caraquet, N.B.
Shiloh	126,472	Tancook, N.S., 1909	"	46.2	12.6	9		23	Halifax, N.S.	M. Hartie, Terrence Bay, N.S.
W. C. & St. M. No. 2	126,693	Chateauguay, Que., 1909.	Scow	98.3	17.8	8.3		48	Montreal	W. Crepin, and O. Ste. Marie Chateauguay, Que.
W. C. & St. M. No. 3	126,694	"	"	32.0	16.5	4.0		24		
Wilfrid M	126,583	Lunenburg, N.S., 1909	Schr.	116.9	30.0	9.8		109	Lunenburg, N.S.	Wilfrid M. Co., Lunenburg, N.S.

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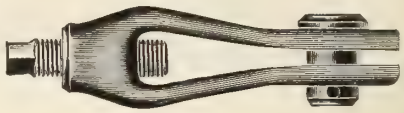

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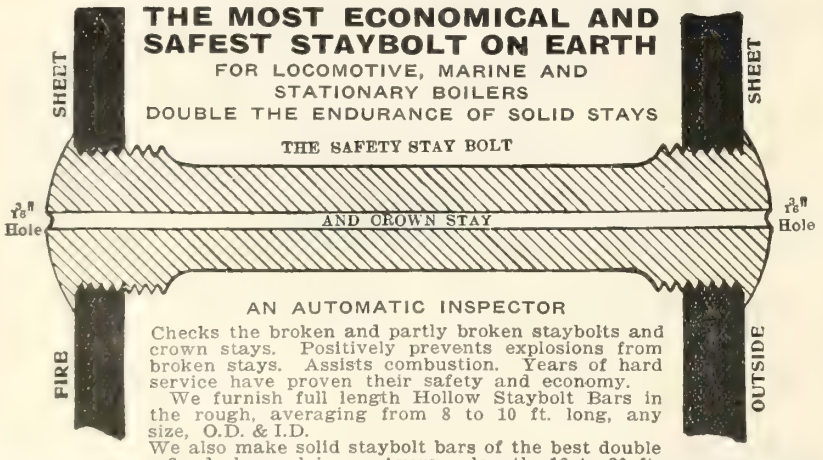

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During 1909 2,939 vessels arrived at Toronto, having a total tonnage of 1,480,293, against 3,430 vessels, with a tonnage of 1,521,165 in 1908.

The Fort William City Council is asking the Ontario Legislature, among other things, for power to raise $525,000 for the construction of a subway and dock.

The Inland Revenue Department is receiving tenders to Feb. 7, for the privilege of ferrying across the Ottawa River from Pembroke, Ont., to Allumette Island, Que., for five years from May 1.

J. MacEdward, purser of the C.P.R. s.s. Assiniboia, was presented with a gold locket, a cane and an arm chair, at Owen Sound, recently, on his retiring on superannuation after 23 years' service.

The Northern Transport Co., Ltd., has been chartered under the Ontario Companies Act., with a capital of $40,000 and office at Toronto, to carry on the businesses of general carriers and forwarding agents.

The International Waterways Canal and Construction Co. is the title of a company for the incorporation of which the Dominion Parliament is being asked to pass an authorization act. G. A. Graham, Fort William, Ont., is one of the provisional directors.

Considerable progress has been made with the preparatory work of construction on the site of the dry dock at Port Arthur. A number of teams are at work, and the crib work and filling has been extended out about 500 ft. Work will be continued throughout the winter.

The Toronto Board of Control has under consideration an application from the Polson Iron Works, Ltd., Toronto, for the purchase of about 50 acres in Ashbridge's Bay for the construction of a dry dock and shipbuilding plant. It is stated that the company is willing to pay $1,000 an acre.

The Porcupine Transportation and Trading Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $40,000 and office at Cobalt, to acquire and operate steam and other vessels for the carrying of passengers and freight and to carry on a general transportation business.

The International Dredge and Dock Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $50,000 and office at Toronto, to carry on a general dredging, dock and contracting business, and to own and operate steam and other vessels. The provisional directors are: W. A. Lydon, W. Cahill and H. C. Wild, Chicago, Ill.

The Montreal and Lake Erie Steamship Co. has purchased the steamboat Japan in the U.S., which it proposes to transfer to the Canadian register under the name City of Hamilton. She will be operated in conjunction with the company's other vessels, the City of Montreal and the City of Ottawa, under the management of G. E. Jaques and Co., Montreal.

The U.S. Lake Survey reports the levels of the Great Lakes in feet above tidewater, for Dec., 1909, as follows:—Superior, 602.29; Michigan and Huron, 580.08; Erie, 571.41; Ontario, 245.21. Compared with the Dec. average for the previous 10 years, Superior was 0.40 ft. below; Michigan and Huron, 0.21 ft. below; Erie, 0.29 below; and Ontario, 0.07 below.

The International Steamship Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $20,000 and office at Toronto, to build, acquire and operate steam and other vessels, wharves, docks, etc., and to cooperate with other companies. The provisional directors are: H. Munderloh, C. Byrd, Montreal; D. A. Gordon, Wallaceburg, Ont.; C. Renfret and R. Bell, Montreal.

Local press reports state that V. P. Baumb is about to submit a proposal to the London city council for the dredging of the River Thames to Springbank, in return for the sand and gravel rights for five years. He intends to build a dredge at a cost of about $7,000, and is prepared to dredge the river to a reasonable depth, after which, it is stated, it is the intention to operate a passenger boat there.

The Fort William Ice and Fuel Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $40,000 and office at Fort William, to carry on a general land, building and ice business, and in connection therewith to build, purchase or otherwise acquire and operate steam and other vessels, wharves, docks, warehouses, etc. The provisional directors are: C. W. Jarvis, H. J. and J. E. Swinburne, Fort William.

The Colonial Transportation Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $100,000 and office at Toronto, to construct, own and navigate steam and other vessels, to carry on the business of common carrier of passengers and freight, and to enter into agreements with other similar companies. The provisional directors are: A. M. Boyd, M. P. Arnold, M. McPhee, R. B. Henderson and W. W. Sloan, Toronto.

Application is being made to the Dominion Parliament to incorporate the Morrisburg Ferry and Dock Co., with power to construct, acquire and operate a ferry service on the St. Lawrence River, for passengers, cars and freight, between Morrisburg and some point in New York State, and with power to build docks, wharves, slips, and a railway to connect with the G.T.R. or any other railway within the Morrisburg municipality. I. Hilliard, Morrisburg, is solicitor for applicants.

Capt. G. C. Coles on his return to Collingwood from Port Burwell, where he had been investigating the causes of the grounding of the car ferry Ashtabula, is reported to have stated that he will recommend the construction of a breakwater off the piers there, to make the port safe at all times. The cost of such work is estimated at $20,000, and its construction would render unnecessary the dredging which has to be done every summer to clear the sand from the mouth of the harbor.

The Hamilton Ferry Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $40,000 and office at Hamilton, to build, purchase or otherwise acquire and operate steam and other vessels, and carry on a general transportation and inland navigation business, etc., and to acquire the undertaking of the Hamilton Ferry Co., under agreement of Dec. 6, 1909. The provisional directors are: J. A. and H. W. Woodman, J. Freeborn, O. W. Gibb, J. Chisholm, Hamilton, Ont.

The Algoma Central Steamship Line has sold its steamboat King Edward to A. E. Thomson, Cleveland, O., who is stated to be interested in the steamboat service which press reports state the London and Erie Transportation Co. will operate in connection with the Southwestern Traction Co., recently acquired. The Algoma Central Steamship Line will not have any passenger boats in operation during the forthcoming season, and it is unlikely that it will undertake any passenger business in the future, although the freight service will be continued as heretofore.

The Detroit, Belle Isle and Windsor Ferry Co. has placed an order in Toledo, Ohio, for the construction of an excursion passenger steamer, for delivery in June. Following will be the dimensions:—length over all, 196 ft.; length between perpendiculars, 181 ft.; breadth of hull molded, 50 ft.; breadth on guards, 62 ft.; depth molded, 17 ft. 6 ins. She will be equipped with triple expansion engines, with cylinders 20½, 32 and 50 ins. diar., by 36 ins. stroke, supplied with steam by two cylindrical boilers, 13 ft. 2 ins. diar., by 12 ft. long, under 180 lbs. pressure, and fitted with forced draught. She will develop 1,800 h.p., and have a speed of 18 miles an hour when loaded. She will be licensed to carry 3,400 excursionists on the Detroit River.

Speaking at a political meeting in Ottawa recently Hon. C. Murphy, Secretary of State, said that a commission of five composed of a ship-owner, a banker, a business man or manufacturer, an engineer, and one other, to report on the commercial feasibility of the Georgian Bay Canal as a preliminary step to its construction by the Government. Sir Wilfrid Laurier also spoke in favor of the construction of the canal, intimating that he would like to have the name of his Government connected with the enterprise. He said that the deepening of the Welland Canal was also a necessary project that must be undertaken in the near future in order to provide an outlet for the rapidly-growing export traffic from the west, which in a few years must include at least six hundred million bushels of wheat for export, and which would be sufficient to tax every possible outlet.

The Richelieu and Ontario Navigation Co. has secured the incorporation of a subsidiary company to be known as the Richelieu and Ontario Navigation Co. of the United States, for the operation of its new vessel the City of Rochester. Next season, this vessel will make three trips a week between Youngstown and Ogdensburg, N.Y., calling at Charlotte, Clayton, Frontenac and Alexandria Bay, N.Y., and Prescott, Ont., connecting at the last named place with the rapids steamboat for Montreal. On the up trip, Prescott will not be called at, the stops between Ogdensburg and Youngstown being Alexandria Bay, Frontenac, Clayton and Charlotte. The press reports that the company would operate between United States ports under the title of the International Inland Navigation Co., to which we called attention in our last issue, are incorrect.

The Richelieu and Ontario Navigation Co., has leased the Geddes wharf, Toronto, which will probably be used also by the Hamilton Steamboat Co.

B.C. and Pacific Coast Marine.

Press reports from Victoria state that the survey ship Egeria will be sold out of the service in 1911.

The British Columbia sealskin catch for the past year was 3,552 skins taken by five vessels, the average per vessel being good, but the total catch, owing to the smallness of the fleet engaged, was the smallest on record.

The Empire Stevedoring Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $100,000, to carry on a general stevedoring business; to acquire any existing business having the same objects; to build, purchase or otherwise acquire and operate steam and other vessels, and to carry on a general steamship business.

The Gulf of Georgia Towing Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $25,000, to acquire the tug, scow and business of A. R. Best, Vancouver, to own and operate steam and other vessels, to carry passengers and freight, and to carry on a general business as vessel owners, forwarders and warehousemen.

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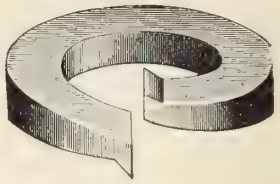

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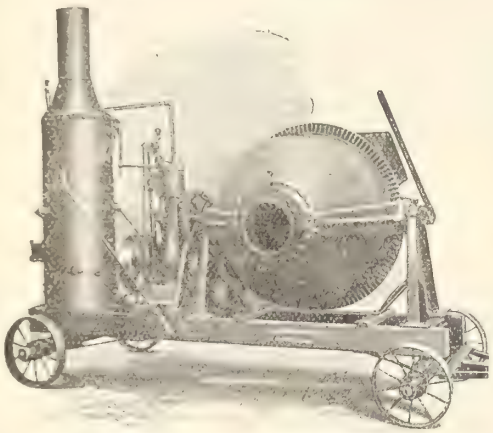

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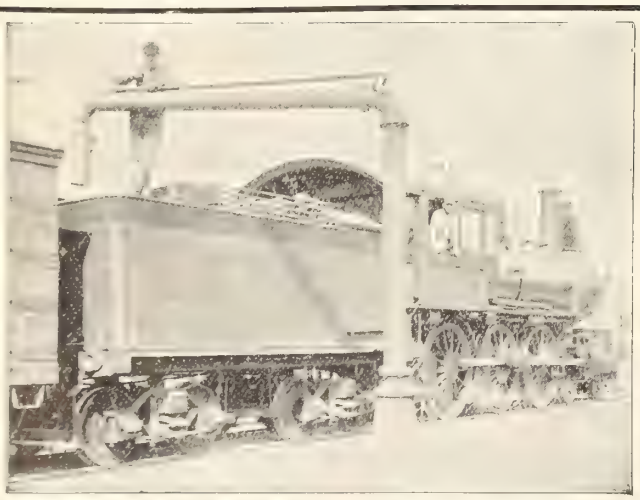

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The steamboat Strathcona, which was recently wrecked on the Fraser River, has been abandoned after having been raised, as she is not considered to be worth repairing. She was built in 1898 at Vancouver; her dimensions were: length, 142.4 ft.; breadth, 30.4 ft.; depth, 4 ft.; tonnage, 596 gross, 376 register. She was equipped with engine of 17 n.h.p. driving a paddle.

At the annual meeting of the New Westminster Pilot Board, Jan. 3, it was reported that 17 ocean going steamships and three sailing vessels came up the Fraser River during the 10 months ended Dec. 31, 1909. The pilotage fees received were $1,350, a considerable increase over the previous year. The proposal that the pilots of New Westminster, Vancouver, Nanaimo and Victoria, be placed under the control of a general board with headquarters at Williamshead, near Victoria, was discussed and rejected on the ground that a general pilot station at the point named, where pilots would take vessels in regular turn, would be impracticable, as pilots taking vessels to New Westminster require to have special knowledge of the Fraser River, and keep in touch with its constantly changing sandbars.

Atlantic and Pacific Ocean Marine.

The Canadian-Australian Steamship Co.'s s.s. Makura has been equipped with a wireless telegraph installation.

The Donaldson Line is reported to have purchased the s.s. Raglan Castle, and to have renamed her Pythia, to replace the wrecked s.s. Hestia.

Canadian Northern Steamships, Ltd., is reported to have made application to the Mersey Dock and Harbor Board, Liverpool, Eng., for berthing accommodation there.

European press reports state that the Italian Government will subsidize a new steamship line for the maintenance of a fortnightly service between Naples and Montreal.

The s.s. Germanicus chartered by the Dominion Iron and Steel Co., sailed from Sydney, N.S., early in Jan., with a further consignment of rails for the G.T.P.R., for Prince Rupert, B.C., by way of Cape Horn.

The C.P.R. s.s. Empress of Ireland is scheduled to sail from Liverpool, Eng., Feb. 11 for St. John, N.B., on her first trip after being overhauled in consequence of the accident she had near Matane last fall.

The Donaldson Line s.s. Saturnia was launched recently at Glasgow, Scotland, and is scheduled to sail on her maiden trip, from Glasgow, June 11, and will be due at Montreal, June 20. She has been constructed more especially for the third class passenger trade, with accommodation for 1,000.

The contract entered into for the transportation of goods from Canadian Pacific ports to Canadian Atlantic ports, via the Tehuantepec route, to which Elder-Dempster Co. forms a party, prohibits that company under penalty of cancellation and forfeiture of bonds from carrying cargo between Mexican Gulf ports and Europe by way of Canada.

Press reports of Jan. 1, emanating from the U.S., stated that the Dominion Government had purchased the British cruiser Rainbow, as the first vessel for the proposed navy. On a subsequent date, the Premier stated that no vessels had been purchased, but negotiations, with that end in view, were proceeding with the British Government.

D. Campbell, local manager Elder-Dempster Co., Montreal, on his return from Ottawa, Jan. 7, stated that the Australia and New Zealand Governments had promised subsidies for the service proposed to be operated by his company between the St. Lawrence and the Antipodes, by way of South Africa, and the Canadian Government had promised that the matter would have its early attention.

With reference to the remarks made at the recent launching of the s.s. Prince Rupert for the G.T.P.R., in England, as to that company's intention in connection with its proposed Atlantic steamship service, we are officially advised that there is no change in the present position of the company in regard thereto, and although it is possible that such a service will eventually be established, no immediate change is contemplated.

Judgment was recently pronounced in Glasgow, Scotland, against the Allan Line for £184 19s 5d, being the amount of loss in respect of damage to a cargo of flour between New York and Glasgow, on the s.s. Corinthian, and £17 6s 11d for short weight. It was held that the ocean bill of lading, to which the through export bill of lading is subject, charged the defenders with the receipt of the flour in apparent good order and condition, except in so far as they notified the inland carriers that 110 bags was the contrary. On the arrival of the cargo at Glasgow, the consignees were advised that 4,123 bags were caked, and the defenders had failed to prove that the caking of the 4,022 bags did not arise on board the Corinthian, or in their custody.

The Vice President of the International Mercantile Marine Co. has confirmed the statement that a portion of the Canadian service will be discontinued for the forthcoming season, unless arrangements can be made for a Government subsidy. It is stated that the St. Lawrence service is unprofitable, and that the deficit on the year's operations of $1,729,983 is in part due to that fact. Negotiations are in progress regarding a subsidy, and should these not be successful, it is probable that the Laurentic and Megantic, the two vessels constructed last year for the Canadian trade in the summer and the New York trade in the winter, and operated under the White Star-Dominion Line, will not again be placed on the St. Lawrence route.

Dry Docks Harbors, Etc.

The total expenditure incurred by the Department of Public Works during the financial year ended March 31 was $14,784,739.39, divided as follows: Capital, $1,867,316.01; income, $12,292,359.15; revenue, $625,034.23. Of this expenditure works on harbors and rivers absorbed $3,305,920.32; dredging, $4,547,773.43; slides and booms, $137,086.57. The revenue included $76,455.41 from slides and booms, and $60,505.16 from graving docks. The sources of revenue from graving docks were: Esquimalt, $20,583.36; Kingston, $10,693.84; Levis, $29,227.96.

The increase in the Canadian lake marine during the past few years has rendered absolutely necessary the construction of more and larger docks. With a view to encouraging private enterprise in this direction, an act was passed in 1903 whereby an annual subsidy of 3% for 20 years on the cost, not to exceed $1,000,000, might be paid to any company constructing a dry dock in accordance with plans submitted to and approved by the Department. In the session of 1908-09 an amending act was passed making such subsidy payable on a sum not exceeding $1,500,000. The first company to take advantage of the provisions of this act was the Vancouver Dry Dock and Shipbuilding Co., with which the department entered into an agreement May 31 last for the construction of a floating dock in Vancouver harbor, to be 486 by 66 ft., with a tonnage of 11,000. The dock will be constructed in England, and shipped in knockdown condition to Vancouver. Two other applications for subsidies are under consideration, one from the Sault Ste. Marie Dry Dock and Shipbuilding Co., and the other from the Thunder Bay Dry Dock and Shipbuilding Co., for the erection of a floating dock at Port Arthur. For some time the shipping interests have felt the need for a dock with thoroughly equipped repair plant on the lower lakes. The Kingston graving dock was constructed at a time when chartered companies would not build a dock. It has served its purpose up to the present, but of late years there has arisen a pressing demand for improved facilities. The United States docks and shipyards have absorbed a good part of the business which would naturally go to Kingston if a satisfactory repair plant were installed. It is felt that the time has come when a private company, if in control of this dock, by establishing a modern repair and shipbuilding plant, would satisfy the demands of the shipping trade on the lakes and canals. A proposition to lease the dock has accordingly been receiving most careful consideration with the result that it has been decided to call for tenders for a 21 years' lease, subject to the requirements of the Dry Dock Act and conditional on the establishment by the lessee of a suitable repair plant capable of taking care of the largest vessels which could be accommodated by the dock.

The expenditures on harbors and rivers during the year was $7,853,693.75, including dredging. Works of improvement, exclusive of dredging, have been carried on at 759 points, comprising the construction of wharfs, piers, breakwaters, dams, bridges, etc., and their repair and re-construction. At Fort William and Port Arthur, during the season of 1908, a total of 2,883,607 cubic yards of material were removed. A further contract was entered into last spring with the Great Lakes Dredging Co. for the excavation of a basin at the mouth of the Mission River, which will form the G.T. Pacific Ry. lake terminus. Around this basin a quay wall will be constructed, with the necessary slips for the accommodation of vessels receiving and discharging cargoes. Early this season, on representations from the Winnipeg Board of Trade, local boards of trade and business and railway interests, the question of the further deepening of the channel in the Kaministikwia and Mission rivers to 25 ft. was carefully studied, with the result that the work of increasing the depth and width of the channels and basins, beyond what was originally determined upon, has been undertaken, 22 ft. of water not being sufficient to afford the larger vessels now frequenting the ports adequate steerage way. At Victoria Harbor, three dredges have been at work, with an average daily output of 5,000 yards. A slip of 600 ft. wide, 25 ft. deep and practically 5,000 ft. long should be completed, according to the original plan, early next season. At Tiffin, a slip has been dredged sufficient to permit the largest lake vessel in the grain-carrying trade to discharge her cargo at the G.T.R. elevator. Both of these harbors are being developed in accordance with a comprehensive plan and to a corresponding depth, viz., 25 ft., to those at the head of navigation on Lake Superior. Reference was also made to the works being carried on at Montreal, Quebec and St. John. The expenditure of the department under the head of dredging, including new plant, repair and maintenance of existing plant, amounted to $4,547,773.43, a sum of $1,203,466.87 in excess of the outlay of the preceding year.

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St. Lawrence & Chicago Steam Navigation Co., Ltd.

Following are extracts from the report presented at the annual meeting, Jan. 5: "The season of 1909 was on the whole a fairly satisfactory one, although not as good as expected at the close, owing to excessive competition among Canadian vessels. Two of the company's steamers were injured by grounding in harbors where there was supposed to be 4 ft. more water than steamers were drawing, caused by careles dredging. The directors have decided to lengthen the steamer G. R. Crowe, with a view to increasing her earning power, and contract for same has been given, the steamer to be ready on the opening of navigation, 1910. The directors from the earnings of the season have paid a dividend of 8%, and have carried forward $30,623.73 to the credit of profit and loss, leaving a balance at the credit of that account of $133,007.28."

ASSETS.

Five steamers, Algonquin, Iroquois, W. D. Matthews, G. R. Crowe, E. B. Osler	$950,000	00
Insurance unexpired	4,000	00
Accounts receivable	9,416	02
Dominion Bank	29,683	26
	$993,099	28

LIABILITIES.

Capital	$860,000	00
Accounts payable	92	00
Balance of profit carried forward	133,007	28
	$993,099	28

PROFIT AND LOSS ACCOUNT.

Balance forward, Jan. 2, 1909		$102,383 55
Steamships' earnings	$112,062 44	
Interest	868 36	
	112,930 80	
	$215,314 35	
Salaries, taxes, office rent, directors' and auditors' fees, etc.	$13,507 07	
Dividend 8%, payable Jan. 3, 1910	68,800 00	
Balance carried forward	133,007 28	
	$215,314 35	

The President, W. D. Matthews, stated at the meeting that J. H. G. Hagarty wished to be relieved of the duties of Managing Director, which position he filled as well as that of Secretary Treasurer. The Board had elected the Superintendent, A. A. Wright, as a director in place of the late G. Hagarty and proposed to appoint him Managing Director, J. H. G. Hagarty to continue as Secretary Treasurer. He also stated that the steamship G. R. Crowe would be lengthened 72 ft., increasing her capacity from 3,500 to 5,000 tons, at a cost of about $50,000.

The following are the directors for the current year:—President, W. D. Matthews; Vice President and Sec. Treas., J. H. G. Hagarty; Managing Director, A. A. Wright; other directors, Jas. Carruthers, S. Crangle, G. R. Crowe, C. S. Gzowski, E. B. Osler.

Welland and Georgian Bay Canals.

The question of the deepening of the Welland Canal and the construction of the Georgian Bay Canal were referred to by Sir Wilfrid Laurier in a speech at Toronto Jan. 5. He said:—"The deepening of the Welland Canal is of paramount necessity. We must have continuous lake transportation from Port Arthur, Fort William, and Duluth to Montreal. At present vessls of 10,000 tons and over unload their grain at the mouth of the Welland Canal. When the canal is deepened they will carry their grain to Prescott to tranship it for Montreal. This is one problem, and then there is the other, the Georgian Bay Canal. It also is a matter of necessity. You will find vessels leaving Fort William for Montreal and going almost in a straight line, whereas if they were going by the St. Lawrence route they must sail about a right angle. It is a saving of one-third of the distance; it is the route which was followed in the old days of the Hudson Bay trade. You will ask me which of those two routes I favor? I favor both. When are the works to be undertaken? The Government has not said, but if I have a voice in the Government they will be undertaken just as soon as this country is able to undertake them. The Transcontinental is a heavy burden to be discharged, and we must husband our resources. We must be prudent and bold, economical and generous. Just as soon as the Minister of Finance gives me assurance that the work can be done the work will go on. I shall not live to see the completion of this work, but so long as I am able I shall do my work. Should I leave this work undone it remains in the hands of those who will prosecute it to the extent of their last resources. But in the order of things it cannot be very long before we take up these duties, and the sooner they are taken up the better pleased I will be and you will be."

Vessels Removed from the Register.

The following vessels were removed from the register in Dec., 1909, for the reasons assigned:—Steam: Adele, Sydney, N.S., 23 tons, sold to foreigners; Admiral, Port Stanley, Ont., 8 tons, out of existence; Augusta, St. Catharines, Ont., 31 tons, burned; Bertha L. Cockell, Port Stanley, Ont., 16 tons, broken up; Burt, Vancouver, B.C., 34 tons, broken up; Caledonia, Vancouver, B.C., 359 tons, wrecked; Canada, Toronto, 209 tons, dismantled; Eleanor, Toronto, 57 tons, lost; Frank N. McCrea, Kingston, Ont., 10 tons, sold to U.S.; Gilphie, Ottawa, 18 tons, burned; Lady Eileen, Gaspe, Que., 526 tons, stranded; Margherita, Toronto, 15 tons, wrecked; May Bird, Toronto, 32 tons, broken up; Ottawa, Ottawa, 1,344 tons, foundered; Shamrock, Toronto, 101 tons, out of existence; Snow Storm, Port Stanley, Ont., 10 tons, broken up; Star, Port Burwell, Ont., 9 tons, sold to U.S.; Stranger, Port Hope, Ont., 17 tons, burned; Tender, Toronto, 21 tons, burned; Union, Ottawa, 66 tons, dismantled; Welshman, Ottawa, 99 tons, burned; Mantinea, St. John, N.B., 1,737 tons, sold to foreigners; Rome, Port Arthur, Ont., 1,164 tons, burned; Sailing: Alexandra, Weymouth, N.S., 178 tons, stranded; Belle of the Bay, Sydney, N.S., 11 tons, broken up; Belmont, Lunenburg, N.S., 98 tons, stranded; Ben Bolt, Yarmouth, N.S., 91 tons, transferred to West Indies; Bob o'Link, Toronto, 15 tons, out of existence; British Eagle, Yarmouth, N.S., 64 tons, lost; Canadienne, Halifax, N.S., 53 tons, wrecked; Dart Halifax, N.S., 10 tons, broken up; Echo, Toronto, 50 tons, out of existence; Ella Claripa Eddy, Ottawa, 141 tons, broken up; Emma Burke, Sydney, N.S., 12 tons, transferred to Newfoundland; Hillside, Yarmouth, N.S., 439 tons, sold to foreigners; Jessie L. Smith, Lunenburg, N.S., 100 tons, abandoned at sea; Lena A., Port Medway, N.S., 11 tons, broken up; Lulu, New Westminster, B.C., 16 tons, burned; Marion F., Chatham, N.B., 24 tons, broken up; May, Ottawa, 165 tons, broken up; Mizpah, Lunenburg, N.S., 100

The Purchasing Agents' Guide

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E. L. Drewry.. .....Winnipeg.
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Hamilton Steel & Iron Co..Hamilton, Ont.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Anti Rail Creepers
The Holden Co., Ltd.....Montreal.
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Preston Car & Coach Co., Preston, Ont.
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Hamilton Steel & Iron Co..Hamilton, Ont.
James Smart Mfg. Co.....Brockville, Ont.
Axles
James Hutton & Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Jas. W. Pyke & Co.....Montreal.
Rhodes, Curry Co., Ltd.....Amherst, N.S.
Beacons
International Marine Signal Co....Ottawa.
Bearings, Side
Chicago Railway Equipment Co...Chicago
Dominion Car and Foundry Co...Montreal.
Union Draft Gear Co. .....Chicago, Ill.
Blankets and Bedding
The Hudson Bay Co.....
Boilers
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
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Boilers, Portable
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.
Robb Engineering Co, Ltd..Amherst, N.S.
Boilers, Stationary and Marine
Babcock & Wilcox, Ltd.....Montreal.
I. Matheson & Co. .....New Glasgow, N.S.
Polson Iron Works, Ltd. .....Toronto.
Robb Engineering Co., Ltd..Amherst, N. S.
Boiler Staybolt Iron or Steel Bars
Falls Hollow Staybolt Co..Cuyahoga Falls.
Boilers, Steam
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.
Robb Engineering Co., Ltd...Amherst, N.S.
Boilers, Water Tube
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.
Robb Engineering Co., Ltd...Amherst, N.S.
Bolsters
Dominion Car and Foundry Co..Montreal.
Bolts, Bridge
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.
Bolts, Carriage and Machine
Toronto Bolt and Forging Co.....Toronto.
Bolts, Track
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Toronto Bolt and Forging Co.....Toronto.
Books
Renouf Publishing Co.....Montreal.
Borers, Car Wheel
John Bertram & Sons Co.....Dundas, Ont.
Braces, Cross Arm
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.
Brake Beams
Chicago Railway Equipment Co...Chicago.
Dominion Car and Foundry Co..Montreal.
Brake Shoes
Am. Brake Shoe & F'dry Co..Mahwah, N.J.
Canada Iron Corporation, Ltd....Montreal.
The Holden Co., Ltd.....Montreal.
Brake Shoes, Locomotive Driver
Am. Brake Shoe & F'dry Co..Mahwah, N.J.
Canada Iron Corporation, Ltd....Montreal.
Brass and Copper Cloth
The B. Greening Wire Co..Hamilton, Ont.
Brasses, Car
T. McAvity & Sons .....St. John, N.B.
Bridge Numbers
Acton Burrows, Limited .....Toronto.

tons, stranded; Myrtle V. Hopkins, Liverpool, N.S., 158 tons, lost; Nellie Morrow, Gaspe, Que., 88 tons, stranded; Nita, Port Hawkesbury, N.S., 22 tons, transferred to Newfoundland; Rover, Toronto, 20 tons, out of existence; Twilight, St. John, N.B., 30 tons, broken up; Valetta, St. John, N.B., 99 tons, wrecked; Wilfrid M., Lunenburg, N.S., 199 tons, transferred to Barbadoes; Wanderer, Toronto, 110 tons, out of existence; Willetta, Halifax, N.S., 12 tons, broken up; Wm. McGillivrey, Ottawa, 157 tons, broken up; J. Levesque, Quebec, Que., 62 tons, wrecked; Sirocco, St. John, N.B., 298 tons, broken up.

Passenger—"What makes this boat pitch so?" Sailor—"That's a nautical secret, ma'am, that we don't like to give away, but seein' it's you, I don't mind tellin' you that it's the waves."

Canadian Coasting Privileges

The following order in council has been passed amending the order in council of Dec. 17, 1908, published in our Jan., 1909, issue:—"Whereas applications have been made to allow the ships and vessels of certain foreign countries to participate in the ocean trade between Atlantic and Pacific ports of Canada to a limited extent for a temporary period—it is hereby ordered that notwithstanding anything in the order in council of Dec. 17, 1908, respecting vessels participating in the coasting trade of Canada, steamships of the following countries, namely, Italy, Germany, The Netherlands, Sweden, Norway, Austria-Hungary, Denmark, Belgium, the Argentine Republic and Japan shall be admitted to the coasting trade of Canada, in the carrying of goods and passengers between any port in the Atlantic provinces of Canada and any port on the Pacific coast of Canada (via South America), and vice versa, on the same terms and conditions as are applicable to Canadian vessels, until Dec. 31, 1911."

During Nov., 1909, 13 employes were killed in the course of their employment in Canadian navigation. Of this number, eight deaths were due to drowning, four to falls, and one to falling material.

Application is being made to the Dominion Parliament to incorporate the Canadian Shipping and Drydock Co., with power to construct, acquire and navigate steam and other vessels, and to construct and acquire wharves, docks, elevators, warehouses, etc., in connection therewith. J. A. Ritchie, Ottawa, is solicitor for applicants.

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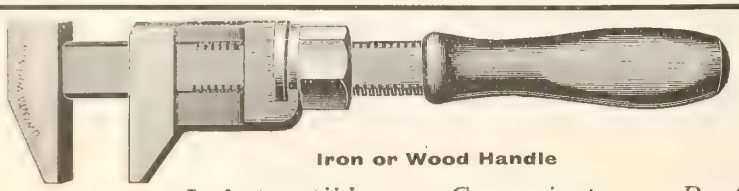

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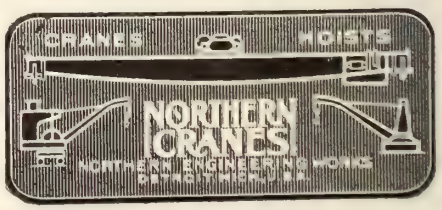

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Dominion Bridge Co..... Montreal.

Bronze
American Vanadium Co.....Pittsburg, Pa.

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Brown Hoisting Machinery Co. Cleveland.

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Dominion Bridge Co..... Montreal.

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R. M. Burns & Co.....Chicago, Ill.
Canada Car Co., Ltd.....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Dominion Car and Foundry Co....Montreal.
J. T. Gardner.....Chricago, Ill.
Hart-Otis Car Co., Ltd.....Montreal.
Hicks Locomotive and Car Works. Chicago.
Ottawa Car Co. Ltd.....Ottawa.
Preston Car and Coach Co., Ltd..Preston.
Rhodes, Curry Co., Ltd.....Amherst, N.S.
Russel Wheel & Fdry. Co....Detroit, Mich.
Silliker Car Co., Ltd.....Halifax, N.S.

Cars, Logging
Russel Wheel & Fdry. Co....Detroit, Mich.

Castings
American Vanadium Co.....Pittsburg, Pa.
Crossen Car Mfg. Co.....Cobourg, Ont.
I. Matheson & Co. .....New Glasgow, N.S.
Russel Wheel & Fdry. Co....Detroit, Mich.
Standard Steel Works Co..Philadelphia, Pa.

Castings, Brass
Canadian Bronze Co.....Montreal.
Canada Iron Corporation, Ltd....Montreal.
Kerr Engine Co.....Walkerville, Ont.
I. Matheson & Co. .....New Glasgow, N.S.
Tallman Brass & Metal Co., Ltd.Hamilton.

Castings, Car
American Brake Shoe & Fdry Co.Mahwah.
Canada Iron Corporation, Ltd....Montreal.
Russel Wheel & Fdry. Co....Detroit, Mich.

Castings, Iron
Allis-Chalmers-Bullock Ltd.....Montreal.
Canada Car Co., Ltd.....Montreal.
Canada Iron Corporation, Ltd....Montreal.
Kerr Engine Co.....Walkerville, Ont.
Russel Wheel & Fdry. Co....Detroit, Mich.

Castings, Iron and Steel
American Brake Shoe & F'dry Co.Mahwah.

Castings, Malleable
Galt Malleable Iron Co.....Galt, Ont.
Taylor & Arnold.....Montreal.

Castings, Manganese Steel
Montreal Steel Works, Ltd.....Montreal.

Castings, Steel
American Vanadium Co.....Pittsburg, Pa.
Canada Iron Corporation, Ltd....Montreal.
Montreal Steel Works.....Montreal
Rhodes, Curry Co., Ltd.....Amherst, N.S.

Chains
B. J. Coghlin & Co.....Montreal.

Closets, Car
Duner Co.....Chicago, Ill.

Coal
Nova Scotia S. & C. Co., New Glasgow, N.S.

Compressors, Air
Allis-Chalmers-Bullock Ltd.....Montreal.
Canadian Rand Co.....Montreal.

Concrete Mixers and Rock Crushers
F. H. Hopkins & Co. .....Montreal.
Mussens Limited.....Montreal.
Toronto Pressed Steel Co. .....Toronto.

Contractors' Supplies
F. H. Hopkins & Co.....Montreal
Rice Lewis & Son.....Toronto.
Russel Wheel & Fdry. Co....Detroit, Mich.
Toronto Pressed Steel Co.....Toronto.

Conveyors, Coal and Ash
Babcock & Wilcox, Ltd.....Montreal.

Copying Presses
James Smart Mfg. Co.....Brockville, Ont.

Couplers, Car and Locomotive
Dominion Car and Foundry Co..Montreal.
McConway & Torley Co....Pittsburgh, Pa.
Montreal Steel Works, Limited..Montreal.
Taylor & Arnold.....Montreal.

Cranes
Brown Hoisting Machinery Co..Cleveland.
Northern Engineering Works, Detroit, Mich.

Cranes, Electric
Babcock & Wilcox.....Montreal
Dominion Bridge Co.....Montreal.
Mussens Limited.....Montreal.

Cranes, Locomotive
American Hoist and Derrick Co..St. Paul.

Cranes, Wrecking
Mussens Limited.....Montreal.

Crowbars
B. J. Coghlin & Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.

Curtains and Fixtures, Car
The Holden Co., Ltd.....Montreal.
Preston Car & Coach Co...Preston, Ont.

Cuts
Acton Burrows, Limited.....Toronto.

Cylinders
American Vanadium Co.....Pittsburg, Pa.

Derailing Devices
General Railway Signal Co., Rochester, N.Y.

Derricks
American Hoist and Derrick Co..St. Paul.
M. Beatty & Sons.....Welland, Ont.
Mussens Limited.....Montreal.

Dies
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Ditchers
M. Beatty & Sons.....Welland, Ont.

Diving Outfits
John Date.....Montreal.
Mussens Limited.....Montreal.

Doors, Steel Rolling
Mussens Limited.....Montreal.

Door Signs
Acton Burrows Limited.....Toronto.

Draft Gear
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Standard Coupler Co.....New York City.
Union Draft Gear Co. .....Chicago, Ill.
Waugh Draft Gear Co.....Chicago, Ill.

Draughtsmen's Supplies
John A. Hart & Co.....Winnipeg.

Dredges
M. Beatty & Sons.....Welland, Ont.
Polson Iron Works, Ltd. .....Toronto.

Drills, Air
Canadian Rand Co.....Montreal.

Dry Goods
The Hudson's Bay Co.....

Dump Cars (Contractors')
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.

Dump Cars, Hand
Meaford Wheelbarrow Co., Ltd..Meaford.

Dynamos
Northern Electric & Mfg. Co., Ld.Montreal.

Dynamo and Electric Castings
American Brake Shoe & F'dry Co.Mahwah.

Economizers
Babcock & Wilcox (Ltd.).....Montreal.

Electric Apparatus
Allis-Chalmers-Bullock Ltd.....Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co., Ld.Montreal.

Electric Car Route Signs
Acton Burrows Limited.....Toronto.
Preston Car & Coach Co...Preston, Ont.

Electric Light Plant
Allis-Chalmers-Bullock Ltd.....Montreal.

Elevators, Grain
John S. Metcalf Co.....Chicago, Ill.

Enameled Iron Signs
Acton Burrows Limited.....Toronto.

Engines, Automatic
Robb Engineering Co., Ltd..Amherst, N.S.
Polson Iron Works, Ltd. .....Toronto.
Russel Wheel & Fdry. Co....Detroit, Mich.

Engines, Corliss
Allis-Chalmers-Bullock Ltd.....Montreal.
Robb Engineering Co., Ltd..Amherst, N.S.

Engines, Gas
Allis-Chalmers-Bullock Ltd.....Montreal.

Engines, Gasolene
Canadian Fairbanks Co., Ltd.....Montreal.
Ontario Wind Engine & Pump Co.Toronto.

Engines, Hoisting
Allis-Chalmers-Bullock Ltd.....Montreal.
American Hoist and Derrick Co..St. Paul.
M. Beatty & Sons.....Welland, Ont.
Dominion Equip't & Supply Co., Winnipeg.
I. Matheson & Co. .....New Glasgow, N.S.
Polson Iron Works, Ltd. .....Toronto.
Russel Wheel & Fdry. Co....Detroit, Mich.

Engines, Stationary and Marine
I. Matheson & Co. .....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Engines, Steam
Allis-Chalmers-Bullock Ltd. ....Montreal.

Explosives
Standard Explosives Limited ...Montreal.

Express Office Signs
Acton Burrows Limited.....Toronto.

Fencing
New Brunswick Wire Fence Co., Moncton.
Owen Sound Wire Fence Co., Owen Sound.

Ferro-vanadium
American Vanadium Co.....Pittsburg, Pa.

Fire Appliances
Miller Chemical Engine Co., Chicago, Ill.

Fire Brick
Mussens Limited .....Montreal.

Flags
The Hudson's Bay Co. .....

Flour
The Hudson's Bay Co. .....

Forgings
American Vanadium Co.....Pittsburg, Pa.
Canada Car Co., Limited .....Montreal.
Cleveland City Forge & Iron Co., Cleveland.
Crossen Car Mfg. Co. .....Cobourg, Ont.
Hamilton Steel & Iron Co., Ltd., Hamilton.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Standard Steel Works Co., Philadelphia, Pa.

Foundry Appliances
Goldschmidt Thermit Co. .....Toronto.
Ont. Wind Eng. & Pump Co., Ltd., Toronto.

Frogs
Canadian Ramapo Iron Wks., Niagara Falls.

Furnaces, Corrugated
Continental Iron Works.....Brooklyn, N.Y.

Fuse Batteries
Standard Explosives Limited....Montreal.

Fuse Detonators
Standard Explosives Limited....Montreal.

Fuses, Electric
Standard Explosives Limited....Montreal.

Gaskets
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.

Gates
New Brunswick Wire Fence Co., Moncton.
Owen Sound Wire Fence Co..Owen Sound.

Gates, Crossing
General Railway Signal Co. Rochester, N.Y.
The N. L. Piper Ry. Supply Co..Toronto.

Gauges, Locomotive
Taylor & Arnold.....Montreal.

Gears
American Vanadium Co.....Pittsburg, Pa.

Generators, Electric
Northern Electric & Mfg. Co., Ld.Montreal.

Grates, Shaking
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.

Groceries
The Hudson's Bay Company.....

Guides and Outfitters
Otto Bros. ..... Field, B.C.

Hammers, Cast Steel
American Brake Shoe & F'dry Co.Mahwah.
James Smart Mfg. Co....Brockville, Ont.

Handcars
Canadian Fairbanks Co., Ltd.....Montreal
Crossen Car Mfg. Co.....Cobourg, Ont.
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Rice Lewis & Son.....Toronto.

Hardware
The Hudson's Bay Co.....
Rice Lewis & Son..'.....Toronto.

Hats
W. H. Coddington .....Hamilton, Ont.

Headlights
Commercial Acetylene Co. ..... Toronto.
The N. L. Piper Ry. Supply Co..Toronto.
Pyle National Elec. Headlight Co..Chicago.

Headlinings
Crossen Car Mfg. Co.....Cobourg, Ont.

Heaters, Feedwater
Robb Engineering Co., Ltd..Amherst, N.S.

Heating, Car
Canadian Gold Car H'g & L'g Co.Montreal.
Safety Car Heating & L'ting Co.New York.

Hoists, Electric
American Hoist & Derrick Co....St. Paul.
Northern Engineering Works, Detroit, Mich.

Hoists (Pneumatic)
Taylor & Arnold.....Montreal.

Hollow Staybolt Iron and Steel Bars
Falls Hollow Staybolt Co.Cuyahoga Falls.

Hoppers, Car (Wet or Dry)
Duner Co.....Chicago, Ill.

Hydrants
Canadian Fairbanks Co., Ltd.....Montreal.
Kerr Engine Co.....Walkerville, Ont.

Illustrations
Acton Burrows Limited.....Toronto.

Injectors
T. McAvity & Sons .....St. John, N.B.

Inspections
R. W. Hunt & Co. .....Montreal

Insurance, Accident
Can. Casualty & Boiler Ins. Co., Toronto.
Canadian Ry. Accident Ins. Co....Ottawa.

Insurance, Boiler
Canadian Casualty & Boil. Ins. Co.Toronto.

Interlocking Plant and Signals
General Railway Signal Co. Rochester, N.Y.
Montreal Steel Works.....Montreal.
Saxby and Farmer, Ltd.....Montreal.

Iron and Steel Bars
Hamilton Steel & Iron Co., Ltd..Hamilton.

Iron, Pig
Hamilton Steel & Iron Co., Ltd..Hamilton.
Nova Scotia S. & C. Co., New Glasgow, N.S.

Iron Signs
Acton Burrows Limited.....Toronto.

Iron Staybolt Bars
Falls Hollow Staybolt Co..Cuyahoga Falls.

Jacks
Canadian Fairbanks Co., Ltd.....Montreal.
Dominion Equip't & Supply Co., Winnipeg.
H and E Lifting Jack Co..Waterville, Que.
F. H. Hopkins & Co, Ltd.....Montreal.
Montreal Steel Works, Ltd.....Montreal.
Mussens Limited.....Montreal.
A. O. Norton.....Coaticook, Que.
James Smart Mfg. Co.....Brockville, Ont.
A. R. Williams Mchy. Co., Ltd....Toronto.

Japans
The Dougal Varnish Co. Ltd....Montreal.
Journal Bearings
Canadian Bronze Co.....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Kerr Engine, Co.....Walkerville, Ont.
Jas. W. Pyke & Co.....Montreal.
Journal Boxes
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Journal Jacks
A. R. Williams Mchy. Co., Ltd....Toronto.
Lager Beer, &c.
E. L. Drewry..... .....Winnipeg.
Lagging and Covering, Locomotive
Taylor & Arnold.....Montreal.
Lamps, Arc
Northern Electric & Mfg. Co, Ltd.Montreal.
Lamps, Incandescent
Canadian Westinghouse Co..Hamilton, Ont.
Lamps and Lanterns
The Hudson's Bay Company.....
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Lamps, Switch
The N. L. Piper Ry. Supply Co..Toronto.
Lathes
John Bertram & Sons Co.....Dundas, Ont.
Laths
J. Harrison & Sons Co..Owen Sound, Ont.
Lighting, Car
Canadian Gold Car H'g & L'g Co.Montreal
Safety Car H't'g & L't'g Co..New York.
Lights, Contractors' and Wrecking
F. H. Hopkins & Co.....Montreal.
International Marine Signal Co. ..Ottawa.
Mussens Limited.....Montreal.
Locomotives (Compressed Air)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co...Kingston, Ont.
Montreal Locomotive W'ks (Ltd.).Montreal.
Locomotives (Electric)
Baldwin Locomotive Works..Philadelphia.
Montreal Locomotive W'ks (Ltd.).Montreal.
Locomotives (Logging)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co....Kingston, Ont.
Locomotives (Rack)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co....Kingston, Ont.
Montreal Locomotive Works.....Montreal.
Locomotives (Steam)
American Car & Equip. Co....Chicago, Ill.
Baldwin Locomotive Works..Philadelphia.
R. M. Burns & Co.....Chicago, Ill.
Canadian Fairbanks Co., Ltd.....Montreal.
Canadian Locomotive Co....Kingston, Ont.
Dominion Equip't & Supply Co., Winnipeg.
J. T. Gardner.....Chicago, Ill.
Hicks Locomotive & Car Works..Chicago.
Montreal Locomotive W'ks. .....Montreal.
Vulcan Iron Works.....Wilkesbarre, Pa.
Lorries, Trackla ying
Crossen Car Mfg. Co.....Cobourg, Ont.
F. H. Hopkins & Co.....Montreal.
Lubricators
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Taylor & Arnold.....Montreal.
Lumber
Parry Sound Lumber Co.....Toronto.
J. Harrison & Sons Co., Owen Sound, Ont.
Machinery, Cement
Jas. W. Pyke & Co.....Montreal.
Machinery and Plant, Contractors'
American Hoist & Derrick Co....St. Paul.
M. Beatty & Sons.....Welland, Ont.
R. M. Burns & Co.....Chicago, Ill.
Canadian Fairbanks Co., Ltd.....Montreal.
J. T. Gardner.....Chicago, Ill.
General Railway Signal Co., Rochester, N.Y.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Toronto Pressed Steel Co.....Toronto.
Machinery, Hoisting
American Hoist & Derrick Co....St. Paul.
Brown Hoisting Machinery Co..Cleveland.
Machinery, Tracklaying
F. H. Hopkins & Co.....Montreal.
Machinery, Logging
Russel Wheel & Fdry. Co....Detroit, Mich.
Machinery, Wood and Iron Working
Canadian Fairbanks Co., Ltd....Montreal.
Machines, Boring and Turning
John Bertram & Sons Co.....Dundas, Ont.
Machines, Drilling
John Bertram & Sons Co.....Dundas, Ont.
Machines, Milling
John Bertram & Sons Co.....Dundas, Ont.
Machines, Planing and Shaping
John Bertram & Sons Co.....Dundas, Ont.
Machines, Radial Drilling
John Bertram & Sons Co.....Dundas, Ont.
Machines, Shaping
John Bertram & Sons Co.....Dundas, Ont.
Machines, Slotting
John Bertram & Sons Co.....Dundas, Ont.
Machine Tools
John Bertram & Sons Co.....Dundas, Ont.
Pratt & Whitney Co. .....Dundas, Ont.
Manhole Frames and Covers
American Brake Shoe & F'dry Co.Mahwah.
Canada Iron Corporation, Ltd....Montreal.
Marine Repairs
Goldschmidt Thermit Co.....Toronto.
Marine Supplies
Rice Lewis & Son.....Toronto.
Metal, Anti-friction
W. Abbott.....Montreal.
Metal, Babbit
Tallman Brass & Metal Mfg. Co. Hamilton.
Metals
Goldschmidt Thermit Co.....Toronto.
Metal Work, Structural
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Montreal Locomotive W'ks (Ltd.).Montreal.
Jas. W. Pyke & Co.....Montreal.
Milepost Numbers
Acton Burrows Limited.....Toronto.
Motors
Canadian Fairbanks Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Motors, Electric
Allis-Chalmers-Bullock Ltd.....Montreal.
Canadian Crocker Wheeler Co., Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co. Ld.Montreal.
Motor Generator Sets
Allis-Chalmers-Bullock Ltd.....Montreal.
Chapman & Walker, Ltd.....Toronto.
Motors, Turntable
Taylor & Arnold.....Montreal.
Nickel
The Orford Copper Co.....New York.
Nickel for Nickel Steel
The Orford Copper Co.....New York.
Numbers
Acton Burrows Limited.....Toronto.
Nut Locks
Positive Lock Washer Co....Newark, N.J.
Nuts, Clevis
Cleveland City Forge & Iron Co., Cleveland.
Nuts, Square and Hexagon
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto
Oakum
The Hudson's Bay Company.....
Office Fittings
Can. Office & Sch'l Furniture Co..Preston.
Office Signs
Acton Burrows Limited.....Toronto.
Oils
Galena Signal Oil Co..Franklin & Toronto.
Packing
The N. L. Piper Ry. Supply Co..Toronto.
Paints
Standard Paint & Var. Co., Windsor, Ont.
Patterns
Hamilton Pattern Works....Hamilton, Ont.
Pile Drivers, Railway
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Pinch Bars
The N. L. Piper Ry. Supply Co..Toronto.
Pipe, Culvert (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.
Pipe, Gas (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.
Pipe, Sewer (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.
Pipe Stocks
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.
Pipe, Water (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.
Planers
John Bertram & Sons Co.....Dundas, Ont.
Platforms, Steel
Standard Coupler Co.....New York City.
Ploughs, Contractors'
Mussens Limited.....Montreal.
Ploughs, Grading
Meaford Wheelbarrow Co., Ltd ..Meaford.
Poles
J. Harrison & Sons Co., Owen Sound, Ont.
Porter
E. L. Drewry.....Winnipeg
Posts
J. Harrison & Sons Co., Owen Sound, Ont
Powder, Blasting
Standard Explosives Limited.....Montreal.
Printing
Southam Press.....Toronto.
Pumps
Canadian Fairbanks Co., Ltd.....Montreal.
S. F. Bowser & Co., Limited.....Toronto.
Ontario Wind Engine & Pump Co..Toronto.
James Smart Mfg. Co.....Brockville, Ont.
Pumps (Centrifugal)
M. Beatty & Sons .....Welland, Ont.
Rail Benders, Roller
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works.....Montreal.
Rail Drilling Machines
A. B. Jardine & Co.....Hespeler, Ont.
Rails (new)
Dominion Iron & Steel Co....Sydney, N.S.
Drummond, McCall & Co. .....Montreal.
J. T. Gardner.....Chicago, Ill.
J. J. Gartshore.....Toronto.
F. H. Hopkins & Co...'.....Montreal.

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Patent Water-Tube Boilers
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The Purchasing Agents' Guide—Continued.

Rails (for relaying)
F. H. Hopkins & Co...Montreal.
J. J. Gartshore...Toronto.
Mussens Limited...Montreal.
Jas. W. Pyke & Co...Montreal.

Rail Joints
Goldschmidt Thermit Co...Toronto.
The Rail Joint Co. of Canada...Montreal.

Railway Supplies
Canadian Fairbanks Co., Ltd...Montreal.
T. McAvity & Sons ...St. John, N.B.
The Hiram L. Piper Co...Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Rice Lewis & Son...Toronto.
Burton W. Mudge & Co...Chicago, Ill.
Russel Wheel & Fdry. Co...Detroit, Mich.

Reamers
Butterfield & Co.. ...Rock Island, Que.
A. B. Jardine & Co...Hespeler, Ont.

Replacers, Car and Locomotive
Alexander Car Replacer Mfg. Co..Scranton.
Dominion Equip't & Supply Co., Winnipeg.
The Holden Co., Ltd ...Montreal.
F. H. Hopkins & Co...Montreal.

Rivets, Boiler, Bridge and Structural
Montreal Rolling Mills Co...Montreal.
Toronto Bolt and Forging Co...Toronto.

Rock Crushers
Allis-Chalmers-Bullock Ltd...Montreal.
Willis Shaw Machinery Co...Chicago, Ill.

Roofing, Car
Drake & Wiers Co...Cleveland, O.

Rope
F. H. Hopkins & Co...Montreal.
The Hudson's Bay Company...

Ropes, Coal Haulage
The B. Greening Wire Co..Hamilton, Ont.

Ropes, Derrick
Dominion Wire Rope Co...Montreal.
The B. Greening Wire Co..Hamilton, Ont.

Ropes, Switch
The B. Greening Wire Co..Hamilton, Ont.
F. H. Hopkins & Co...Montreal.

Scales
Canadian Fairbanks Co., Ltd...Montreal.

Scows, Dump and Deck
M. Beatty & Sons...Welland, Ont.

Scrapers, Wheel and Drag
F. H. Hopkins & Co...Montreal.
Meaford Wheelbarrow Co., Ltd...Meaford.
Mussens Limited...Montreal.

Screw Plates
Butterfield & Co...Rock Island, Que.
A. B. Jardine & Co...Hespeler, Ont.

Screws, Coach and Lag
Montreal Rolling Mills Co...Montreal
Toronto Bolt and Forging Co...Toronto.

Seats, Station
James Smart Mfg. Co...Brockville, Ont.

Semaphore Arms
Acton Burrows Limited...Toronto.

Semaphores
General Railway Signal Co., Rochester, N.Y.
The N. L. Piper Ry. Supply Co..Toronto.
Saxby & Farmer, Ltd. ...Montreal.

Shafting, Hollow
Falls Hollow Staybolt Co..Cuyahoga Falls.

Shingles
J. Harrison & Sons Co..Owen Sound, Ont.

Ships
Polson Iron Works...Toronto.

Shops
The Hudson's Bay Co...

Signal House Numbers
Acton Burrows Limited...Toronto.

Signals
General Railway Signal Co. Rochester, N.Y.
The Hiram L. Piper Co...Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Saxby and Farmer, Limited...Montreal.

Signals, Fog
International Marine Signal Co...Ottawa.

Signs
Acton Burrows Limited...Toronto.

Skidders and Loaders
Russel Wheel & Fdry. Co...Detroit, Mich.

Slack Adjusters
Chicago Railway Equipment Co...Chicago.

Sledges
James Smart Mfg. Co...Brockville, Ont.

Smoke Jacks
Paul Dickinson, Inc. ... Chicago, Ill.

Snow Ploughs
Crossen Car Mfg. Co...Cobourg, Ont.
Rhodes, Curry Co., Ltd...Amherst, N.S.

Solder
Tallman Brass & Metal Mfg. Co. Hamilton.

Spikes, Railway, Ship or Pressed
Hamilton Steel & Iron Co., Ltd. Hamilton.
F. H. Hopkins & Co...Montreal.
Montreal Rolling Mills Co...Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Toronto Bolt and Forging Co...Toronto.

Spreader Cars
F. H. Hopkins & Co...Montreal.

Spring Dampeners
McCord & Co... ...Chicago, Ill.

Springs
American Vanadium Co...Pittsburg, Pa.
B. J. Coghlin & Co...Montreal.
F. H. Hopkins & Co...Montreal.
Montreal Steel Works...Montreal.
Standard Steel Works Co..Philadelphia, Pa.

Stand Pipes
T. McAvity & Sons ...St. John, N.B.

Sprinklers, Electric
Preston Car & Coach Co. .. Preston, Ont.

Station Name Signs
Acton Burrows Limited...Toronto.

Staybolt Bars, Charcoal Iron
Falls Hollow Staybolt Co..Cuyahoga Falls.

Staybolt Iron
Taylor & Arnold...Montreal.

Staybolt Iron or Steel Bars, Hollow
Falls Hollow Staybolt Co., Cuyahoga Falls.

Staybolts, Flexible
Flannery Bolt Co...Pittsburg, Pa.

Staybolts, Locomotive
Falls Hollow Staybolt Co..Cuyahoga Falls.
Flannery Bolt Co...Pittsburg, Pa.

Staybolt Taps
Butterfield & Co...Rock Island, Que.
A. B. Jardine & Co...Hespeler, Ont.

Steam Couplers
Safety Car H't'g & L't'g Co...New York.

Steam Hammers
John Bertram & Sons Co...Dundas, Ont.

Steam Shovels
M. Beatty & Son...Welland, Ont.
R. M. Burns & Co...Chicago, Ill.
F. H. Hopkins & Co...Montreal.
Mussens Limited...Montreal.
Willis Shaw Machinery Co. .. Chicago, Ill.

Steamship Signs
Acton Burrows Limited...Toronto.

Steel
W. Abbott...Montreal.
Hermann Boker & Co. ...Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Wm. Jessop & Sons...Sheffield, Eng.

Steel, Fire Box
Taylor & Arnold...Montreal.

Steel for Axes
Montreal Steel Works...Montreal.

Steel for Saws
Montreal Steel Works...Montreal.

Steel for Springs
James Hutton & Co...Montreal.

Steel Shafting
Nova Scotia S. & C. Co., New Glasgow, N.S.

Steel, Speedicut High Speed
Montreal Steel Works...Montreal.

Steel, Nickel, for Nickel
The Orford Copper Co...New York.

Steel Plates
Jas. W. Pyke & Co...Montreal.

Steel, Tool
W. Jessop & Sons...Sheffield, Eng.
Montreal Steel Works...Montreal.

Stokers, Mechanical
Babcock & Wilcox (Ltd.)...Montreal.

Stoves
James Smart Mfg. Co...Brockville, Ont.

Superheaters
Babcock & Wilcox (Ltd.)...Montreal.

Switches
Canadian Ramapo Iron W's Ld. Niagara Fs
Montreal Steel Works...Montreal.

Switch Stands
Canadian Ramapo Iron W's, Ld. Niagara Fs

Switch Targets
Acton Burrows Limited...Toronto.

Tanks and Tank Fixtures
Ontario Wind Engine & Pump Co..Toronto.
Polson Iron Works, Ltd. ...Toronto.

Tanks, Oil
S. F. Bowser & Co., Limited...Toronto.

Tapes, Measuring
Lufkin Rule Co...Saginaw, Mich.

Taps
Butterfield & Co...Rock Island, Que.
A. B. Jardine & Co...Hespeler, Ont.

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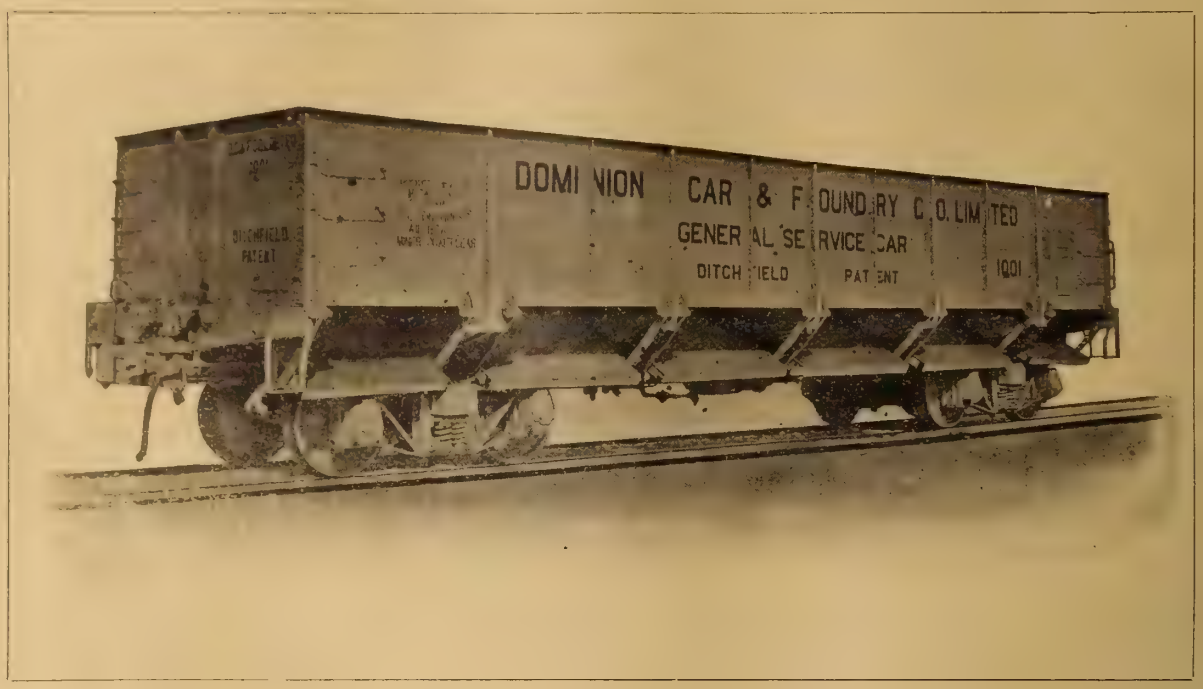

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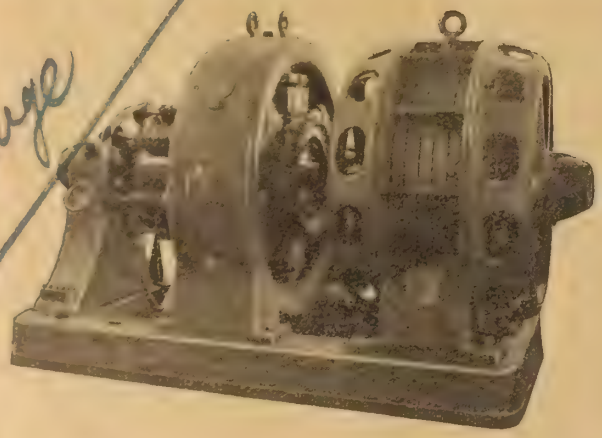

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Old Series, No. 227.
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TORONTO, CANADA, MARCH, 1910.

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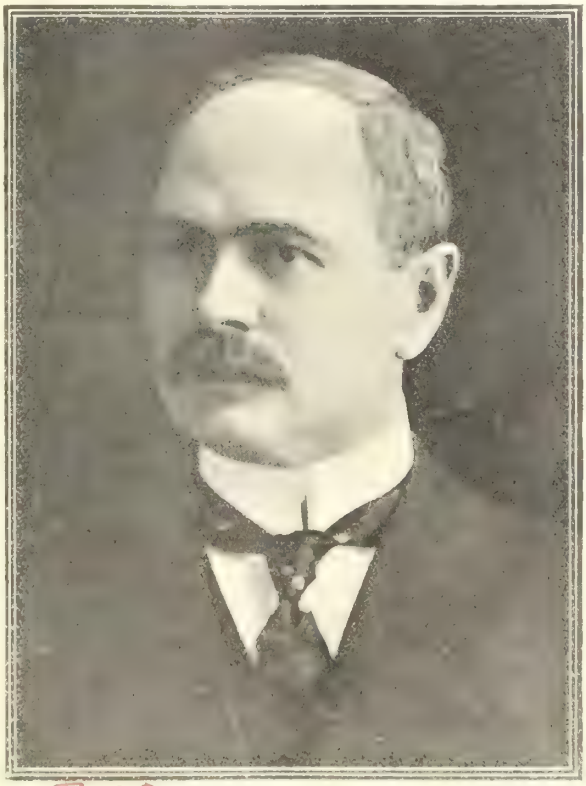
C. P. R. Consolidation Locomotive with Superheater

In the system of standardization of locomotive equipment adopted by the Canadian Pacific Ry., the class M4 has been the standard consolidation locomotive, and with a single exception, the most powerful class of locomotive on the road, being what is termed a 180% engine, the basis (100%) being 20,000 lbs. tractive effort at 80% of the boiler pressure. The locomotives of that class are 21 x 28 in. simple engines having 57 in. drivers and weighing 186,200 lbs., of which 163,700 lbs., or 87½%, is on drivers. The boiler is of the extended wagon top type, 69 in. in diameter at the front end and carries a steam pressure of 200 lbs. All of these locomotives have superheaters, and in some of the later ones the steam pressure is reduced to 180 lbs. and the cylinders enlarged to 22½ x 28 in.

The traffic now demands a more powerful type of locomotive and an entirely new design of consolidation engine, which is known as class N3, has been developed. While, of course, a large number of the former standard parts are used in this design it is, in the main, an entirely new arrangement. It is a 210% engine and has a tractive effort of 42,500 lbs. The total weight is 220,000 lbs. and 195,000 lbs., or 88.6% is on drivers. The cylinders are very large, 24 x 32 in., and a boiler pressure of 180 lbs. with a Vaughan-Horsey superheater, having 450 sq. ft. of heating surface, is employed. The drivers have been enlarged to 63 in. and the boiler has an evaporative heating surface of 2,811 sq. ft. as compared with 2,381 in the class M4. An examination of the ratios shows that while the evaporative heating surface has kept pace with the increase in the weight of the locomotive, as compared with the class M4, the increase in size of the drivers has affected the B D factor very materially, giving a figure of 1,003, as compared with 880. When the B D factor is determined by the use of an equivalent heating surface, the derivation of which will be explained later, it is found that it has a value of 815 as compared with 714 for the class M4. In general, the locomotive will be seen to be a normally conservative design, arranged in many particulars to suit the special conditions under which it is to be operated. An electric headlight on a heavy freight locomotive is somewhat unusual, as is also the location of the air reservoir. The different parts of the locomotive will be considered separately, beginning with the boiler.

BOILER.—A radial stay, extended wagon top type of boiler having a firebox of large volume, with an inclined grate of 49 sq. ft. area, has been applied. Its largest diameter is 79 in. and the smallest 72 in. The throat is but 19¼ in. in depth and the level of the back mudring is slightly above the bottom of the barrel of the boiler, the grate inclining 20 in. in a length of 9 ft. 2¾ in. One of the most noticeable features is found in the use of curves of very large radii at the corners of the mudring, which are gradually decreased toward the top portion of the firebox. The side sheets are both slightly inclined inward from the mudring, which is 4½ in. wide on the side; the distance between the side sheets is increased by 1 in. at the turn of the crown. Both the side and crown sheets and the roof are in one piece.



P199 A. W. CAMPBELL, C.E.,
Deputy Minister of Railways and Canals and Chairman Government Railways Managing Board

The location of the tubes, which includes 24 5-in. and 272 2-in., the former being arranged in three rows of eight each for the superheater elements, is shown in one of the accompanying illustrations. The heating surface of the fire tubes is 2,631 sq. ft., which, in connection with 180 sq. ft. in the firebox, gives 2,811 sq. ft. of evaporative heating surface. It has been found, however, that, in comparing a superheater engine with one using saturated steam, to get an equivalent heating surface in the latter it is necessary to multiply the superheating surface by 1.5, which should be added to the total heating surface of the engine as obtained in the ordinary manner. In this case this would show that a boiler of the same capacity as the one applied, if it was not fitted with a superheater, would require 3,486 sq. ft. of heating surface, or a ratio of one square foot to 55.9 lbs. on drivers, which is certainly a guarantee of ample steam capacity.

FRONT END ARRANGEMENT.—A section through the front end and superheater is given in one of the illustrations. This type of superheater has proven to be most satisfactory in every way, after a number of years of trial. It is now the standard type on the C.P.R., where a larger number of superheaters are in operation than on any other railway on this continent. The introduction of the superheater requires the front tube sheet to be set back 2 ft. 9 in. from the centre line of the stack and also the introduction of a special arrangement of diaphragm plates and a damper for cutting off the circulation to the large fire tubes when the engine is not using steam. The arrangement includes a comparatively low exhaust nozzle and long petticoat pipe in two sections. The stack has no internal extension. The presence of two adjustable deflectors admits of an accurate equalization of the draft. The petticoat pipe is arranged to be easily removed to permit access to the superheater elements behind it.

THE CHECK VALVES are located on the top centre line of the boiler, underneath the base of the bell stand. It consists of a double check arrangement, there being one check valve for either feed pipe, the passages from which are combined and enter the boiler through one opening. Each check valve passage is provided with a stop valve, which can be closed to permit the check to be reground when the boiler is under steam. A valve in the centre of the casting closes the passage to a chamber in which there is a connection for a pipe or hose for either blowing down or filling up the boiler. All of these valves are provided with renewable seats. This arrangement of checks on top of the boiler gives a non-freezing discharge pipe from the injector to the checks, and any leakage at the checks will drain back to the injector.

ASH PANS.—An exceptionally good and interesting design of ash pan is used. It is of the self-clearing type, having two hoppers, and really consists of two separate parts, the hoppers and their operating mechanism being secured to the locomotive frames, and deflector plates, forming the upper part of the pan, being secured to the mudring and extending down inside of the hopper sec-

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Is pure water white in color; high fire test; low cold test, and splendid gravity.

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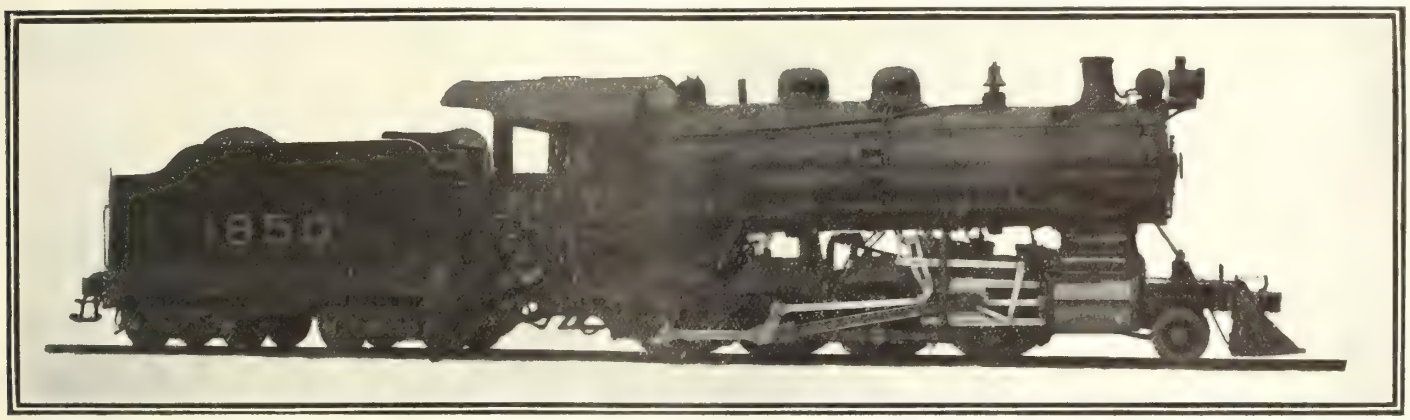
CHARLES MILLER,

PRESIDENT

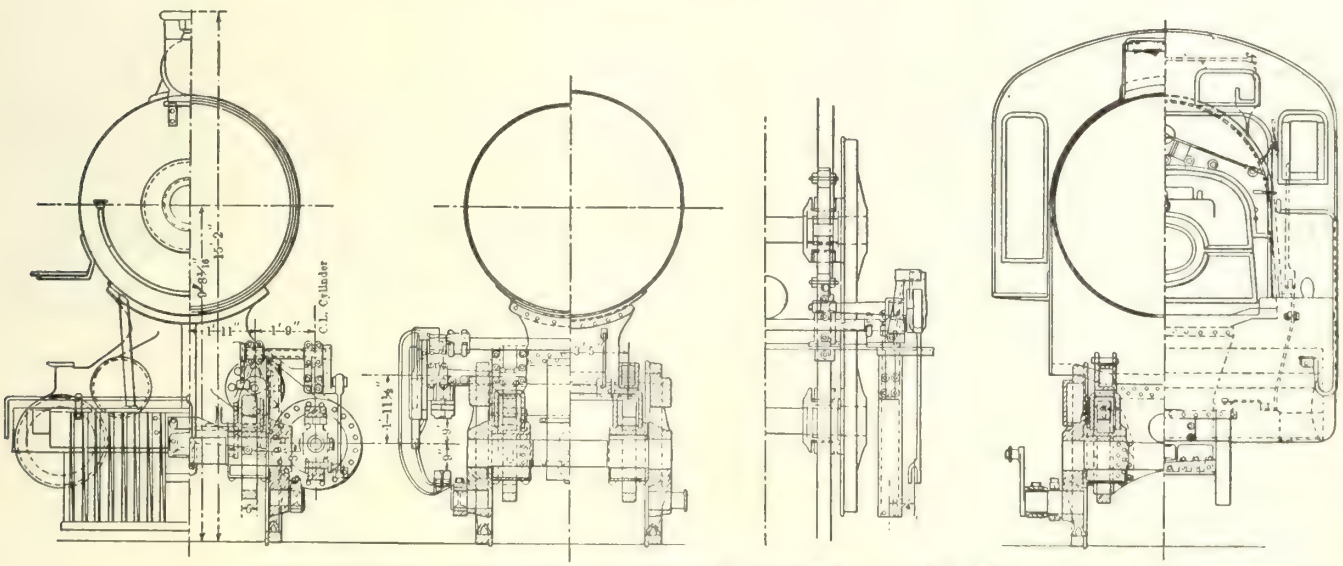
tion. There is an air inlet space 7 in. wide, in a horizontal direction, between the two sections. The arrangement and shape of this air space is well shown in the cross section of the pan. While the weight of the two parts is principally held by the frames and boiler respectively they are secured together and stiffened by the plates forming the end of the pan and by two intermediate ¼-in. stiffening plates secured to each through the medium of angles.

The doors closing the hopper openings are of swinging link type, being arranged to fit over and seat upon an extension of the hopper frame. The swinging link is so designed that the first movement of the doors is directly outward to clear this flange and then swing upward, as is shown by the dotted lines in the illustration. The operating mechanism is arranged so that the doors may be securely locked or held open at any desired point. This design of pan gives unusually large openings for air, which is well diffused before reaching the grates, and at the same time it acts as a perfect protection against fire being blown out of the pan or otherwise escaping.

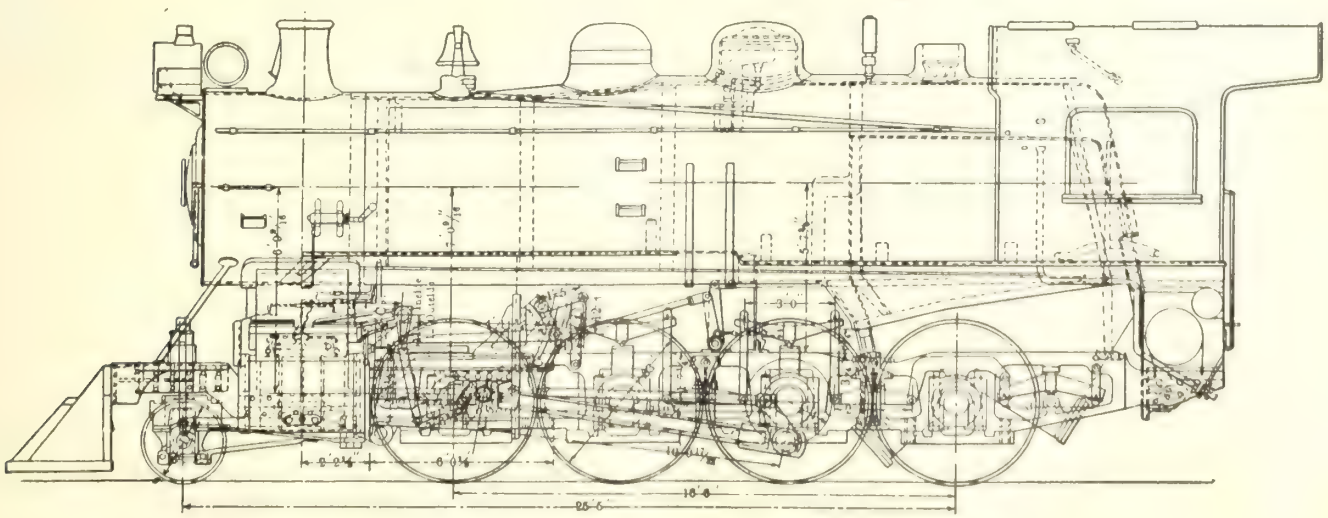
CYLINDERS.—In the design of the cylinders every opportunity has been taken for the reduction of weight where it could be done without sacrificing strength or steam economy. The 12 in. valve chambers have been set inside of the cylinders almost directly over the frames



CONSOLIDATION LOCOMOTIVE, CANADIAN PACIFIC RAILWAY.



CROSS SECTIONS, CONSOLIDATION LOCOMOTIVE, CANADIAN PACIFIC RAILWAY.



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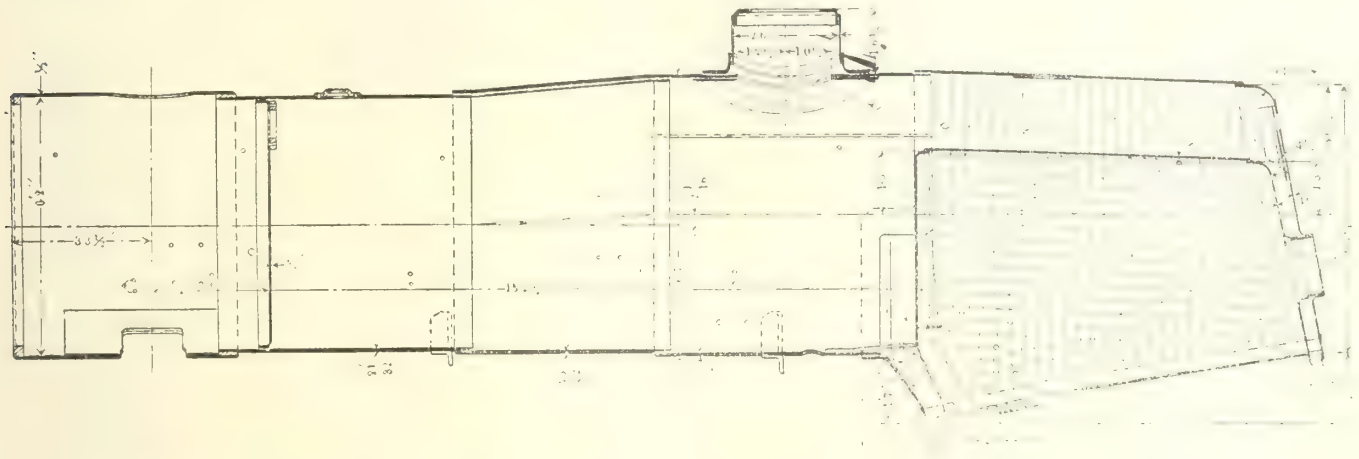
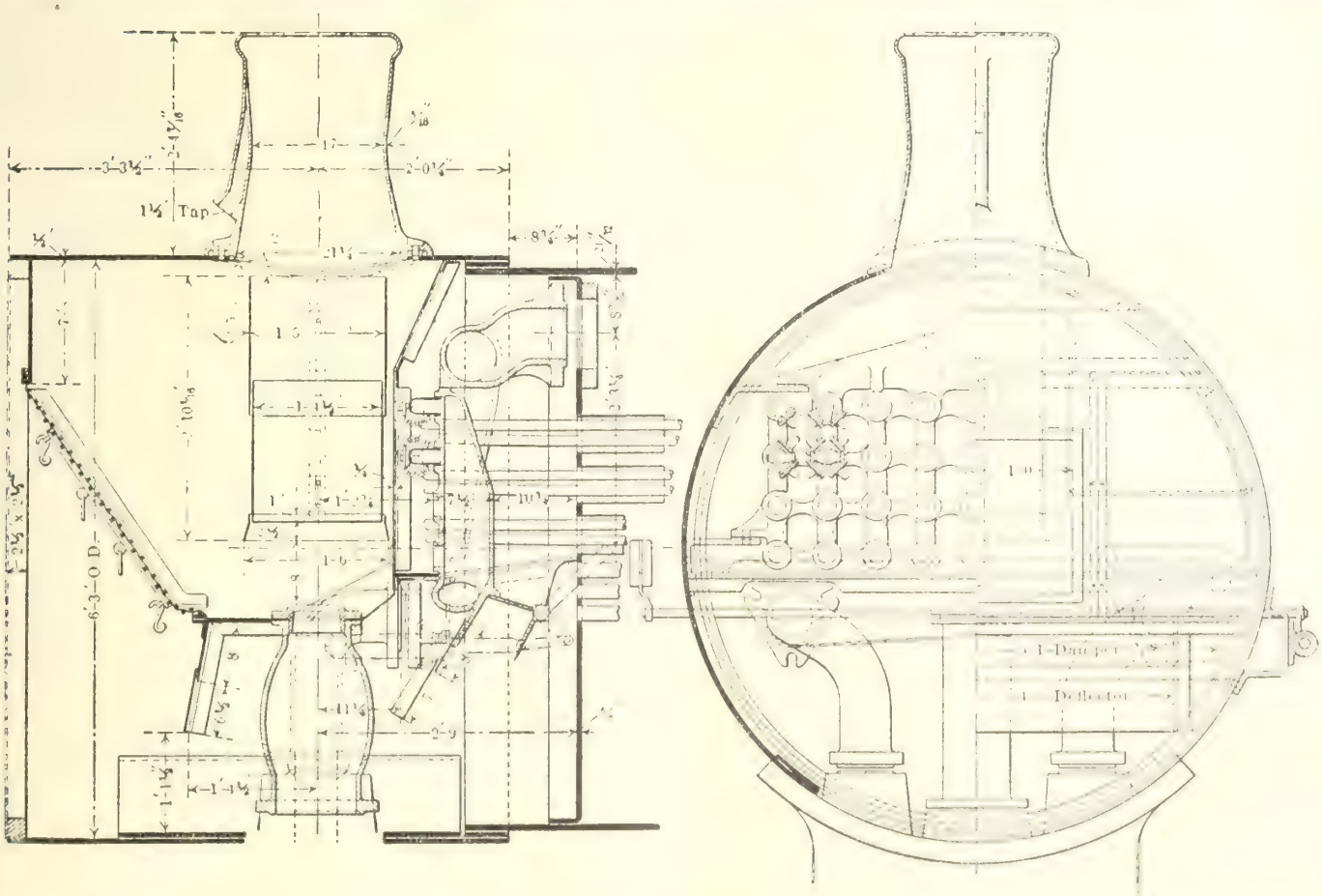
and in the line of the steam passage to the cylinders. This location of the valve has made necessary an alteration of the design of Walschaert valve gear previously standard on this road, which will be mentioned later. The cylinders have a ¾ in. bushing, and ports for the application of a by-pass valve arrangement, somewhat similar to the Sheedy type which has been in use on this road for some years, are provided. An excellent arrangement is noticed in connection with the fastening of the cylinders to the frames, consisting of two steel castings secured underneath the cylinder proper and inside of the frames, forming between them the bearing for the fulcrum pin of the front truck equalizer. This makes a solid mass across from frame to frame beneath the cylinders and puts no strain on the bolts fastening the cylinder flanges together at the centre. It also gives a fulcrum pin bearing of great strength, which is entirely independent of the cylinder casting. The design of these cross-ties is shown in one of the illustrations.

A by-pass valve arrangement, as shown in the illustration, is fitted to the cylinders and covered by the cylinder jacket. The two openings in the cylinder casting are the terminations of passages from the steam ports and connect to the by-pass valve casting with ground joints. In the centre of this casting is a valve with a renewable seat, which is held open by a coiled spring. The valve is closed by the pressure of steam in the chamber behind it, in which it has a steam tight fit. This chamber is connected by a small pipe to the centre steam passage in the valve chamber, so that when the throttle is open the by-pass valve is closed and communication between the two ends of the cylinder is prevented. When steam is shut off, however, the valve is held open by the spring and air is permitted to freely circulate from one end of the cylinder to the other.

VALVE GEAR.—Because of the difference in the location of the valve chamber in this design the valve gear differs somewhat from the one heretofore in use by the C.P.R., although it is designed on the same general principles. In the former type the valve was located directly over the cylinder, the whole weight of the forward part of the gear being supported by a bracket, forming part of the back steam chest cover, carrying a rocker to which is secured the combination lever and a block working vertically in a crosshead fastened to the valve stem, which sets in guides, also forming part of the steam chest head.



LONGITUDINAL SECTION THROUGH BOILER, CONSOLIDATION LOCOMOTIVE, CANADIAN PACIFIC RAILWAY.



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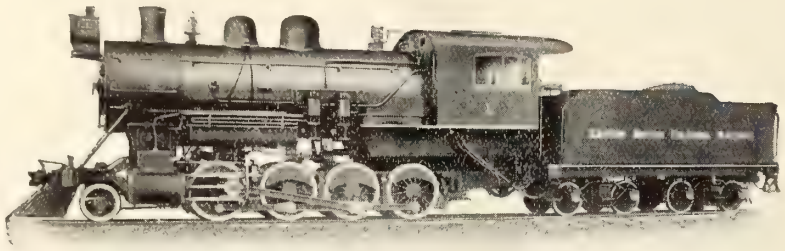

Consolidation Type Freight Locomotive, Built for Eastern British Columbia Railway.

Total weight of engine in working order, 186,310 pounds. Weight on driving wheels, 166,100 pounds. Diameter of driving wheels, 51 inches. Boiler pressure, 210 pounds. Cylinders, 20 x 28 inches. Maximum tractive power, 39,200 pounds.

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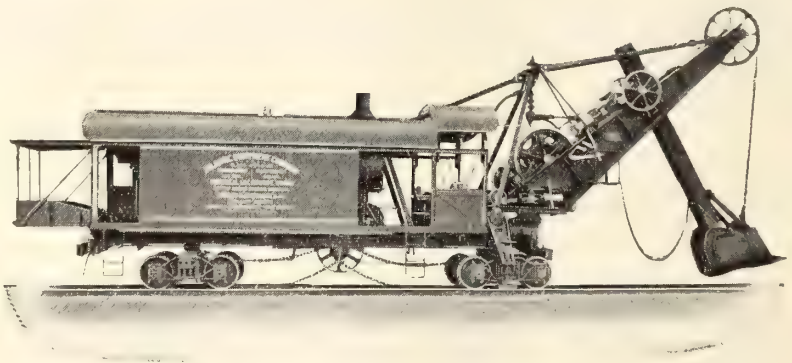

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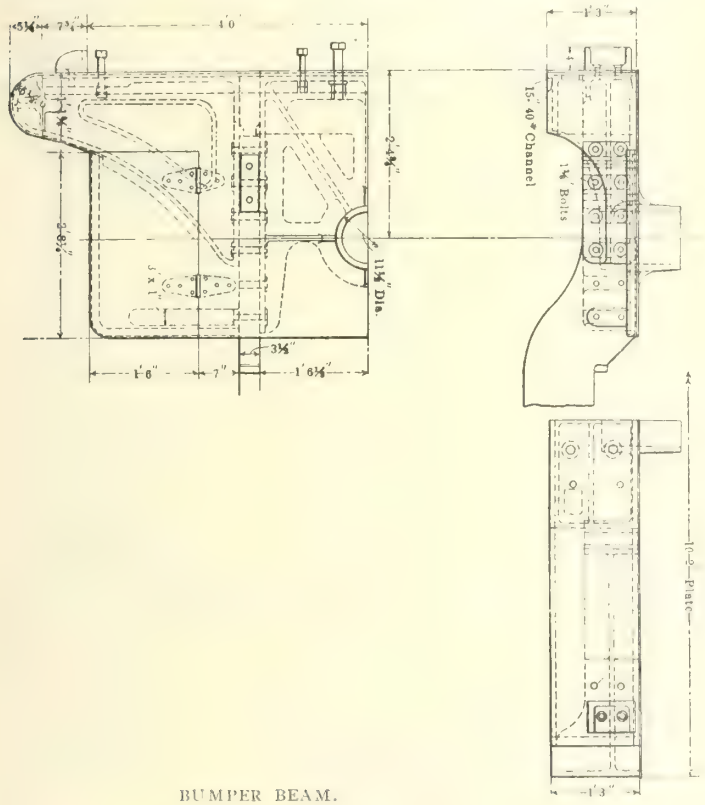
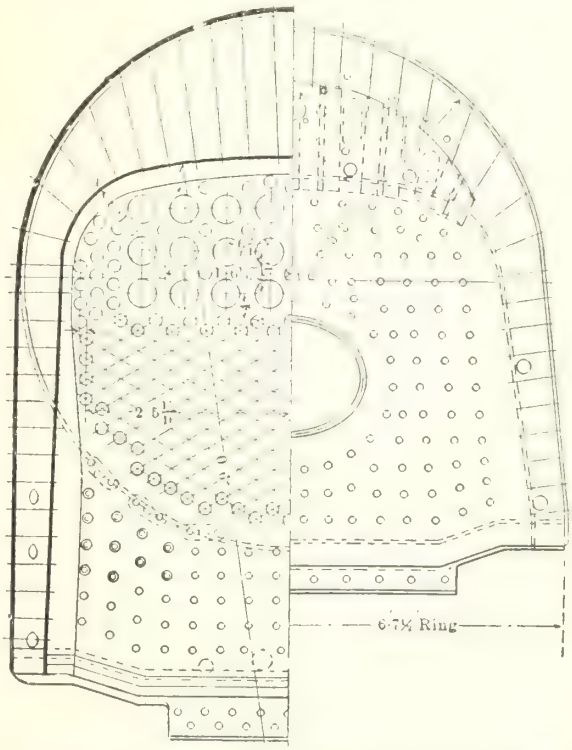
The idea of this arrangement is to relieve the valve stem of all stresses from the weight of the other parts of the valve gear.

In the present design the same idea has been followed by connecting the combination lever to the outer arm of a rock shaft, the inner arm of which carries a small crosshead working in guides, forming part of the valve stem. The valve stem itself is extended backward and carried in a guide secured on top of the frames. The rock shaft is supported by most substantial bearings; the outer one, of very rigid design, is secured to the cylinder casting directly above the cylinder and the inner one is part of the valve chamber head. The bearings are both inside the arms of the rocker. In this manner the valve stem is relieved of the duty of carrying the weight of any part of the gear and is held in perfect alignment. The other features of the valve gear are practically the same as was shown in the article above mentioned. The design and method of supporting the link is of particular interest.

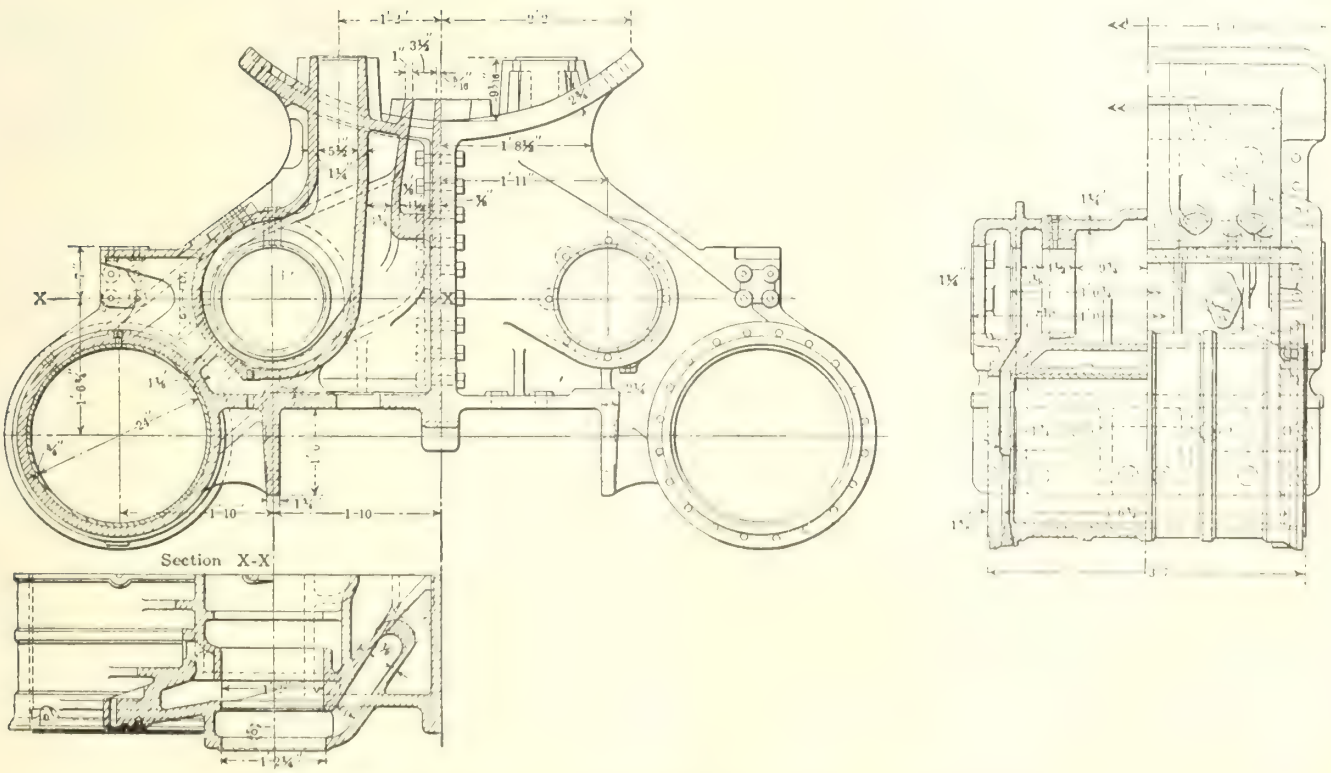
THE GUIDE YOKE is of the built-up type comprising a 1¾ x 12 in. wrought iron plate, supported across the frames by very substantial cast steel knees located in the rear of the yoke and including in the same casting the inner bearing for the link shaft. These knees are most securely bolted to the plate, having a lip over the top and a very liberal bearing and secure fastening to the top of the frames. At the outer end of the cross plate are secured large cast steel carriers for the guides, the details of which are shown in one of the drawings. These are of I-beam section



BUMPER BEAM.



HALF SECTION THROUGH FIREBOX AND HALF END VIEW OF BOILER.



CYLINDERS, CONSOLIDATION LOCOMOTIVE, CANADIAN PACIFIC RAILWAY.

MONTREAL STEEL WORKS, LIMITED

P. O. BOX 2369 MONTREAL

MANUFACTURERS OF

STEEL CASTINGS

(Acid Open Hearth System)

SWITCHES AND TRACK WORK

for Steam and Electric Roads

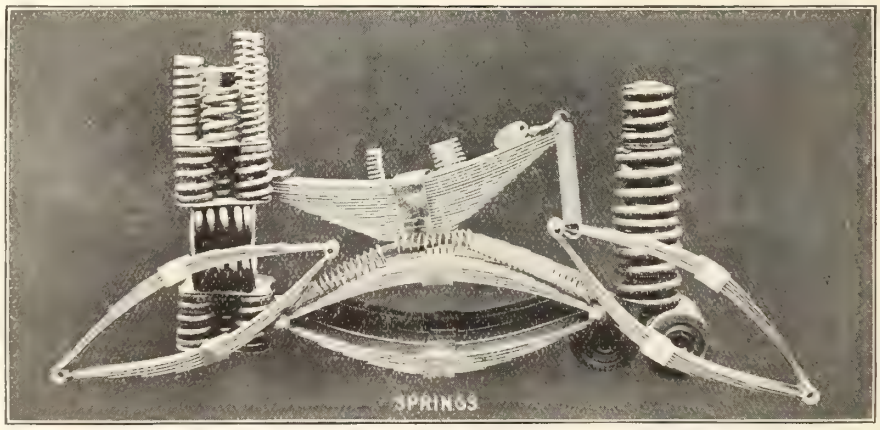
MANGANESE STEEL CASTINGS

for wearing Parts, insuring Great Hardness and Durability

SPRINGS OF ALL KINDS

TOWER, CLIMAX and SHARON COUPLERS and PARTS THEREOF for PASSENGER and FREIGHT CARS and LOCOMOTIVES

INTER-LOCKING PLANTS



TRUCKS FOR ELECTRIC CARS

AGENTS FOR CANADA FOR

THOS. FIRTH & SONS, LIMITED
Sheffield, England

"Speedicut" High Speed Steel, Tool Steel, Axe Steel, Saw Steel, Files, etc.

A large stock carried in our warehouse.

BARROW HÆMATITE STEEL CO.
Barrow-in-Furness, England

Quotations for Tee Rails, Fish Plates, etc., promptly furnished.

Catalogues sent on application.

TORONTO OFFICE: 703 TEMPLE BUILDING P. O. BOX 82

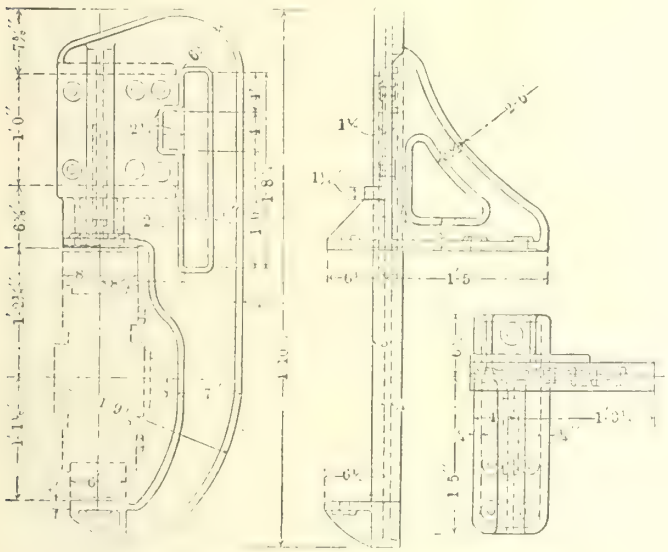
throughout and include brackets for carrying the guides, the upper one being nearly 2 ft. in length and carrying the guide by three 1¼ in. bolts. These yokes were most carefully designed to obtain the required strength and rigidity with a minimum weight and are cut out for clearance of the radius bar. The plate is set in a recess in these castings and secured to each by six 1⅛ in. bolts.

From the guide yoke are also carried the outer bearing of the link shaft and the bearings for the lift shaft, these being separate castings of steel, which were specially designed to combine the maximum rigidity with minimum weight. They are carried on the back of the cross plate by four 1⅛ in. bolts. Each has a lip over the top of the plate and a bearing for the full depth of 12 in.

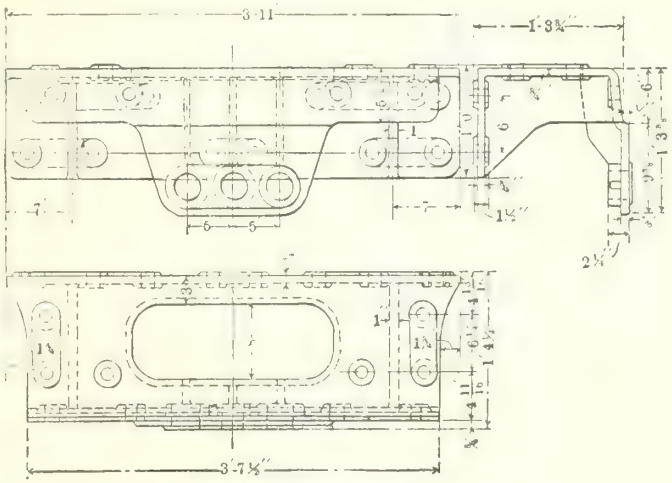
FRAMES.—One casting, 35 ft. 8⅛ in. long, forms each of the frames. The main section is 5 in. thick and has a depth of 6½ in. at the pedestal. The forward section passing below the cylinders, however, is but 3½ in. wide, the inside edge being in alignment with the main frame. The section below the cylinders is 12 in. in depth at the narrowest point. The pedestal binders are of the clip type, being held by two 1¼ in. bolts at either end. The design throughout is simple and straightforward, requiring comparatively few departures from straight line work on the slotter.

BUMPER BEAM.—Three steel castings with a 15 in. channel form the bumper beam and centre pin bearing. The casting between the frames, which forms the guide for the truck pin, is similar to that which was commonly used when cast iron was the only material available. It is deeply ribbed and securely fastened between the frames, but has no connection to the cylinder casting. In addition to this there are two castings on the outside of the frames, of deeply ribbed section, forming the wings of the bumper beam. These three castings are secured together by a 15 in., 40 lb., channel, which forms a tension member in case of any cornering strains on the end of the bumper beam. This makes a very strong arrangement, but also one which, in case of accident, permits part of the beam to be replaced without disturbing the remainder. The frames are terminated 10¾ in. from the face of the beam, the castings being lipped over the ends of the frames. The whole beam is covered with a ¼ in. plate, which is cut away where necessary and has a hinged section on each side to permit the removal of the pistons.

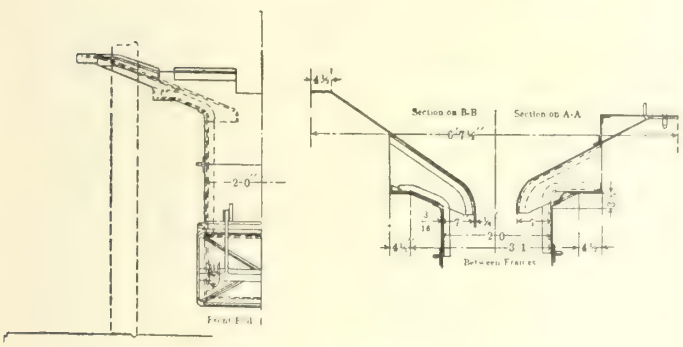
THE DRIVING BOXES have brasses 14 in. long, the axles being 9½ in. in diameter except the main, which is 10 in. The boxes are set 1 in. out of line with the

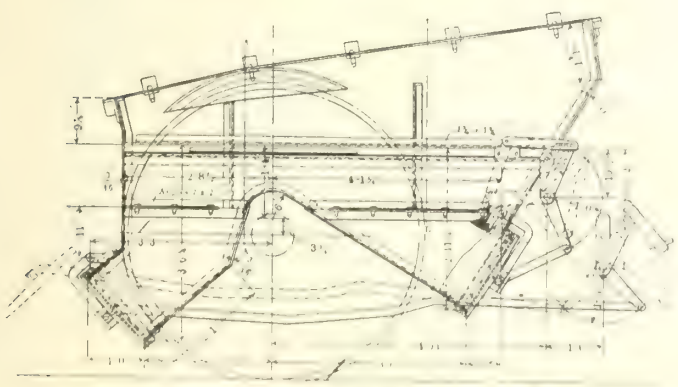


CAST STEEL CARRIERS FOR THE GUIDES.

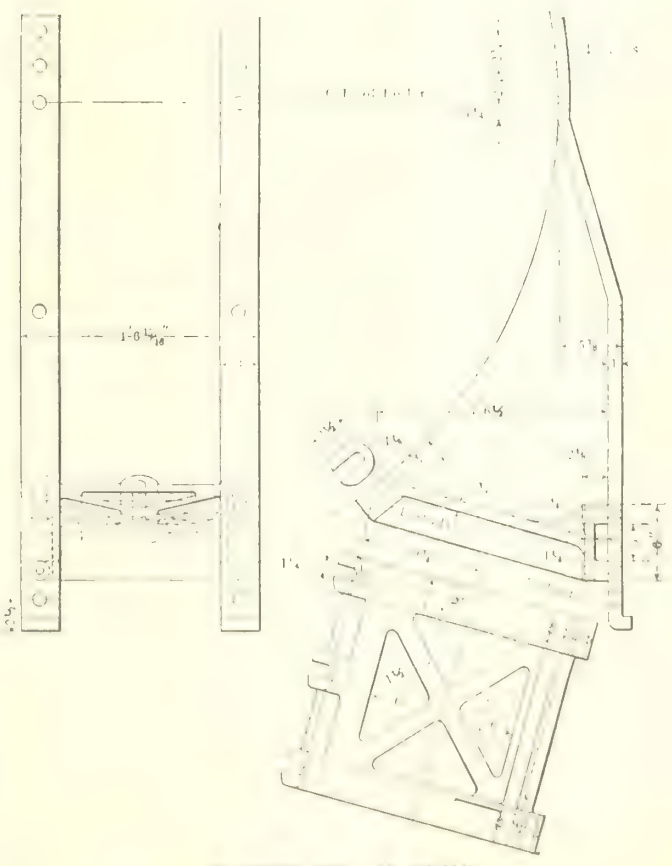


FRAME CROSS TIE AT CYLINDERS.





UNIQUE DESIGN OF SELF CLEANING ASH PAN.



BRACKET FOR AIR PUMP.

Pintsch Light Steam Heat

Most brilliant illumination made possible by the Pintsch System using perfected Mantle Lamps and Safety Axle Driven Dynamo Electric System a product of sixteen years experience and now operating successfully on leading roads

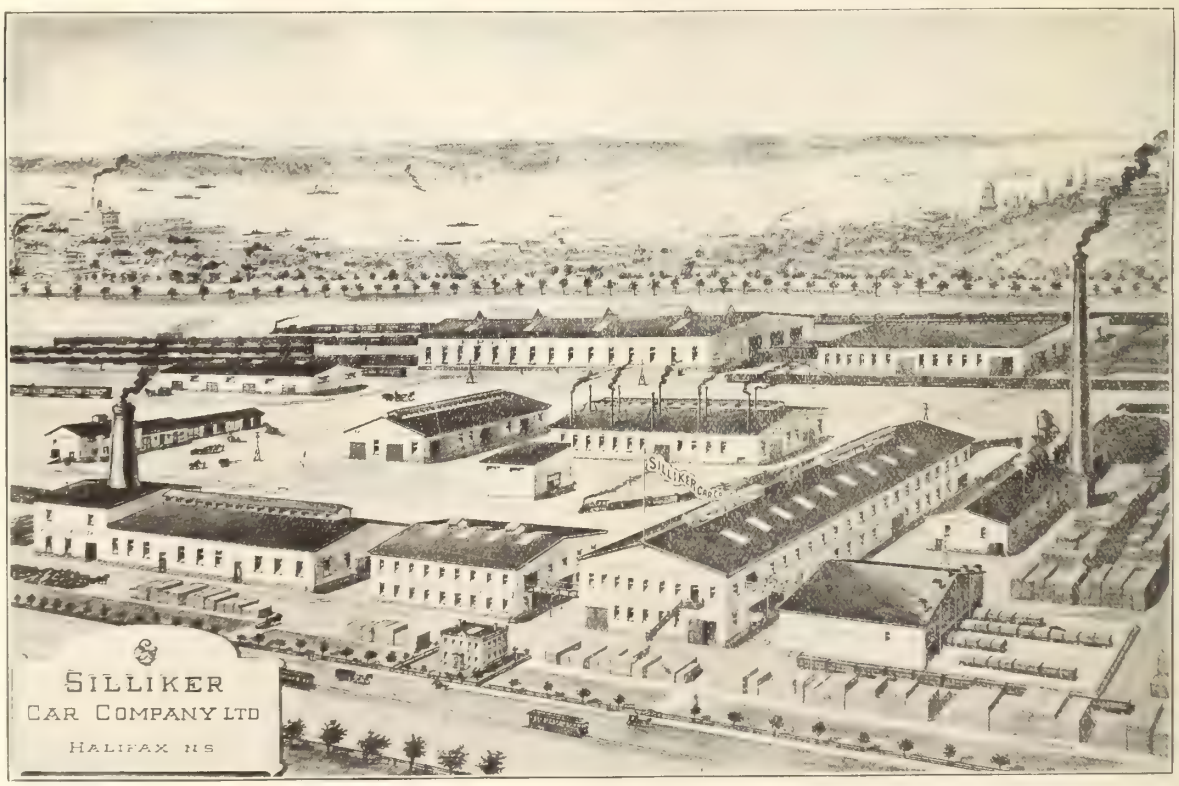
The Safety Car Heating and Lighting Co.
2 RECTOR ST., NEW YORK.

Car Heating Systems guaranteed to meet all conditons of service. Controllable Direct Steam, Hot Water or Thermo Jet System where pressure not desired. Steam tight couplers, traps, trainpipe valves and other appliances.

CHICAGO. BOSTON. ST. LOUIS. ATLANTA. PHILADELPHIA. MONTREAL. BERKELEY, CAL.

SILLIKER CAR COMPANY, LIMITED, HALIFAX, N. S., CANADA

STREET RAILWAY CARS



HEAVY FORGINGS AND CASTINGS

RAILWAY, FREIGHT AND PASSENGER CARS OF ALL KINDS

centre of the frames, towards the inside, the spring rigging being arranged to be central over the box. This gives a longer bearing area than would otherwise be possible and introduces no particular complications.

The spring rigging is of the customary type, having the front pair of wheels equalized with the front truck and the remaining three on either side being equalized together.

AIR PUMP BRACKET.—A new design of air pump bracket is found on this locomotive, which is considerably lighter and fully equal in strength to the designs commonly in use. It consists of two 1 x 3 in. wrought iron straps, each secured by three 1 in. studs to the boiler shell at the top, and held in position at the bottom by a cast iron bracket extending out from the boiler and secured to each of the straps by two ⅝ in. bolts. The air pump is bolted d'rectly to the vertical hangers, which are lipped over on the bottom. The illustration clearly shows the details of this bracket.

The general dimensions, weights and ratios of this locomotive, which was designed in the Mechanical Engineer's office under the supervision of H. H. Vaughan, Assitant to the Vice President, are as follows:—

GENERAL DATA.

Gauge	4 ft. 8½ in.
Service	Freight and Passenger
Fuel	Bituminous Coal
Tractive effort	44,750 lbs.
Weight in working order	220,000 lbs.
Weight on drivers	195,000 lbs.
Weight on leading truck	25,000 lbs.
Weight of engine and tender in working order	354,000 lbs.
Wheel base, driving	16 ft. 6 in.
Wheel base, total	25 ft. 5 in.
Wheel base, engine and tender	55 ft. 7⅞ in.

RATIOS.

Weight on drivers ÷ tractive effort	4.36
Total weight ÷ tractive effort	4.92
Tractive effort × diam drivers ÷ heating surface	1003.00
Total heating surface ÷ grate area	57.35
Firebox heating surface ÷ total heating surface	6.40
Weight on drivers ÷ total heating surface	69.4
Total weight ÷ total heating surface	78.3
Volume both cylinders, cu. ft.	16.75
Total heating surface ÷ vol. cylinders	168,000
Grate area ÷ vol. cylinders	2.92

CYLINDERS.

Kind	Single
Diameter and stroke	24 x 32

VALVES.

Kind	Piston
Diameter	12 in.
Greatest travel	6 in.
Outside lap	1 in.
Inside clearance	Line and line
Lead in full gear	¼ in.

WHEELS.

Driving, diameter over tires	63 in.
Driving, thickness of tires	3½ in.
Driving journals, main, diameter and length	10 x 14 in.
Driving journals, others, diameter and length	9½ x 14 in.
Engine truck wheels, diameter	31 in.
Engine truck, journals	6 x 10 in.

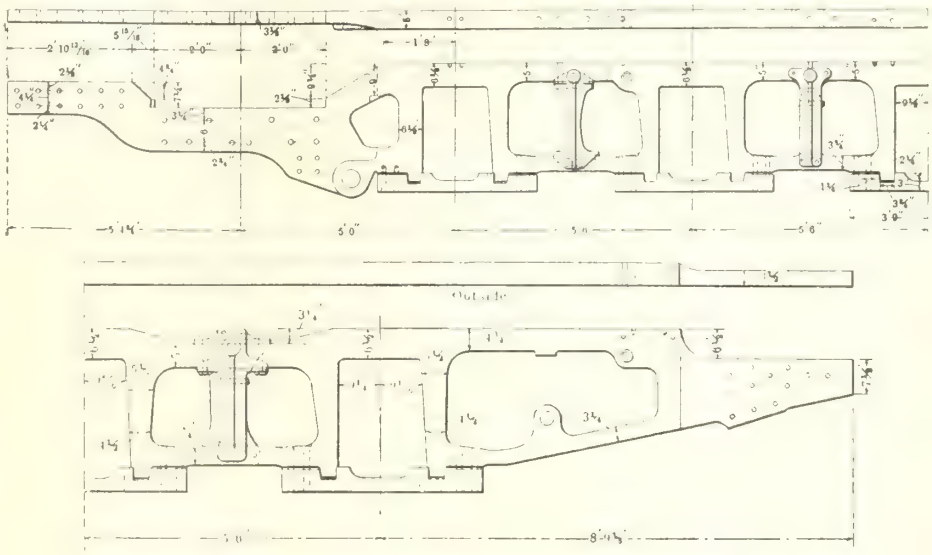
BOILER.

Style	E. W. T
Working pressure	180 lbs
Outside diameter of first ring	72 in
Firebox, length and width	101⅜ x 69¾ in
Firebox plates, thickness, crown and sides	⅜, Tube ½, and Back ⅜ in
Firebox, water space	F. 5, S. 4½, B. 3½ in.
Tubes, number and outside diameter	24—5 in
Tubes, number and outside diameter	272—2 in.
Tubes, length	15 ft. 2¾ in
Heating surface, tubes	2,631 sq. ft
Heating surface, firebox	180 sq. ft
Heating surface, total	2,811 sq. ft.
Superheater heating surface	450 sq. ft.
Grate area	49 sq. ft.
Smokestack, diameter	17 in.
Smokestack, height above rail	15 ft. 2 in.
Centre of boiler above rail	9 ft. 8 1-16 in.

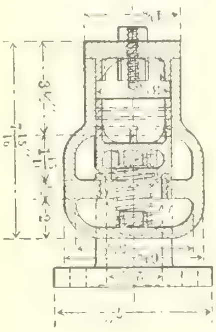
TENDER

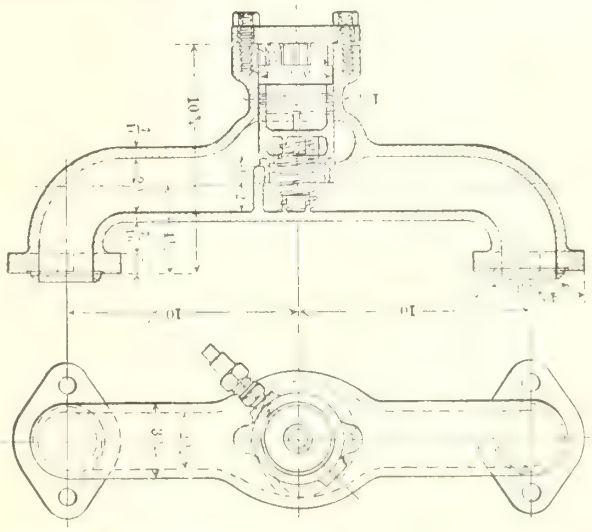
Weight	134,000 lbs.
Wheels, diameter	34 in.
Journals, diameter and length	5½ x 10 in.
Water capacity	5,000 gals.
Coal capacity	10 tons.

American Engineer and Railroad Journal

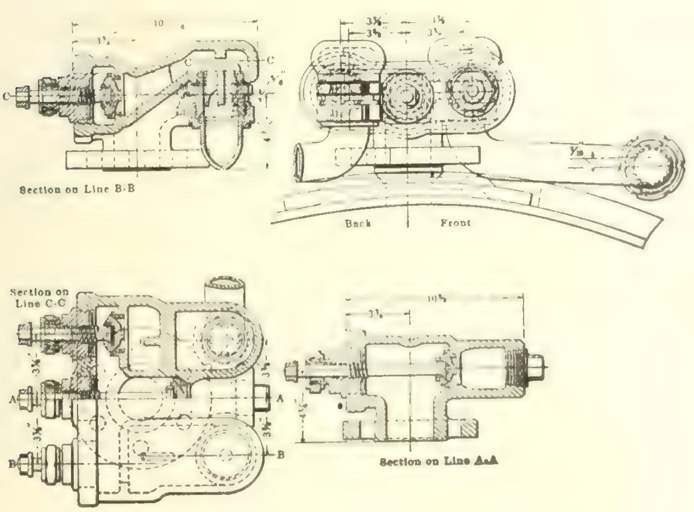


FRAME OF CONSOLIDATION LOCOMOTIVE, CANADIAN PACIFIC RAILWAY.

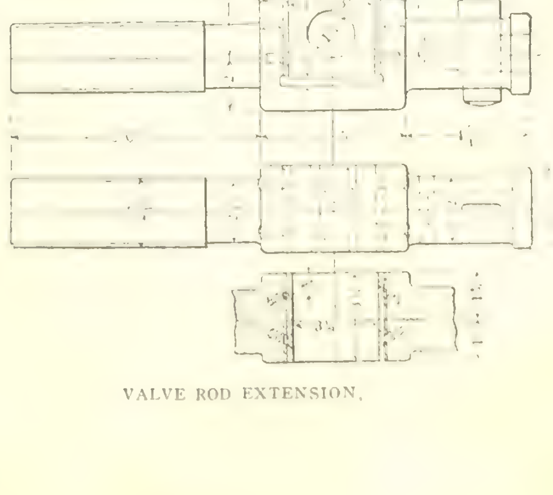




BY-PASS VALVE ARRANGEMENT.

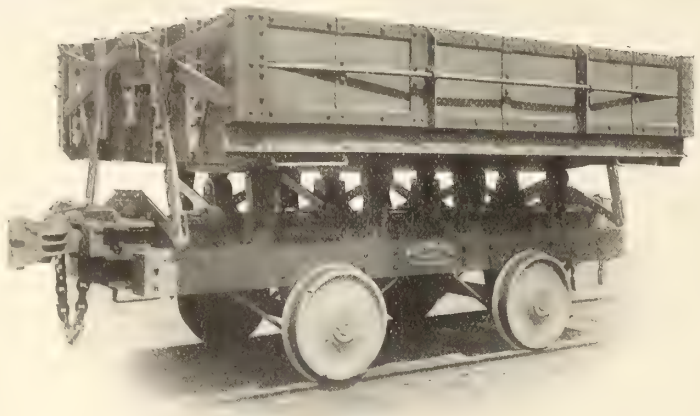


ARRANGEMENT OF CHECK VALVES AND SYPHEN COCK.

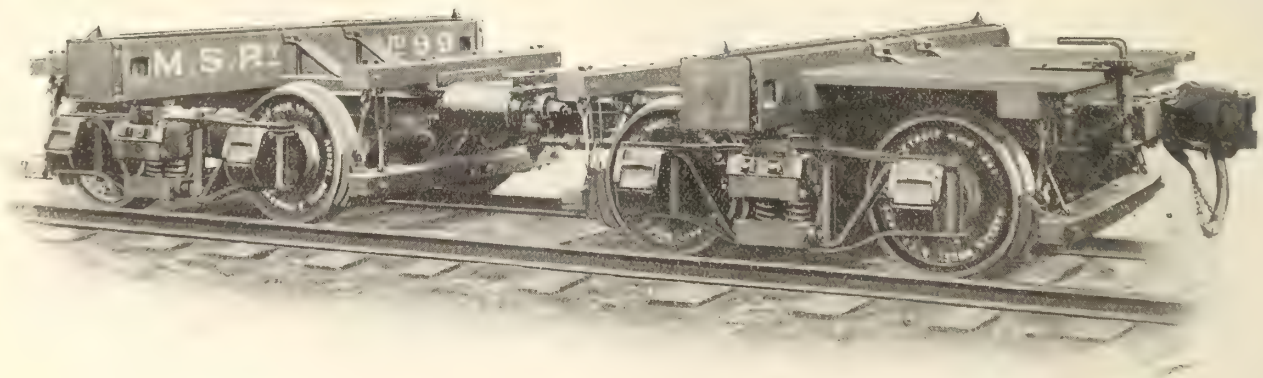


VALVE ROD EXTENSION.

Russel Heavy Duty Dump Cars



The only dump car built that will stand the severe service of the heaviest steam shovels. Acknowledged by the operator to be the best car on the Mesaba Range. : : :



RUSSEL LOGGING CARS

Superior in design. Built to accommodate any length of logs and of any capacity desired. : : : :

RUSSEL WHEEL & FOUNDRY CO.

Detroit, Mich., U.S.A.

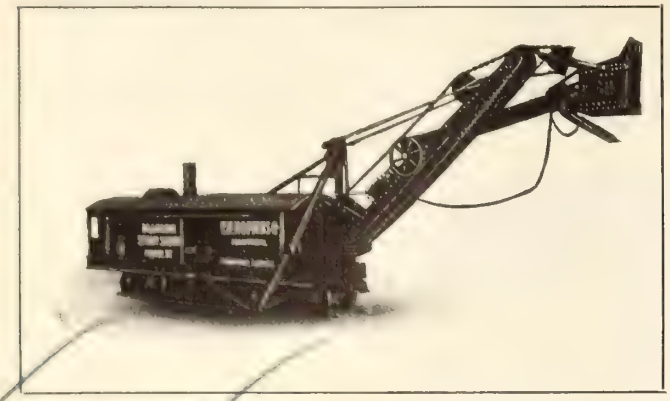
STEAM RAILWAY STATISTICS FOR YEAR ENDED JUNE 30, 1909.

The table given in our last issue showed the financial results of the operations of steam railways for the year ended June 30, 1909. The following table gives the percentages and the principal statistical information compiled by the companies. The table published last issue and the one given below contain all the information given in our compilation of these statistics published, but the columns have been rearranged so as to combine in the first table the financial and in the second the statistical information.

Name of Railway.	Proportion of total passenger service train revenue of total earnings.	Proportion of freight train revenue plus switching revenue &c. to total earnings	Revenue Train Mileage	Mileage Non-Revenue Train	Earnings per Train Mile	Passengers Carried	Passengers Carried One Mile	Passengers Earnings per Train Mile	Tons of Freight Carried	Tons Freight Carried One Mile	Freight Earnings per Train Mile
Alberta Ry. & Irrigation Co.	27.53	68.16	87,192	3,731	$3.37	46,379	1,984,906	$1.17	150,985	7,374,129	$2.28
Algoma Central & Hudson Bay Ry.	5.58	75.21	45,967	5,429	6.74	14,959	497,199	.48	362,808	8,299,286	3.19
Atlantic & Lake Superior Ry.	33.35	63.06	95,640		.97	22,755	750,915	.48	37,931	1,362,797	.68
Atlantic, Quebec & Western Ry.	36.69	63.21	14,538		1.15	13,519	198,896	.44	13,270	217,685	.77
Bay of Quinte Ry.	26.78	70.30	165,438		.92	81,946	1,423,089	.24	141,775	4,321,255	.65
Bedlington & Nelson Ry.	9.28	90.72	1,258		1.38	410	2,734	.12	2,500	17,335	1.25
Bessemer & Barry's Bay Ry.		100.00	4,080		1.00				21,369	106,845	1.61
Brandon, Sask. & Hud. Bay Ry.	12.16	73.20	68,599		5.70	31,311	959,719	.66	72,658	2,929,920	4.21
British Yukon Ry.	28.81	44.82	57,246	2,543		8,802	776,336	1.43	23,953	2,135,410	.84
Brockville, Westport & Nor.-W. Ry.	55.72	44.28	57,150	1,810	6.17	67,180	2,015,400	.56	21,913	657,390	
Canada Southern Ry.	28.85	70.16	3,555,968	94,925	2.18	1,029,481	81,541,013	1.35	5,955,251	996,611,016	2.70
Canadian Government Rys.—											
Intercolonial Ry.	34.82	64.44	6,762,053		1.27	2,933,754	141,495,515	.94	3,552,739	954,639,260	1.36
Prince Edward Island Ry.	51.47	48.13	333,764	23,510	.96	331,777	7,758,271	.49	114,440	3,888,055	.45
Canadian Northern Ry.	19.91	70.69	4,570,041	379,506	2.32	1,028,787	78,044,255	1.04	2,958,802	1,000,875,386	.24
Canadian Northern Ontario Ry.	39.28	58.56	413,165	4,911	.80	105,182	5,733,319	.42	201,296	17,478,571	1.42
Canadian Northern Quebec Ry.	30.40	67.32	462,735	16,991	1.59	332,893	10,169,158	.77	485,819	39,158,817	2.17
Canadian Pacific Ry.	31.37	66.40	34,198,180	1,831,105	2.06	9,507,645	1,043,124,841	1.41	15,701,276	6,069,787,049	2.30
Cape Breton Ry.	66.12	32.39	19,530			7,572	170,816		3,496	64,913	
Caraquet Ry.	28.34	71.66	140,649			12,523	465,283		24,793	1,115,685	
Carillon & Grenville Ry.	61.10	3.11	2,522	524	.63	3,833	46,567	.67	55	715	.03
Central Ontario Ry.	31.71	61.12	900,241		.29	148,047	3,613,411	.94	231,431	6,709,578	.26
Crows' Nest Southern Ry.	10.71	88.28	84,624	42,533	2.10	16,860	448,412	.47	242,492	13,575,849	3.53
Cumberland Ry. & Coal Co.	17.34	82.66	676,020			32,529	515,035	.29	378,431	6,257,427	1.40
Dominion Atlantic Ry.	48.80	50.92	555,884	11,089	1.43	347,435	15,634,575	.78	334,588	16,729,400	1.63
Elgin & Havelock Ry.	25.81	74.15	18,720			10,494	136,422		15,253	213,542	
Eastern British Columbia Ry.	28.07	71.86	2,952		2.35	2,888	33,582	.66	19,097	210,821	1.60
Grand Trunk Ry.	35.71	63.02	16,780,281	588,908	1.67	10,142,211	456,882,404	1.23	14,518,691	2,619,838,880	1.91
G.T.R. (Canada Atlantic)	24.27	72.80	1,273,143	76,267	1.42	501,868	17,596,319	.67	2,258,587	225,532,097	1.71
Halifax & South-Western Ry.	50.55	48.60	309,992	13,088	1.20	181,873	7,405,487	.66	185,063	10,003,175	.71
Hampton & St. Martins Ry.	36.94	63.02	6,500			7,781	141,976		16,106	236,658	
Hereford Ry.	28.97	70.64	74,714	1,155	.86	28,396	693,797	.34	128,982	3,205,225	1.10
Inverness Ry. & Coal Co.	12.37	87.02	97,405	3,482	1.92	36,383	833,173	.54	275,100	14,888,307	1.67
Irondale, Bancroft & Ottawa Ry.	24.90	75.10	31,300		.86	10,751	190,140	.21	32,032	908,335	.64
Kaslo and Slocan Ry.	18.45	81.48	7,787		2.36	2,227	39,160	.43	11,645	215,596	1.92
Kent Northern Ry.	44.18	55.82	6,858			8,200	221,400		8,949	241,628	
Kettle River Valley Ry.	5.08	94.92	839		1.94	144	2,081	.39	2,355	29,198	1.84
Kingston & Pembroke Ry.	31.28	77.31	115,856	150	1.22	74,091	1,407,729	.38	99,482	1,984,048	1.10
Klondike Mines Ry.	30.34	69.62	9,920		4.47	4,065	91,580	1.35	6,093	82,764	3.91
Liverpool & Milton Ry.	3.75	96.25	5,100		2.32	5,200	21,000	.87	44,371	154,855	2.23
Lotbiniere & Megantic Ry.	17.42	71.95	19,980		1.67	12,270	173,881	.30	52,056	777,535	1.27
London & Port Stanley	32.98	61.83	125,615	337	1.96	153,701	2,683,345	.45	463,206	7,693,852	1.11
Manitoulin & North Shore Ry.	3.76	96.24	13,653	13	3.02	5,768	33,447	.23	224,990	1,819,412	3.00
Maritime Coal, Ry. & Power Co.	16.15	83.65	24,977		1.75	22,194	195,333	.38	129,432	992,572	1.46
Massawippi Valley Ry.	39.01	60.61	162,162	1,027	1.10	161,215	2,958,116	.83	404,970	11,018,189	1.50
Midland Ry. Co. of Man.	15.07	84.75	56,974	313	1.75	12,633	365,383	.29	95,202	5,395,832	1.49
Montreal & Atlantic Ry.			552,908	22,562	1.52	298,298	7,473,903	.66	999,834	53,613,438	1.50
Montreal & Province Line	56.52	41.24	94,209	4,327	.96	158,786	2,353,356	.74	63,908	1,703,431	.90
Montreal & Vermont Jct. Ry.	41.26	58.65	95,726	784	1.40	121,905	2,571,382	.66	1,008,715	23,664,544	2.52
Morrissey, Fernie & Michel Ry.	10.29	89.71	25,977		2.97	112,500	686,250	.30	392,890	2,396,690	3.66
Moncton & Buctouche Ry.	33.59	66.41	22,208		1.23	20,451	428,011	.44	28,540	554,038	.78
Napierville Jct. Ry.	10.00	92.40	20,658	326	2.12	10,315	144,408	.25	162,882	4,283,681	2.00
Nelson & Fort Sheppard Ry.	37.61	57.61	55,293	6,282	1.32	19,060	611,247	.74	41,712	1,398,508	2.30
New Brunswick Coal & Ry. Co.	26.83	54.92	63,914		1.08	24,219	588,450	.29	65,888	2,580,477	.59
New Brunswick & P.E.I. Ry.	34.29	65.42	48,210		.66	23,709	411,615	.37	34,813	483,588	.47
New Brunswick Southern Ry.	47.03	52.22	77,094	11,715	.53	16,882	686,558	.37	12,130	694,326	.28
New Westminster Southern Ry.	55.17	44.53	57,711	692	1.60	75,868	1,420,304	1.11	65,862	1,356,905	2.16
Nosbonsing & Nipissing Ry.		100.00	8,155		2.85				16,310	89,705	2.85
North Shore Ry. Co.	11.75	88.25	14,400		.21	1,807	14,456	.03	6,797	54,376	.8
Nova Scotia Steel & Coal Co.	33.93	61.07	15,650		.36	8,234	68,872	.14	6,953	[illegible]	.09
Orford Mountain Ry.	23.71	75.90	52,971	3,847	.57	15,236	243,776	1	35,993	683,867	.79
Ottawa & New York Ry.	48.20	49.68	115,827		1.20	109,223	[illegible]	.8	[illegible]	[illegible]	1.77
Phillipsburg Ry. & Quarry Co.		100.00	3,144		1.38				25,742	[illegible]	
Princeton Branch, W.C.Ry.	30.98	69.02	10,183	169	2.44	78,494	400,319	.9	150,545	767,779	.9
Pere Marquette Ry.	6.11	93.18	1,201,853	9,807	1.83	307,261	6,064,109	.41	2,418,971	121,734,447	2.16
Quebec Central Ry.	34.91	64.48	670,246	157,270	1.64	343,487	15,076,611	.80	594,627	46,796,780	2.11
Quebec & Lake St. John Ry.	40.88	57.49	433,429		1.45	352,419	11,805,355	.97	320,469	[illegible]	1.71
Quebec Ry., Light & Power Co.	20.41	71.40	26,919	2,017	2.12	113,582	583,811	.9	107,150	[illegible]	.9
Quebec, Montreal & Southern Ry.	47.17	52.90	90,130	[illegible]	1.11	96,918	[illegible]	.54	33,430	[illegible]	.82
Red Mountain Ry.	17.73	80.47	15,004	[illegible]	1.47	9,331	[illegible]	.58	82,942	730,550	1.19

(Continued on page 179)

Gen. Porter by Rowell & 46189 vol. 24



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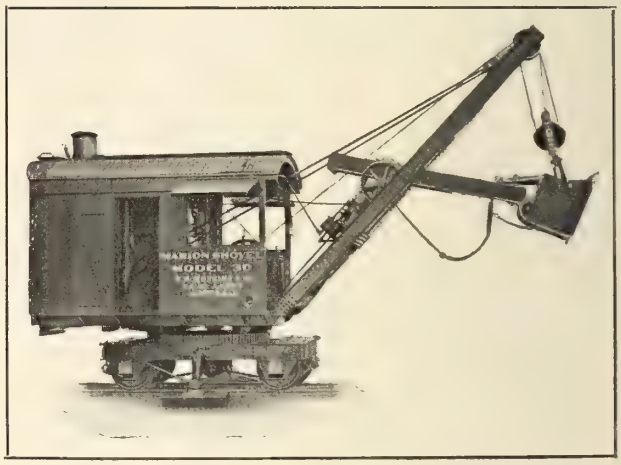

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Steam Railway Statistics for the Year Ended June 30, 1909—*(Continued from page 177)*

Name of Railway	Proportion of total passenger service (same to nearest tenth of a mile)	Proportion of freight to freight plus switching revenue (same to nearest tenth of a mile)	Revenue Train Mileage	Miscellaneous Non-Revenue Train Mileage	Passengers Carried One Mile per Mile of Road	Passengers Carried	Passengers Carried One Mile	Passenger Earnings per Train Mile	Tons of Freight Carried	Tons of Freight Carried One Mile	Freight Earnings per Train Mile
Rutland & Noyan Ry.	71.61	28.39	6,863	9	1.82	114,934	389,626	1.89	139,398	472,559	1.61
Salisbury & Harvey Ry.	38.64	60.86	37,206		.83	14,627	323,504	.32	43,661	441,329	.50
Schomberg & Aurora Ry.											
Stanstead, Shefford & Chambly Ry.	47.67	51.94	83,726	3,683	.87	168,822	1,201,167	.56	1,082,479	2,945,031	1.00
St. Clair Tunnel		100.00									
St. Lawrence & Adirondack Ry.	41.27	58.66	255,750	3,672	1.65	386,095	9,435,146	1.12	580,589	20,972,392	2.44
Sydney & Louisburg Ry.	5.52	93.66	210,699		1.65	50,542	675,639	.57	3,456,463	52,625,111	1.84
Spokane & British Columbia Ry.	7.20	92.80	414		1.97	633	2,341	.14	4,274	15,841	1.86
Temiscouata Ry.	36.28	62.20	160,551	10,422	1.43	84,578	2,848,690	.57	136,375	6,639,697	1.65
Temiskaming & Northern Ont. Ry.	39.75	53.62	533,861	10,425	2.48	574,963	19,785,303	1.83	535,242	45,708,866	2.79
Thousand Islands Ry.	32.81	60.52	33,664		.97	31,161	186,966	.32	30,512	185,072	.59
Toronto, Hamilton & Buffalo Ry.	31.95	67.11	429,837	9,117	1.85	421,980	11,840,342	.99	1,234,303	48,020,980	3.18
Vancouver, Victoria & Eastern Ry.	21.39	77.87	176,586	10,681	2.27	122,153	2,421,464	.77	927,936	25,286,084	3.08
Victoria Terminal Ry. & Ferry Co.	38.08	56.90	1,597		1.91	68,428	78,008	.90	29,942	34,130	1.46
Victoria & Sidney Ry.	47.16	52.19	22,409		3.43	68,428	841,231	1.32	30,003	424,231	2.83
Wabash Rd. in Canada	28.04	71.80	1,501,944	21,018	1.41	567,304	34,743,601	.85	1,225,487	287,921,368	1.86
Wellington Colliery Co.	7.06	92.94	31,200		1.52	5,390	57,942	.10	328,921	3,535,900	1.41
York & Carleton Ry.	34.32	65.68	8,490		.63	5,350	56,157	.21	8,921	93,670	.41
Totals.			79,853,028	3,521,894		32,683,309	2,033,001,225		66,842,258	13,160,567,550	

A Railway to Hudson Bay.

In the House of Commons recently, the Minister of Railways said he wished to make it clear that the Government has been committed to the work of the construction of a Hudson Bay railway, and intended to proceed with it with all possible speed. After full study of the situation, so far as it was possible at present, the Government had decided that it was advisable to make the Hudson Bay route another great outlet for the rapidly increasing products of the western part of Canada. The Government intended to proceed as rapidly as possible with the construction of this railway. Chief Engineer Armstrong, in his report, expressed the opinion that Nelson possessed a superior harbor to Churchill, while the route was 67 miles shorter than to Churchill. However, before either place was selected as a terminal it would be wise to make sure of the fact, and the Minister of Marine would ask the House for a vote for the purpose of sending a ship up through the channels which would go into both these harbors from the outside, make an examination of the channels and of the passage through the straits. This expedition would make a thorough investigation of the outer harbors of both places, and when that was done the Government would be in a position to take up in a more practical way that part of the project at the harbor end. But that need not mean any delay in the beginning of the construction of the railway, as for about 260 miles the route would be the same, whichever harbor was selected as a terminal. This mileage would carry the line from Pas Mission to Split Lake; the total distance from Pas Mission to Nelson being 410 miles, and to Churchill 477 miles. The estimates given in the Departmental report were based on the preliminary surveys. A survey party was then engaged in making the location from Pas Mission to Split Lake. There might be an increase in the estimate as a result. The surveys provided for the construction of a line having a gradient of 0.4% going to the Bay; the engineer thinking it impracticable to make that gradient both ways. There might be some difference of opinion as to the necessity of constructing a roadbed necessitating the use of 80 lb. steel rails. There also might be differences of opinion as to the construction of the line as a government work. He was not prepared to say how it would be done, but no matter how it was done, that did not of necessity mean that construction could not be begun at once, because if an arrangement was made with a company that was satisfactory, any work the government had done could be handed over to it on reasonable terms in a contract.

$180,000 was voted by the House of Commons, Feb. 4, for the survey and location of the line. The Minister of Railways explained that this was for the completion of location from Pas Mission to Split Lake. He expected to bring down an item for construction in the supplemented estimates when he hoped to be able to state whether the line would be constructed by the Department, or let by contract. A bridge had to be constructed across the Saskatchewan River at the commencement of the line.

Replying to questions the Minister said there was no agreement with any person as to the construction; how it would be constructed, or who would construct it is an open question. D. D. Mann, had been, within the previous few days, in Ottawa, consulting the Department upon other matters, but nothing was said about the construction of the railway to Hudson Bay. (Feb., pg. 97).

Farm Crossings Regulations

The Board of Railway Commissioners passed the following order 9325, Jan. 17, as standard regulations regarding farm crossings.

1. Farm crossing gates shall be of such a width as to give a clear space between the post of not less than 16 ft. in Manitoba, Saskatchewan, Alberta and British Columbia, 15 ft. in Ontario, 14 ft. in Quebec and the Maritime Provinces.

2. The planking or other approved filling between the steel rails, and for a width of at least 8 ins. on the outer sides thereof, and the roadways between the gates and the track or tracks, shall each furnish a road surface of not less than 14 ft. wide in Manitoba, Saskatchewan, Alberta and British Columbia, and 12 ft. wide in the other Provinces.

3. For any cut or fill up to 5 ft. the grade shall not be steeper than 10% rise for each foot, or fraction exceeding one-half foot, of cut or fill in excess of 5 ft. the percentage of grade shall (except where, and to the extent that, the slope of the ground makes it impossible) be decreased by ½ of 1% until a depth or height of 11 ft. is reached.

4. When a cut or fill at any farm crossing exceeds 11 ft. the matter shall be referred to the Board to decide as to the advisability of requiring the railway company to construct a bridge or undercrossing, unless the company, in consultation with the owner of the farm affected, voluntarily constructs a suitable bridge or undercrossing. The width of bridges and undercrossings to be the same as the width of the gates in the different Provinces, and the height of undercrossings to be determined by the requirements in each case.

5. In special cases, it may, upon application, be ordered that any existing farm crossing be reconstructed to conform to the foregoing standards.

The Canadian Ticket Agents' Association's Executive Committee met in Toronto recently and decided to hold the annual meeting in Quebec on Oct. 5, 6 and 7. The headquarters will be at the Chateau Frontenac. The Manager in Chief of the C.P.R. hotel system, Hayter Reed, has quoted very liberal terms for the members' accommodation. W. E. Rispin, G.T.R. ticket agent, Chatham, Ont., will represent the Association at the American Association of General Passenger and Ticket Agents' meeting at Havana, Cuba, Mar. 28. The following agents have joined the Association recently:—A. Bawden, C.P.R., Ridgetown, Ont.; W. J. Anderson, C.P.R., Beeton, Ont.; E. A. Hay, C.P.R., Durham, Ont.

I.C.R. Sleeping Cars.—F. P. Brady, General Superintendent, has issued the following circular to passenger conductors:—"I have to call your attention to rule 133 in the book of instructions issued by the Passenger Department, which reads as follows:—'Train conductors should visit the sleeping cars on their trains at frequent intervals during the night to see that the sleeping car conductor is on the alert and that the temperature of the cars is right, viz. 60 or 65 degrees.' I am informed that this rule is usually disregarded. In future it must be obeyed."

The name of the Grand Trunk Pacific Town and Development Co. has been changed to the Grand Trunk Pacific Development Co.

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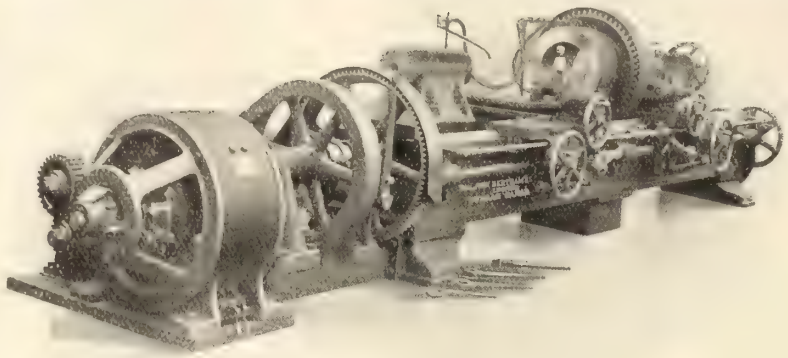

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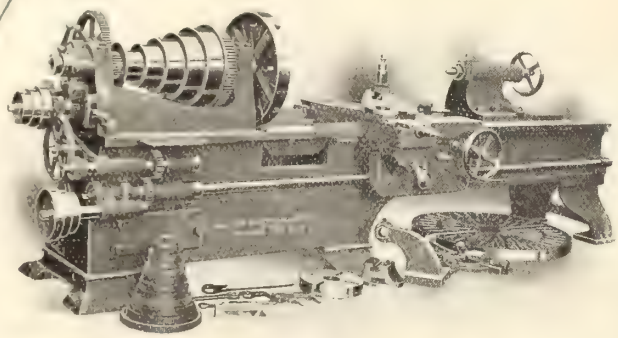

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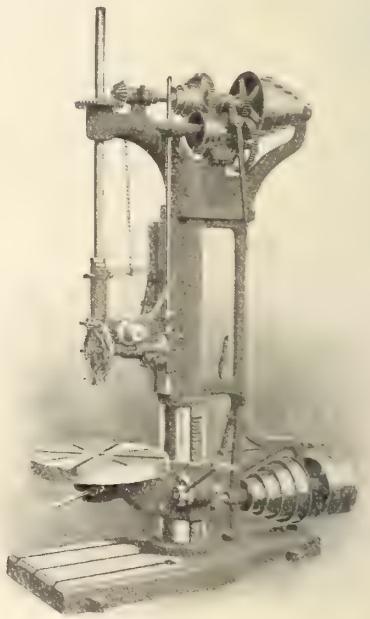

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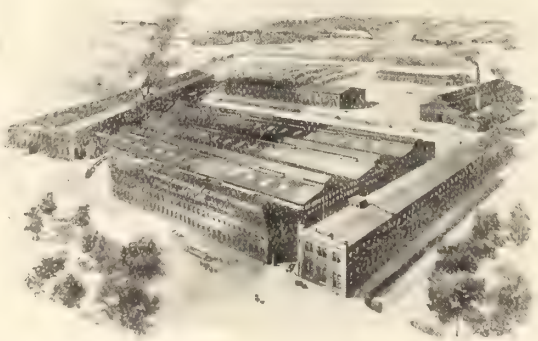

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National Transcontinental Railway.

Speaking in the House of Commons, recently, the Minister of Railways reported on the progress of construction on the N.T.R., Eastern Division. On Nov 30, 1909, there had been graded on the six districts between Moncton, N.B., and Winnipeg, Man., 1045.1 miles, of which 319.60 miles had been graded since Mar. 31. The mileage graded in the several districts at Nov. 30, was: District A., 241 miles; district B., 349.6; district C., 8.0; district D., 106.0; district E., 33.0; and district F., 307.5. On Mar. 31 there had been laid 275.49 miles of main track, and 59.88 miles of sidings. On Nov. 30, the mileage of track laid was: District A., 124.98 miles of main track, and 20.84 miles of siding; district B., 169.33 main track, 13.94 sidings; district D., 47.44 main track, 10.96 sidings; district F., 255.87 main track, 56.81 sidings. The number of miles of track fully ballasted on Nov. 30, was 425, of which 101.5 was in district A., 74.8 in district B., and 212.4 in district F. There had been steel bridges completed in three of the districts, A., B. and F., representing 23,600,223 lbs. of steel, and 1,732,304 ft. 6 in. of timber, and costing $1,122,449.05. There were steel bridges under construction in four districts, A., B., D. and F., requiring in their construction an estimated weight of steel of 44,459,617 lbs.; and 2,649,979 ft. 6 in. of timber; the estimated cost of these bridges was $2,145,065.66, and there had been paid on account of construction to Dec. 31, 1909, $949,561. There were other bridges required in all districts for which contracts had not been let; for these the estimated quantities of steel required was 37,810,686 lbs; of timber 3,220,241 ft. 6 in.; and the estimated cost $1,949,-987.66. The total estimated cost of the bridges on the Eastern Division was therefore $5,217,502.37.

Replying to questions in the House of Commons recently, the Minister of Railways stated that surveys extending from Winnipeg for about 700 miles easterly were taken over by the Commission from the G.T. Pacific Ry. Co. and paid for by the Government. This mileage was all re-surveyed and re-located by the Commission's engineers. Parts of the re-located line on the McArthur contract were changed after the contract was let, particularly in two places, the line being improved thereby. On mileage 49 to 93 the cost of the change over the original estimate was $127,377, while the capitalized value of the improvement was $49,692 on a saving of 4969.2 ft. in length, and $59,854.40 on a saving of 748 degrees 18 ft. in curvature; on mileage 103-122 the cost over the original estimate was $565,465, while the net saving in capitalized cost was $1,760. The long tunnel east of the Winnipeg River is 613 ft. long. Reports dated Dec. 31, 1909, showed that the line between Winnipeg and Lake Superior Jct., was 94.66% completed, and of the ballasting 59% completed. The estimated quantities, actual excavations and cost were:—

	Estimate	Actual	Cost
Solid rock	3,696,336	6,415,869	$10,996,977.30
Loose rock	733,454	2,056,297	1,233,778.20
Com. exc.	11,233,247	2,215,876	664,762.80
	15,663,037	10,688,042	$12,805,518.30

This amount had been paid less 10% hold-back. All the excavations, except the actual entrance into Winnipeg had been completed. The original estimated cost of excavation was $13,010,398.92, and the revised estimates, including rails, ties, steel bridges, etc., was $17,534,000.

The Minister of Railways replying to questions in the House of Commons recently, as to the sections in Districts E. and F. let to O'Brien, Fowler and McDougall, said as to the section in District F., mileage 1,534.04 to 1,538.17 from Moncton, the estimated quantities, actual excavation to Nov. 30, 1909, and the cost were:—

	Estimate.	Actual.	Cost.
Solid rock, c.y.	493,400	344,334	$499,283.86
Loose rock, c.y.	71,900	330,805	181,942.75
Com. exc., c.y..	374,000	128,611	32,152.75

The cost of the excavation at the contract prices on the estimated quantities was $848,475. The estimated quantities were approximate. In a number of muskegs, where no soundings had been taken it was found as the work progressed, that the bottom of many of these was of such a nature as to require much larger quantities of filling than was estimated in order to get a solid bottom. These fills had to be made of material nearest to the work, which was almost entirely loose and solid rock. This accounts to a great extent for the large returns of loose rock. The total estimated expenditure on the section was $1,158,-258.25. The second contract let to the firm covered mileage 1,407.65 to 1,534.04 from Moncton. The estimated quantities, actual excavation to Dec. 31, 1909, and the cost were:—

	Estimate.	Actual.	Cost.
Solid rock, c.y.	2,602,000	658,182	$974,109.35
Loose rock, c.y.	89,000	242,178	205,851.30
Com. exc., c.y..	1,489,000	228,703	66,323.87

The reference to muskeg filling made in the first instance applies to this contract also. The cost of the section on the basis of the estimated quantities at the contract prices is $5,967,208.75.

The question of the entrance of the line from the east into Winnipeg came up for discussion with the Minister of Railways, Feb. 3. The original plan approved by H. D. Lumsden, ex-Chief Engineer, provided for an entrance by a certain route, and the line had been constructed in consequence to a junction with the Canadian Northern Ry. Dundee branch. The C.P.R. objected to the route on account of the crossing of its line involved, and another route, called the northern route, was surveyed and approved by G. Grant, the Commissioners' new Chief Engineer. This route was objected to by the C.P.R. as well as by the Canadian Northern Ry. on the grounds that its use would cut up their yards. An alternative plan was suggested by which the C.N.R. right of way would be used from the junction with the Dundee branch, the right of way being sufficient to permit of both lines being carried along it. After a lengthened discussion between the Minister, the Commissioners and the Chief Commissioner of the Board of Railway Commissioners, the matter was adjourned to permit consideration being given to the suggestion.

GRAND TRUNK PACIFIC RAILWAY

The report of C. Schreiber, General Consulting Engineer to the Government, and Chief Engineer of the Western Division, N.T.R., upon the conditions of the construction being done by the G.T.P.R., to Dec. 31, 1909, as presented to the House of Commons, Feb. 1, by the Minister of Railways, was as follows:—

The Prairie Section extends from Winnipeg to Wolf Creek, 915 miles. The grading and bridging are completed throughout the whole distance, and 1,431 miles of single fencing have been built. The track is laid from Winnipeg to about 24 miles west of Entwhistle, a distance of 885 miles, and a telegraph line has also been built. There is a lift of ballast on the line from Winnipeg to Entwhistle, 861 miles. The road is in operation from Winnipeg to Edmonton, 795 miles, and the traffic for the past 12 months has been as follows:—

74,715 passengers; 5,880,069 bush. grain; 117,810 tons general freight. The accommodation provided for public traffic service on this section is as follows:—6 engine houses, 3 machine shops, 6 divisional station houses, 33 way station houses, 56 section houses, 67 bunk houses, 55 tool houses, 35 water stations, 6 coaling stations, 77 loading platforms, 113 grain elevators, 13 stock yards. For the safety of the travelling public all crossings by this road of other railways have been guarded by interlocking plant. The following is the public traffic rolling stock:—92 locomotives, 6 sleeping cars, 3 parlor cars, 4 first-class cars, 9 second-class cars, 4 mail and express cars, 9 baggage cars, 11 colonist cars, 83 conductors vans, 33 refrigerator cars, 2 official cars, 3,213 box freight cars, 895 platform cars, 31 stock cars, 3 snow ploughs. Work on the "prairie section" is practically closed down for the winter season; the only work going on, being the laying of the track and the finishing of some of the buildings.

The Mountain Section is about 837 miles long. The following works are under contract, viz.:—From Wolf Creek to 179 miles west thereof. Foley, Welch and Stewart are the contractors for the

A Railway Expert's View.

The Ottawa Electric Railway, from its inception, has been one of the most perfect electric lines on this continent. It was a pioneer in up-to-date equipment and has lived up to the standard then set. Its cars are thoroughly up-to-date in construction and equipment and are well maintained in every respect. Its track is good and its various lines are well operated and give thorough satisfaction to the capital's citizens and to the thousands of people who visit Ottawa on business or pleasure during the year. The credit for this very satisfactory state of affairs is undoubtedly largely due to the Superintendent and Purchasing Agent, J. E. Hutcheson, who entered the company's services in 1891, after 17 years of steam railway work. Mr. Hutcheson is recognized as one of the very best electric railway operating men in Canada. He has taken an active part in the Canadian Street Railway Association's proceedings since its organization, has been a member of its executive committee continuously and was Vice President in 1907-8 and President in 1908-9. His opinion on all matters relating to construction, operating and maintenance is continually sought and always valued. He has been a reader of the Railway and Marine World for many years and recently wrote to our Managing Director as follows:

"I wish to say that I have found The Railway and Marine World the most useful periodical published in the interests of the railway business. The reading matter is live and very interesting and is so arranged as to make the paper a very valuable advertising medium. Railway officials who cannot find time to read your monthly are missing something. I wish you continued success."

Mr. Hutcheson's letter points out clearly that our reading matter is what railway men want, that even the most busy ones read it thoroughly and that its value to advertisers is undoubted. Our paper is edited with great care and thoroughness, but all the hard work and expense involved is well repaid by the knowledge that we enjoy the confidence of our subscribers in every Province of the Dominion and in Newfoundland and that the paper is recognized as the authority on transportation matters by people engaged in all branches of that service.

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grading and wooden bridges. They have done considerable clearing of right of way and about 200,000 cu. yds. of excavation. They have a great number of teams on the tote road hauling in plant, tools and supplies, so as to be in readiness for a vigorous prosecution of the works upon the opening of spring. Only a small force is at work in the cuttings. C. May is the contractor for the substructures of the Wolf Creek and McLeod river bridges. There is a large quantity of sand and gravel delivered at both points, and a large force is engaged excavating the foundations for the piers, pedestals and abutments; as soon as the track reaches Wolf Creek, say in three weeks, cement will be carried up to that point by train. It is of urgent importance that the work on these two structures be rushed to completion with the greatest possible speed, in order that track-laying may be advanced, thus facilitating the transportation of plant, tools and supplies to the unlet portions of the mountain section, enabling intending contractors to bid very much lower for the work than they otherwise could. From 179 miles west of Wolf creek to 597 miles west thereof, the work has not been placed under contract. From 597 miles west of the Wolf Creek to Prince Rupert, 240 miles, the work of grading and the construction of wooden bridges is under contract with Foley, Welch and Stewart. No work has been executed on the first 40 miles, and merely a good start has been made on the next 100 miles; the reasons being, that navigation closed on the Skeena River about a month earlier than usual, thus putting a stop to running in supplies, tools, plant, etc. However, the contractors are exerting their efforts to push a tote road through so as to enable them to haul in supplies, etc., by team and keep the work moving throughout the winter. They are now at work on one of the tunnels and some rock cutting. The work of grading and the construction of wooden bridges on the last 100 miles, to Prince Rupert, was practically completed when a very heavy storm with a high tide caused damage, washing away some of the rock embankments where exposed to the sweep of the open ocean, and bringing down considerable slides from the mountain sides, filling up some cuttings and blocking up waterways. The damage, however, was not very extensive. Mr. Ferguson, the contractor for the substructure of the several steel bridges, having failed in carrying out his contract, the G.T.P.R. has relieved him of the work, and are carrying it on itself by day labor. This work is progressing very slowly, but better conditions are promised for the future. If these promises are not realized, track-laying in the spring will be delayed. Steel rails for this 100 miles; 1 locomotive; 1 conductor's van and 24 cars, for the work of track-laying and ballasting, have been delivered at Prince Rupert, and a large quantity of ties has been delievered along the line. About one mile of track has been laid, but nothing further will be done in that direction until next spring." (Feb., pg. 137).

GRAND TRUNK PACIFIC BRANCH LINES Co.—The House of Commons has passed an act amending chap. 86, of the statutes of 1909, by adding to sec. 1, five paragraphs, authorizing the construction of additional lines, as specified in the notice of application quoted on pg. 31 of our Jan. issue, and granting an extension of time for the construction of the branch lines previously authorized. The act also authorizes the company to issue bonds or other securities to the extent of $30,000 a mile in respect of the new branches to be constructed under this act, with the exception of the branch from between Moose Lake and Tete Jaune Cache, to Vancouver, in respect of which $50,000 a mile may be issued.

Canadian Northern Ry. Construction, Etc.

Canadian Northern Quebec Ry.—The seven miles of line described as the Montmorency branch, for the operation of which the Board of Railway Commissioners recently passed an order, is practically an industrial spur, connecting the Quebec and Lake St. John Ry. with the Montmorency Pulp Co.'s mills near the Montmorency Falls. Heretofore the company's logs were sent over the falls and floated out, and the spur was hurriedly constructed in the fall of 1909 in order to handle the traffic.

The work on the branch line to Rawdon, Que., has been closed down. Grading is practically completed, and some track has been laid. On the resumption of work a bridge will be constructed across the Quareau River and the branch completely.

W. D. Barclay, General Manager, is quoted as having stated in Montreal, Feb. 6, that plans had been prepared for the company's Montreal terminals, and that they are being considered by the executive at Toronto. According to what Mr. Barclay is reported to have said, the site will be a central one; the cost will be about $5,000,000, and the work will be completed within two years.

Canadian Northern Ontario Ry.—A bill has been passed by the House of Commons authorizing the company to enter into agreements as specified by sec. 361 of the Railway Act with the following companies:—Central Ontario Ry., Ontario and Ottawa Ry., Irondale, Bancroft and Ottawa Ry., Marmora Ry. and Mining Co., Bay of Quinte Ry., Brockville, Westport and North Western Ry., Toronto, Niagara and Western Ry. and Bessemer and Barry's Bay Ry.

Work on the Hawkesbury-Ottawa line has been completed, and trains are being operated over it. There are questions connected with the entrance of the line into Ottawa from Toronto yet to be settled, but for the present construction in Ottawa is completed.

The construction of the first 100 miles of the Toronto-Ottawa line, from the Don valley to Trenton, is being pushed forward. The work is being carried out by the general contractor—Angus Sinclair Co.—in four sections, on all of which sub-contracts have been let, and gangs of men are at work, 700 men being at present engaged. There is a considerable amount of heavy clay work in the Don valley, and there is also some heavy work to be done in the vicinity of Scarboro Jct., where the line is to be carried under the G.T.R. tracks. The only points at which construction is not actively in progress are Cobourg and Port Hope, where some matters of route are in course of settlement with the local authorities.

The company has completed and opened for traffic the extension of its line from Sellwood Jct. to Gow Ganda Jct., Ont., 30.7 miles. The construction was carried out by Angus Sinclair Co.

Ontario and Ottawa Ry.—A bill has been passed by the House of Commons and is now before the Senate incorporating a company with this title to construct a railway from the Canadian Northern Ry. near Lake Couchiching, easterly to Snowdon tp., Haliburton county, Ont.; and from Herschell tp., Hastings county, easterly to Renfrew, thence crossing the Ottawa River and continuing in a generally south-easterly direction to Hull, Que., or recrossing the Ottawa River to Ottawa. The company is authorized to enter into agreements with the various Mackenzie, Mann & Co. lines, and also with the Central Ontario Ry., the Marmora Ry. and Mining Co., the Thousand Islands Ry., the Bay of Quinte Ry., the Brockville, Westport and North Western Ry., and the Bessemer and Barrys Bay Ry. The provisional directors are: G. G. Ruel, G. F. Macdonnell, R. H. M. Temple, A. J. Reid, R. P. Ormsby.

James Bay and Eastern Ry.—A bill has been passed by the House of Commons and is now before the Senate incorporating a company with this title to construct a railway from the Canadian Northern Ry. near Lake Abitibi, generally easterly and southeasterly, passing south of Lake St. John to the mouth of the Saguenay River, with a branch to Ha Ha Bay on the Saguenay River. The provisional directors are:—G. G. Ruel, G. F. Macdonnell, R. H. M. Temple, A. J. Reid, R. P. Ormsby.

Wahnapitae Ry.—The Ontario Legislature is being asked to incorporate a company with this title to construct a railway to be operated by steam or electricity from some point on the Canadian Northern Ontario Ry. in the township of Hutton or Creelman northerly, passing Burwash and Welcome Lakes, to the Wanapitei River, above the outlet from Welcome Lake. The provisional directors are:—D. D. Mann, D. B. Hanna, F. H. Phippen, G. Ruel, G. F. Macdonnell, Toronto.

Canadian Northern Ry.—A bill has been passed by the House of Commons, authorizing the company to construct the railways mentioned on page 43 of our Jan. issue, and extending the time within which certain of the lines authorized by sec. 2, chap. 92, of the Statutes of 1908, may be built.

A train service was started over the Maryfield branch line, Feb. 7. Track has been laid for 80 miles, and grading has been completed for a further 80 miles.

The bill for the ratification of the agreement between the company and the B.C. Government for the construction of a line from the Alberta—B.C. boundary to Vancouver, is under discussion by the B.C. Legislature. It is said that R. G. Tatlow, who has resigned the office of Provisional Treasurer, will be appointed a Commissioner to take charge of the funds realized by the sale of the securities and pay them out to the C.N.R. for the construction of this line, and to the Kettle River Valley Ry., in respect of the construction of the line from Grand Forks, to Vancouver. (Feb., pg. 169.)

W. Mackenzie, President, is credited with stating in Montreal recently that the company will build 500 or 600 miles of line west of Port Arthur this year, and will make a good start on the B.C. section.

Wellington Collieries Ry., Etc.—Press reports state that the Wellington Collieries, the railway, steam and other vessels, and the other Dunsmuir properties on Vancouver Island, have been sold, one report stating that the Grand Trunk Pacific and another the Canadian Northern Ry. A Victoria, B.C., telegram of Feb. 11, says that Mackenzie & Mann are the real owners of the great coal mines and coal bed areas on the Dunsmuir interests on Vancouver Island. The price paid is said to have been $11,000,000, and the firm is reported to have been backed in the deal by J. P. Morgan, of New York, and his associates. A part of the project is to erect immense steel and iron works on the Island, and one of the provisions laid down is that $5,500,000 is to be spent at once on developing mines and the associated enterprises. The price, $11,000,000, must be paid in cash by May 1.

The Interstate Commerce Commission in the case of T. M. Partridge Lumber Co. vs. Great Northern Ry Co. et al, including the Canadian Northern Ry. Co., has declared that the rates on fence posts and poles from Beaudette and Warroad, Minn., are unreasonable and has prescribed new rates. Through routes have been established from Beaudette to such destination points.

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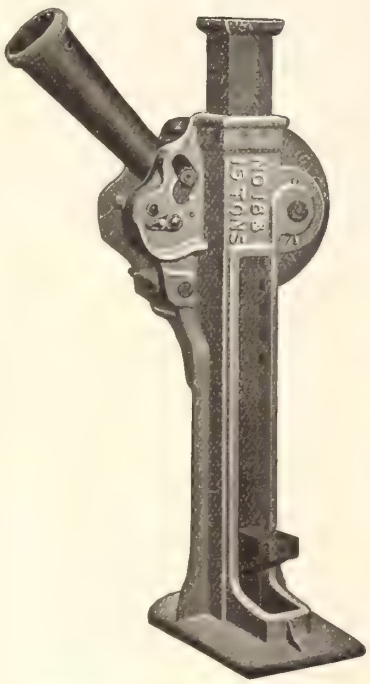

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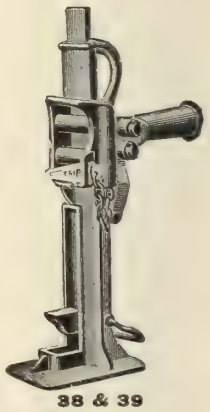

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Alberta Ry. and Irrigation Co.—In the notes on the table of steam railway statistics on page 105 of our Feb. issue, it was stated, on the authority of the statistics issued by the Department of Railways, that this company had a third rail on 20 miles of its railway, making a 3 ft. gauge in addition to a standard gauge for that distance. We are advised by the company that it has no third rail on any part of its system.

The company's lines were originally constructed on a 3 ft. gauge both in Canada and the U.S. When the U.S. section of the line was sold to the Great Northern Ry. in 1902 the company converted the Alberta Ry. and Coal Co.'s line to standard gauge and by laying a third rail on the St. Marys River Valley Ry., which was then a separate company under the same ownership, made it a standard as well as a narrow gauge railway. This was done, as we were informed at the time, for the purpose of utilizing the old rolling stock. When this rolling stock became worn out or was sold the necessity for retaining the narrow gauge ceased, and the third rail appears to have been taken up. The Alberta Ry. and Coal Co. and the St. Marys River Valley Ry. with the land companies controlled by the same interests were subsequently amalgamated as the A. Ry. and Irrigation Co.

The Algoma Central and Hudson Bay Ry. Co. is applying to the Dominion Parliament for an extension of time within which it may construct the lines authorized by chap. 50 of the statutes of 1899, as amended by chap. 49 of the statutes of 1900. The new time limit for construction is five years from the passing of the act. The portion of the line yet to be constructed is the extension from the present end of track to the junction with the Michipicoten branch, thence to a junction with the C.P.R. In a recent interview at Montreal, General Manager Franz, of the Lake Superior Corporation, owning the charter, said that tenders would be called for by the end of Feb.

In the bill now under consideration by the Dominion Parliament provision is made for the issue of securities to the amount of $40,000 a mile of line constructed or to be constructed. This amount is to include the amount of securities heretofore authorized; and the securities are to be issued only in proportion to the length of railway constructed or under contract to be constructed. (Feb., pg. 109).

Anglo-Newfoundland Development Co.—We are advised that the lines operated by this company in Newfoundland are:—A railway from Millertown Jct., on the Reid Newfoundland Ry., to Millertown, 20 miles. This line was taken over by this company when it acquired the timber limits belonging to the Newfoundland Timber Estates Co. A railway from the mills at Grand Falls to tide water at Botwood, 22 miles; this railway has been constructed during the past year and is now in operation. At a mid-way point between the pulp and paper mills and Botwood is the pulp mill now being constructed by the company. The gauge of both these railways is 3½ ft.; the track is laid with 50 lb. rails; the maximum gradient on the Millertown line is 1.05%, and the maximum curvature 10 degrees, while the maximum gradient on the line to Botwood going to the coast is 0.9% compensated for curvature, and the maximum gradient coming inland is 1.25%, with a maximum curvature of 10 degrees; there is however only one curve of this degree. We are advised that it is not the intention of the company to construct any further mileage during the current year. (Feb., pg. 109.)

Bay of Quinte Ry.—The Dominion Parliament is being asked to extend the time for the construction of lines authorized to be constructed by the company's act of 1896, as amended by the statutes of 1902 and 1905. An extension of time is also being asked to construct the proposed branch line from Bridgewater for about 15 miles, to Actinolite, Ont. (Jan., pg. 19).

British Columbia and Alaska Ry.—Application is being made to the B.C. Legislature to incorporate a company with this title to construct a line to the International boundary between British Columbia and Alaska. J. Wolkenstein is one of the provisional directors. (See Salmon River, B.C., Jan., pg. 23.)

British Columbia Central Ry.—The B.C. Legislature is being asked to incorporate a company with this title. J. C. Keith is one of the provisional directors.

B.C. Mainland and Coast Industrial Co.—A bill is before the B.C. Legislature to authorize the company to construct railways and tramways for the purposes of its undertaking. The route of the proposed lines is from Prince Rupert, Port Simpson and Port Essington or either of them, wherever the company's works may be located, to the seacoast, where wharves and piers may be constructed; and such railways or tramways as may be necessary, from the company's works to sites for warehousing and shipping its products, such sites to be selected within a radius of 75 miles of the works. The railways or tramways may be laid across or along highways, streets or bridges; and electricity may be used as a motive power. Mason and Mann, Victoria, B.C., are the solicitors.

Bruce Mines Ry.—The Ontario Legislature is being asked to extend the time within which the company may construct the lines and branches authorized, and to declare that notwithstanding default in certain directions the company's act is still in force. The company constructed a line from Bruce Mines on the C.P.R. Algoma branch northerly to its copper mines, and southerly to the lake front. The northerly line has not been operated for several years. (Feb., pg. 109.)

Burrard Inlet Tunnel and Bridge Co.—The Dominion Parliament is being asked to incorporate a company with this title to construct a tunnel under the first narrows of Burrard Inlet and a bridge over the second narrows, with the necessary approaches, from the south shore at Vancouver to the opposite shore to connect with present and future line of street railways and railways, and to construct one or more lines of railway not exceeding 10 miles long. The bridge and tunnel to be constructed to provide steam and street railway tracks as well as for all kinds of ordinary traffic. Power is also asked to construct a railway from the northern ends of the bridge and tunnel easterly along the shore line of the municipality of North Vancouver to Deep Cove, on the north arm of Burrard Inlet, and westerly along the shore line of the city of North Vancouver to Horse Shoe Bay on Howe Sound. The undertaking of the company to be one for the general advantage of Canada. The provisional directors are:—E. Mahon, E. W. MacLean, J. P. Fell, L. Bond, Vancouver and J. Y. McNaught, North Vancouver. (Feb., pg. 109).

Cariboo, Barkerville and Willow River Ry.—The British Columbia Legislature is being asked to incorporate a company with this title to construct a railway from near Eagle Lake to Barkerville and along the valley of the Willow River to a junction with the Grand Trunk Pacific Ry. W. F. Dunphy is one of the provisional directors. (See Eagle Lake to Barkerville, B.C., Feb., pg. 109.)

Columbia and Alaska Ry.—The British Columbia Legislature is being asked to incorporate a company with this title to construct a railway to the International boundary between British Columbia and Alaska. E. P. Davis is one of the provisional directors.

Comox Logging and Ry. Co.—Application is being made to the British Columbia Legislature to authorize the construction of a railway, to be used for logging purposes, in the Comox district of Vancouver Island. A. D. and R. J. McRae are the principal of the provisional directors. (See Comox Harbor to Campbell Lake, B.C., Feb., pg. 109.)

Dominion Atlantic Ry.—Application is being made to the Dominion Parliament to extend the time within which the company may commence and complete the construction of the North Mountain Division, the construction of which was authorized by chap. 101 of the statutes of 1908. The line in question is projected to start from the old Cornwallis Valley Ry. between Kentville and Canning westerly to the company's railway between Berwick and Middleton, or some point between the main line and North Mountain. (Jan., pg. 19).

Edmonton, Dunvegan and British Columbia Ry.—The Dominion Parliament is being asked to grant an extension of time for the construction of the line which this company was authorized to construct by chap. 85 of the statutes of 1907. The bill has been passed by the House of Commons and is now before the Senate. (Nov., 1909, pg. 829).

Erie, London and Tillsonburg Ry.—The Senate has passed a bill granting an extension of time within which the company may construct the line which it is authorized to do by chap. 90 of the statutes of 1906, as amended by chap. 106 of the statutes of 1908. (Feb., pg. 109.)

Graham Island Ry.—The British Columbia Legislature is being asked to extend the time within which the company may construct its previously authorized line of railway on Graham Island, one of the Queen Charlotte group.

Application was recently made to the British Columbia Legislature to incorporate the Graham Island Ry. Co. to construct a railway on Graham Island, H. R. Bellamy being one of the provisional directors. When the bill came before the Private Bills Committee attention was called to the fact that there was already in existence a company with the same title, and it was recommended that one of the two should change its name. (Jan., pg. 19.)

Intercolonial Ry.—The Dominion Parliament has granted appropriations on capital account for the following works:

Locomotive car shops at Moncton, with equipment and freight yard	$344,825
To strengthen bridges	61,000
General protection of highways	10,000
Original construction	800
Towards double-tracking part of line	10,000
Increasing facilities and accommodation	38,700
Increasing water supply	15,100
Halifax, increased accommodation	52,650
Sydney Mines, diversion	100,000
Truro, increased accommodation	42,000
St. John, increased accommodation	46,150
Moncton cut-off	100,000
Loggieville, improvements	12,000
Indiantown and Blackville, to put line in a condition for operation	2,000
Chatham, diversion of line and branch to wharf	150,000
Levis, improvements	3,500
Lac au Saumon, overhead crossing	1,400
Riviere du Loup, engine house	63,720
Robinson's Crossing, subway	6,000
St. Rosalie, improvements	8,500
Chaudiere Jct., engine house	6,000
Barnsfoot subway	6,000

Island Valley Ry.—The British Columbia Legislature is being asked to incorporate a company with this title to construct a railway. S. J. Castleman is one of the provisional directors.

Kettle Valley Lines.—The Dominion Parliament is being asked to authorize

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the construction of a line from the present authorized line near Coldwater River to the navigable waters of the Fraser River near Ruby Creek, B.C.; to grant an extension of time for the construction of previously authorized lines, and to limit the amount of bonds to be issued in respect of the new line to $40,000 a mile. The proposed new piece of line is the one for which a bonus agreement has been made with the British Columbia Government. At opening of the B.C. Legislature, Jan. 20, the Lieutenant-Governor in his speech said that a bill would be submitted to ratify the agreement. (Jan., pg. 19.)

Manitoulin and North Shore Ry.—The Dominion Parliament is being asked to grant an extension of time within which the company may construct the lines authorized. When the bill came before the Railway Committee of the House of Commons, Feb. 7, the company's representative stated that the line from Sudbury to Little Current, Manitoulin Island, Ont., would be completed within two years, instead of three, as at first contemplated. (Feb., pg. 111.)

Menzies Bay Ry.—Application is being made to the British Columbia Legislature to incorporate a company with this title to construct a railway in the Menzies Bay district. J. H. McDonald is one of the provisional directors. (See Menzies Bay to Quinsan River, Jan., pg. 21.)

Michigan Central Rd.—Press reports from Windsor, Ont., Feb. 4, stated that announcement had been made that the company was about to construct an additional track from there to Buffalo, N.Y., paralleling the present double track line, and that construction would be started in June. General Superintendent Brown on the following day stated that the report was absolutely without foundation. The company proposed building a roundhouse at St. Thomas, Ont., to accommodate 30 or 40 locomotives, the existing roundhouse not being adequate for present requirements. (Feb., pg. 111.)

Montreal, Kapitachuan and Rupert's Bay Ry.—The Dominion Parliament is being asked to incorporate a company with this title to construct a line of railway from the St. Lawrence River in Hochelaga County, northerly to L'Orignal Rapids, thence to Kapitachuan Lake to cross and connect with the National Transcontinental Ry., and thence to Ruperts Bay. The provisional directors are:—H. A. Fortier, Hull, Que.; J. A. Grenier, Mon-Laurier, Que.; J. T. Marchant, C. Robilliard, L. J. Tarte, A. Berthiaume, L. Payette, L. A. Lapointe, G. Langlois, Montreal. (Jan., pg. 21.)

Nickel Range Ry.—Application is being made to the Ontario Legislature to incorporate a company with this title for the purpose of constructing this projected railway. The provisional directors are:—J. R. Booth, J. F. Booth, Ottawa; M. J. O'Brien, Montreal; J. N. Glidden, Sudbury; F. B. Chapin, J. J. McFadden, Toronto; W. Anderson, Ottawa; and C. A. Masten, Toronto. In addition to these persons, The Dominion Nickel Copper Co. is named as one of the petitioners for the act. (Dec., 1909, pg. 883.)

Northern Vancouver Island Ry.—Application is being made to the British Columbia Legislature to incorporate a company with this title to construct a railway in the northern part of Vancouver Island. W. B. Garrard is one of the provisional directors.

Ottawa, Montreal and Eastern Ry.—The House of Commons has passed an act incorporating a company with this title to construct a railway from the shores of Lake Megantic, Compton Co., Que., to Montreal, crossing the St. Lawrence River at Longueuil, with power to construct a bridge over, or a subway under, the river; and to continue the line westerly from Montreal to Ottawa through Prescott, Russell and Carleton counties in Ontario; with power to construct branch lines to Arthabaska, Victoriaville, and Yamaska, Que. The act provides that the bridge or tunnel at the St. Lawrence River shall be calculated to accommodate general traffic and electric cars as well as steam railway traffic. The provisional directors are: W. I. Bishop, A. Jarvis, C. E. Cutler, V. Cusson, M. Tetreau, Montreal. (Jan., pg. 21.)

Port Moody, Indian River and Northern Ry.—The British Columbia Legislature is being asked to incorporate a company with this title to construct a railway from Port Moody to the Indian River and thence northerly. C. T. Dunbar is one of the provisional directors. (See Port Moody to Indian River, Jan., pg. 23.)

Prince Albert and Hudson Bay Ry.—The application for a change of route and an extension of time for construction was considered by the Railway Committee of the House of Commons Feb. 8. The company asked for power to develop water powers along the route. This led to a lengthened discussion, the bill as a result being "talked out." (Jan., pg. 23.)

Reid-Newfoundland Ry.—It is reported that the agreement which has been made between the R.N. Co. and the Newfoundland Government, for which legislative confirmation is being asked, provides for the construction of the following branch lines:—From Shoal Harbor to Bonavista Bay, 75 miles; Broad Cove to Heart's Content and Grete's Cove, 62 miles; Ransford Bridge to Trepassy, 70 miles; Country Channel to Fortune Bay, 48 miles; Bay of Islands to Bonne Bay, 42 miles. (Feb., pg. 111.)

Saskatchewan Central Ry.—An act has been passed by the House of Commons, and is now before the Senate, incorporating a company with this title for the purpose of constructing a line of railway as outlined in the application given in our January issue. The provisional directors are: F. S. Cahill, Saskatoon, Sask.; D. McAnulty, J. B. Prendergast, J. J. Leddy, W. Johnston, Ottawa. (Jan., pg. 23).

St. Maurice Valley Ry.—The House of Commons has passed a bill extending the time within which the company may complete the construction of its authorized railway. (Oct., 1909, pg. 745.)

Toronto Eastern Ry.—A bill has been passed by the House of Commons, and is now before the Seante, incorporating a company with this title to construct a line from Toronto, easterly through Whitby, Oshawa and Bowmanville to Cobourg, Ont., with branches from Cobourg to Peterboro, Scarboro tp. to Markham, Stouffville or Uxbridge; from Oshawa northerly, via the eastern side of Lake Scugog, to Lindsay; from Oshawa southerly to Lake Ontario. The company desires that the lines be declared to be for the general advantage of Canada, and that it be authorized to amalgamate or enter into agreements with the C.P.R., the G.T.R. or the Canadian Northern Ontario Ry. The provisional directors are: W. F. Cowan, R. McLaughlin, T. E. Kaiser, F. W. Robson, Oshawa; J. H. Downey, Whitby; R. R. Mowbray, Kinsale, Ont. (Nov., 1909, pg. 831).

Trans-Canada Ry.—We are advised, with reference to a press report that 60 miles of this line is under construction westerly from Roberval, Que., that there is no construction work going on near Roberval at present. (July, 1909, pg. 481.)

Vancouver and Coast Kootenay Ry.—A bill has been passed by the Dominion Parliament granting the company an extension of time within which it may commence the construction of its projected railway. (Dec., 1909, pg. 885.)

Vancouver and Nicola Valley Ry.—Application is being made to the British Columbia Legislature to revive and confirm the act under which this company was incorporated in 1908. W. H. Armstrong is one of the provisional directors. (Dec., 1909, pg. 885.)

Vancouver Island and Eastern Ry.—A bill has been passed by the Dominion Parliament granting the company an extension of time within which it may construct its previously authorized railway, and authorizing it to construct a branch from near Seymour Narrows on Vancouver Island, northerly to Quatsino Sound. (Dec., 1909, pg. 885.)

Vancouver-Westminster Terminal Ry. and Dock Co.—The British Columbia Legislature is being asked to incorporate a company with this title to construct a terminal railway system in Vancouver and New Westminster, together with docks, wharves, etc. A. von Alvensleben is one of the provisional directors. (See Vancouver to New Westminster, Jan., pg. 23.)

The Western Canada Power Co. is incorporated under the Dominion Companies Act, for the purpose of generating and distributing electrical and other power. A bill has been passed by the House of Commons authorizing it to construct "for reward if necessary" such lines of iron or steel railways or tramways, and telegraph and telephone lines in connection therewith, as may be from time to time authorized by competent authority. The sphere of the company's operations is in British Columbia.

Great Northern Ry. Lines in Canada.

Vancouver, Victoria and Eastern Ry.—In connection with the company's application to the Dominion Parliament for an extension of time for the construction of its line, the Associated Boards of Trade of Eastern British Columbia have passed a resolution requesting Parliament to grant no concessions until the company has complied with its charter terms, which require it to construct its line from Grand Forks to Midway via Greenwood and Denoro.

It is reported that contracts have been let to P. Welch, of Spokane, Wash., for the two sections of the line between Princeton and Hope, B.C., for which tenders were recently asked. The first section extends from Princeton to Tulameen, and the second from Abbotsford to Hope, the two having a total mileage of 78 miles. The section between Tulameen and Hope covers the distance through the Hope Mountains for which the route is as yet undecided. Two surveys have been made, one for a tunnel of about eight miles and the other involving about 28 miles of open work. The contractor's outfit has reached Princeton, and an early start is anticipated. (Feb., pg. 107.)

A firm in Ridgetown, Ont., shipped a carload of beans from that station to Montreal some time ago, and the car was 30 days on its way. The shippers sought to recover $313.13 for the loss on account of the consignee having refused to receive the beans. Owing to the shippers not having given notice to the G.T.R. of the delay within 36 hours of the consignment reaching Montreal, the action was dismissed.

Judgment was delivered in the Exchequer Court recently in the case of E. A. Wallberg against the Government on a claim of $105,940 for extras in connection with the contract for the construction of the I.C.R. Moncton shops, etc. The case had previously been before the Registrar, who allowed approximately $53,000, from which an appeal was made and the judgment just delivered, allows about $90,000, with costs of the appeal.

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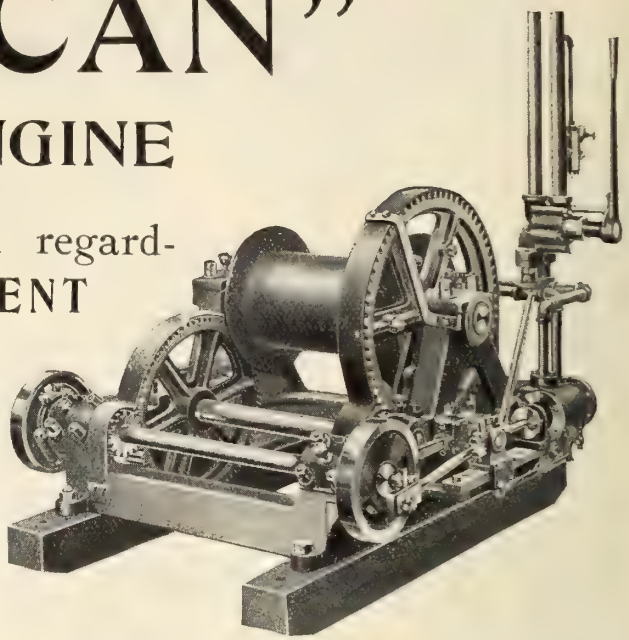

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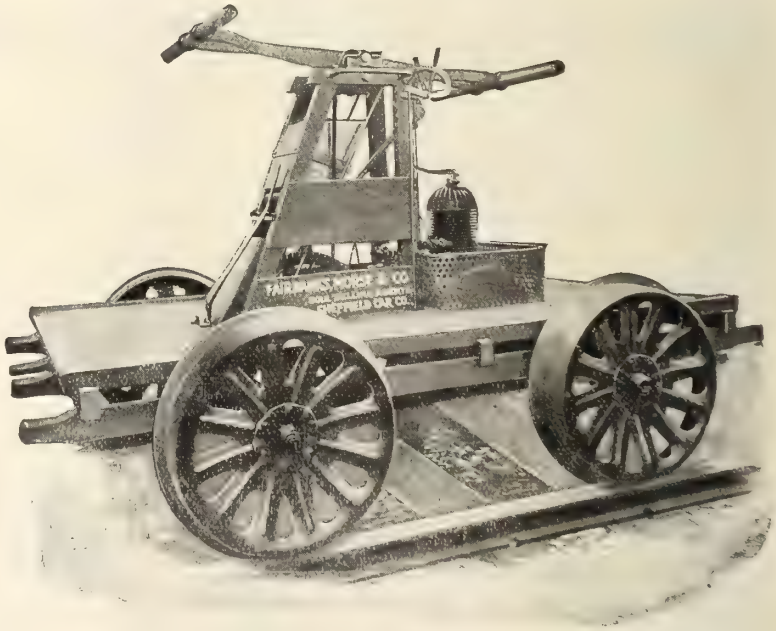

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MONTREAL ST. JOHN, N.B. TORONTO WINNIPEG CALGARY VANCOUVER

The Quebec Bridge.

In the House of Commons recently in referring to the reconstruction of the Quebec Bridge, the Minister of Railways and Canals, read a memorandum as to the appointment of the Board of Engineers, H. Vautelet, R. Modjeski and M. Fitzmaurice—and their work. Following are extracts: "The task entrusted to them is a great one, and, as was anticipated at the time of their appointment, material differences of opinion have arisen between them. Under the provisions of the order in council creating the board, in the event of differences arising, consulting engineers were to be called in to assist. Accordingly, on the question of foundations and substructures, A. Noble, M. Am. Soc. C.E., chief engineer of the Pennsylvania Ry. tunnel, New York (one of the most experienced men in America in foundation work), and H. Holgate, M. Can. Soc. C.E., Montreal, were selected, and the matters in dispute were accordingly settled. The south pier is to be enlarged to an area of 180 ft. by 80 ft. at the base. A new caisson is to be sunk for the north pier and is to be carried to the rock, reducing the span from 1,800 to 1,758 ft. Specifications covering every phase of the substructure work have been completed. General plans for guidance of the contractors have been prepared. The work of the substructure was advertised widely and the work was allotted to M. P. & J. T. Davis, they being the lowest tenderers. The other tenderers were Larkin & Sangster and M. Connolly.

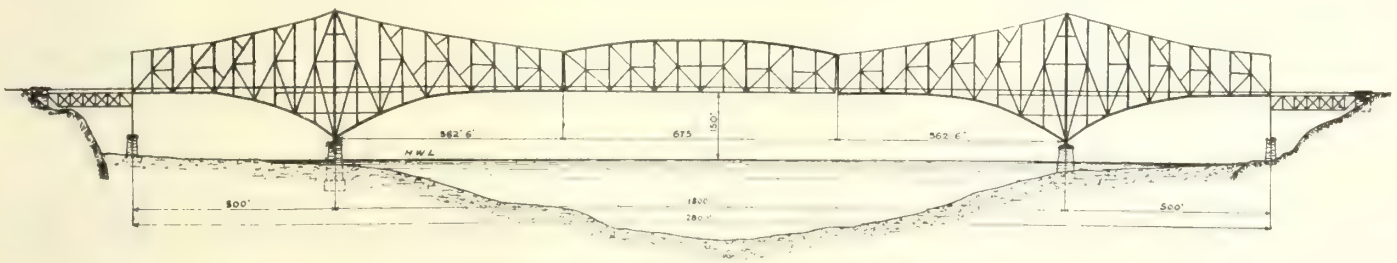
"A great deal of valuable work has been done in connection with the superstructure. The span, centre to centre of main piers, has been fixed at 1,758 ft.; the width, centre to centre of trusses, at 88 ft.; with a maximum depth of truss of 290 ft. A clear head room of 150 ft. above the highest water has been provided for a width of 600 ft. under the centre of the bridge. A general specification has been prepared, fixing the loading so that it will be ample for all possible contingencies of the future. The unit stresses allowed have been settled, for carbon steel and nickel steel, and are conservative. The form of the main compression members has been determined. A series of tests of model columns has been started and a similar series of tests of chord bars will be carried to completion. The dead load has been thoroughly computed and the relative concentrations determined, thus eliminating all possibility of error in calculations for the new structure. Material differences of opinion relating to the superstructure have arisen from time to time between members of the board, and acting under the provision of the order in council, P. Wolfel, M. Am. Soc. C.E., consulting engineer, Philadelphia, and P. Johnson, chief engineer and manager Dominion Bridge Co. of Montreal, were called in as consulting engineers, and the difficulties were overcome."

The work has advanced to such a stage that the bridge builders of the world have been invited to Montreal to study the plans and general specifications, these being open for inspection until May. Three or four months will then be allowed for the preparation of tenders. "All tenderers must bid on the plans prepared by the board, but may submit alternative designs—in this way the form of the trusses, about which there is a reasonable difference of opinion, will be tested; the question of a suspension or cantilever bridge will be settled. The Board has completed studies for a suspension bridge and also for a single intersection cantilever. The ultimate decision will be made when all the designs are before the board, having regard to: first, safety; second, speed of erection and completion; third, cost. As the responsibility for the proper carrying on of the work is placed upon the builder, and the fact that the best designs the board are able to prepare is in competition with the best efforts of the best bridge builders in the world, we hope to secure the best bridge that the present state of engineering skill can produce."

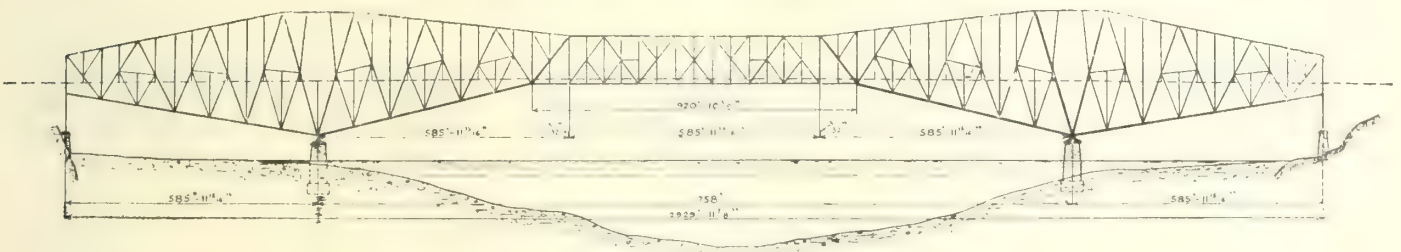
The magnitude of the work, added the Minister, is so great that men with the ability and reputation of the members of the Board, will only move carefully and cautiously. As he pointed out to them when discussing the question with them, the great point to be considered was stability, there must be no chance, so far as engineering skill could provide against it, of any failure of the bridge. That being their instructions, they studied every step with the greatest care, tests and studies being made both in Canada and in the United States and in more than one country in the old world, so that step by step they might be sure of what they were doing. He added that it was proposed that in the contract, so that there could be no question, the builder shall be required to accept the contract on the plans and specifications, and should be held responsible as a builder for the construction of the bridge on the plans and specifications which he accepted, and a guarantee would have to be given. It would not be fair to mention the estimated cost of the bridge while tenders were being invited. He had not asked for an opinion from the engineers as to how soon the bridge could be erected, but he was of opinion that it would take four years from next fall.

Replying to questions in the House of Commons, as to the appropriation of $1,000,000 for construction of the bridge, the Minister said the contract called for the completion of one pier next fall and the other the year following. There were two piers which would be required whether it was a cantilever or suspension bridge; a third would be required if it was a cantilever. This was included in the Davis contract, but the contract was so drawn that it could be struck out if not required. The north pier was to be removed in its entirety. The foundation of the south pier was to be used, but it would be enlarged. The old pier was 150 by 50 ft. and the new one was to be 180 by 80 ft. This pier had been taken down to low water mark and the foundations were being used and enlarged. The two anchor piers on the land had to be taken down, because they would not fit the new bridge, and new ones built. The steel work of the collapsed bridge, which did not fall would be taken down and might be utilized for another purpose. A contract had been let to C. Koenig for the removal of the scrap of the fallen section of the bridge, the contractor to receive $45,000 and the salved scrap. The company having the contract for the construction of the collapsed bridge had a capital of $5,000,000, and he had no great hopes that any large amount of damages could be secured even if there was a case. The matter was, however, under the consideration of the law officers. He roughly estimated the length of time it would take to complete the bridge at four years from next fall, and its cost at about $11,000,000.

The specifications for the work to be done under the contract let to M. P. and J. T. Davis, provide for the taking down of the existing masonry of the two main piers and two existing anchor piers; the making and building of two main piers, two anchor piers and abutments, and the enlarging of the two existing abutments. The masonry of the two existing anchor piers is to be taken down to at least 2 ft. below the level of the ground, and low enough to remove the existing anchor metal; and the masonry of the existing north main pier is to be taken down to at least 2 ft. below extreme low water level. The stone taken from the old piers may be used either for the facing, the backing or the concrete of the new works, and any balance of the stone, as well as the old concrete, shall be deposited as protection work or



THE QUEBEC BRIDGE WHICH COLLAPSED, AUG. 29, 1907.



DESIGN FOR THE NEW QUEBEC BRIDGE BY THE BOARD OF ENGINEERS.

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ALL SIZES BAR STEEL FOR CAR-BUILDERS' USE. Spring, Machinery, Tire, Angles, and Merchant Bar Steel. Heavy Forgings of all Descriptions.

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OFFICE AND WORKS

ESPLANADE STREET EAST, TORONTO

rip-rap for main piers or otherwise, as shall be instructed by the Chief Engineer. The new anchor piers are to be carried down to solid rock foundation, and are to be built of granite faced masonry with concrete backing, with three top courses of dressed stone coping same as the main piers. The steel work for the anchorage shall be built in and the walls constructed in accordance with plans to be furnished later on. The north main pier is to be built 5 ft. south of the existing caisson. It is to be built by the pneumatic process with caisson and cofferdam filled with concrete to elevation + 70.00, the upper part above elevation to be built of masonry with granite facing and filled with concrete, except for a height about 12 ft. below the coping courses, which shall have granite backing; the upper three courses are to be of dressed granite. The caisson of this pier is to be sunk down to solid rock, and no work is to be started on the site of the new pier until the masonry of the old north main pier shall have been taken down. The south main pier is to be taken down and the two lower pneumatic caissons sunk in exact position to such a depth as will allow the upper pneumatic caisson to be floated in position. The upper pneumatic caisson shall then be sunk on top and strongly attached to the lower caisson and the whole shall be sunk 2 ft. below the depth of the old caisson. The 5 ft. spaces between the three lower caissons shall then be excavated and filled in with granite concrete. The abutments are to be built of granite masonry and are to be of the same type and construction as the present abutments; plans are to be furnished later. If decided on a small pier is to be constructed of granite masonry.

G.T.R. Betterments, Construction, Etc.

Southern New England Rd.—Application is being made to the Rhode Island Legislature for the incorporation of a company with this title to construct a line from Palmer, Mass., through which town the Central Vermont Ry., a company controlled by the G.T.R., runs, to Providence, R.I., passing through Webster, Mass.; Woonsocket, Valley Falls, Saylesville, and Pawtucket, R.I. The petition for the incorporation of the company is signed by C. M. Hays, President, G.T.R., and E. H. Fitzhugh, First Vice President, G.T.R. The construction of this line will give the Central Vermont Ry. a second outlet to the sea, viz: New London, Conn., and Providence, R.I., which the G.T.R. as owning the C.V.R., can use in addition to its own terminals at Portland, Me.

Kingston, Smith's Falls and Ottawa Ry.—A bill has been passed by the Senate and is now before the House of Commons granting an extension of time for the construction of this projected railway.

Toronto Grade Crossing Elimination.—The plans for the elimination of the grade crossings on the G.T.R. from Bathurst St., Toronto, to the Humber River, are being prepared in the Chief Engineer's office at Montreal. The first portion of the work to be undertaken will be the section from Bathurst St. to Sunnyside, upon which the tracks are to be depressed, and the streets carried over the tracks by bridges. On the other section, from Sunnyside to the Humber River, there will be an embankment, raising the tracks, the roads being carried underneath. This will provide a practically level track from the Humber into the city. The Board of Railway Commissioners' order provided for the construction of a two-track line, and proportioned the cost of the bridges and other work between the company and the municipalities on that basis, but the G.T.R. has decided to construct the works so as to provide for the laying of four tracks, meeting the extra cost itself. It is said that the work, which will be carried out by the G.T.R. Construction Department, will be started about May 1, and will be completed within two years.

Tay Township Assessment.—The Ontario Legislature is being asked to confirm a by-law of Tay township council granting the company a fixed assessment of $1,700 a year upon the company's property in the township for 20 years for general taxes, and a gross value of $300,000 a year for school taxes. The company agrees to keep in operation during the period its grain elevators situated in the township.

Guelph Station.—A conference was held with the city authorities of Guelph, Ont., Feb. 3, with reference to the carrying out of the Board of Railway Commissioners' order for the erection of a new station and some subways there. The point of difference between the parties is the price to be paid by the company for Jubilee Park, and the giving up of a piece of land near the C.P.R. right of way which is required for station purposes by that company. E. H. Fitzhugh, First Vice President, stated that if the city placed no obstacle in the path the company would have the new station erected this summer, and the subways well under way. The plans are being prepared in the Resident Engineer's office, Toronto. The Board's order requires the work to be done by July, 1911.

Stratford Station—E. H. Fitzhugh, First Vice President, in an interview at Stratford, Ont., Feb. 3, stated that he expected a new station of the most modern design would be erected there this year. The erection of the new station involves the rearrangement of the freight yards, and plans for this work are now being prepared in the Resident Engineer's office, Toronto.

Stratford Shops.—The Ontario Legislature is being asked to confirm a by-law passed by the City Council of Stratford, Ont., in 1904, granting the company a fixed assessment in consideration of its shops there. This agreement provides that the assessment of $8,000 a year agreed to for 10 years from 1900 shall be extended from its expiry for a further 10 years.

In an interview at Stratford, Feb. 3, First Vice President Fitzhugh stated that plans were under consideration for a further enlargement of the shops, and that he hoped to be able to make an announcement with regard to them at an early date. We are advised that the question of the erection of a new foundry and frog shop is under contemplation at Stratford, but the matter has not been finally settled.

Port Huron Shops.—First Vice President Fitzhugh had an interview with the Mayor, Feb. 4, with respect to the proposed enlargement of the shops. Subsequently the Mayor said Mr. Fitzhugh had told him that a big addition was to be built and that a much larger force of men would be employed. (Feb., pg. 137.)

The International Railway Fuel Association will hold its second annual meeting at Chicago, Ill., May 23 to 26.

E. de la Hooke, Secretary-Treasurer Canadian Ticket Agents Association, has issued a characteristic circular to members reminding them that their subscriptions for 1910 are due, and also one to ticket agents who are not members, inviting them to join. Both circulars are enlivened by flashes of humor with which Mr. de la Hooke always adorns his communications.

March Birthdays.

Many happy returns of the day to:—

W. G. Annable, General Passenger Agent C.P.R. Atlantic Steamship Lines, Montreal, born at Ottawa, Mar. 3, 1875.

P. S. Archibald, C.E., General Manager Elgin and Havelock Ry., Moncton, N.B., born at Truro, N.S., Mar. 21, 1848.

D. E. Brown, ex-General Superintendent C.P.R. Trans-Pacific Steamship Service, Vancouver, B.C., born at Owen Sound, Ont., Mar. 20, 1855.

G. J. Bury, General Manager C.P.R. Western Lines, Winnipeg, born at Montreal, Mar. 6, 1866.

Allan Cameron, General Traffic Agent, C.P.R., New York, born near Owen Sound, Ont., Mar. 14, 1864.

F. G. J. Comeau, General Freight Agent Dominion Atlantic Ry., Halifax, N.S., born at Meteghan River, N.S., Mar. 10, 1859.

A. E. Cox, Storekeeper Canadian Northern Ry., Winnipeg, born at Huddersfield, Eng., Mar. 12, 1863.

Hon. L. J. Forget, President Montreal Street Ry. Co., born at Terrebonne, Que., Mar. 11, 1853.

C. O. Foss, on survey National Transcontinental Ry. in New Brunswick, born at Wentworth, N.H., Mar. 20, 1852.

H. W. Gays, General Manager Ottawa and New York Ry., Ottawa, Ont., born at Brant, Erie co., N.Y., Mar. 21, 1848.

F. Grundy, Vice President Quebec Central Ry., Sherbrooke, Que., and President Temiscouata Ry., born at Bury, Lanc., Eng., Mar. 28, 1836.

J. Halstead, General Freight Agent, C.P.R., Calgary, Alta., born at Bracebridge, Ont., Mar. 2, 1877.

R. M. Hannaford, Engineer Permanent Way, Buildings and Bridges, Montreal Street Ry., Montreal, born there, Mar. 22, 1865.

W. Harty, M.P., President Canadian Locomotive Co., Kingston, Ont., born in Biddulph tp., Middlesex, Ont., Mar. 8, 1847.

C. A. Hayes, General Freight Agent G.T.R., Montreal, born at West Springfield, Mass., Mar. 10, 1865.

J. Hobson, Consulting Engineer G.T.R., Hamilton, Ont., born at Guelph, Ont., Mar., 1834.

N. J. Holden, President The Holden Co., Ltd., Montreal, born at Nobelton, Ont., Mar. 22, 1866.

F. Lee, Division Engineer C.P.R., Winnipeg, born at Chicago, Ill., Mar. 7, 1873.

R. W. Long, Division Freight Agent G.T.R., Hamilton, Ont., born at Appin, Ont., Mar. 20, 1873.

F. W. Lowe, General Boiler Inspector C.P.R. Western Lines, Winnipeg, born at Montreal, Mar 30, 1858.

D. D. Mann, Vice President Mackenzie, Mann & Co., Ltd., and 1st Vice President Canadian Northern Ry. Co., Toronto, born at Acton, Ont., Mar. 23, 1853.

J. M. McKay, Trainmaster C.P.R., Winnipeg, born at Tiverton, Ont., Mar. 13, 1868.

Owen McKay, Chief Engineer, Essex Terminal Ry., Walkerville, Ont., born in Ross tp., Renfrew co., Ont., Mar. 13, 1848.

D. J. Murphy, Jr., Assistant Traffic Superintendent and Trainmaster, Dominion Atlantic Ry., Kentville, N.S., born at Caledonia, Ont., Mar. 3, 1874.

R. Patterson, Master Mechanic G.T.R., Stratford, Ont., born at Brantford, Ont., Mar. 13, 1860.

F. W. Peters, Assistant to 2nd Vice-President C.P.R., Winnipeg, born Mar. 25, 1860.

E. H. Sewell, City Passenger Agent C.P.R., Sherbrooke, Que., born at Quebec, Mar. 17, 1875.

C. J. Smith, General Manager Richelieu and Ontario Navigation Co., Montreal, born at Hamilton, Ont., Mar. 10, 1862.

G. Sommerville, Agent Merchants Line

CANADIAN RAILWAY EQUIPMENT COMPANY

Manufacturers of

Cast Steel Bolsters for Freight Cars and Tenders

Cast Steel Double Body Bolsters for Passenger Cars

Cast Steel Side Frames and End Sills

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Selling Agents, = = = = Montreal

Foundry: Welland, Ont.

Steamers, Toronto, born at Kingston, Ont., Mar. 21, 1855.

W. Y. Soper, director Ottawa Electric Ry. Co., Ottawa, Ont., born at Oldtown, Me., Mar. 9, 1854.

E. J. Travers, Manager British Columbia Car Service Bureau, Vancouver, B.C., born at Hamilton, Ont., Mar. 31, 1872.

W. F. Tye, ex-Chief Engineer C.P.R., Montreal, born at Haysville, Ont., Mar. 5, 1861.

G. W. Vaux, General Passenger and Ticket Agent G.T.R., Montreal, born at Montreal, Mar. 21, 1866.

D. O. Wood, General Freight Agent for Ontario, Allan Line Steamships, Toronto, born at Kleinburg, Ont., Mar. 16, 1864.

Quebec and Lake St. John Ry. Report.

The annual report has been issued over the signature of D. B. Hanna, President, as follows:—

The result of the operations for the year ended Dec. 31, 1908, are:—

Gross earnings—		
Passenger traffic		$221,472 34
Freight traffic		348,871 51
Express, mail and miscellaneous		35,908 62
		$606,252 47
Working expenses (including taxes, etc.		$527,380 40
Net earnings		$78,872 07
To Main line and equipment	$13,624,612.27	
Less Dominion Govt. bonus	$1,002,999.50	
" Provincial Govt. bonus	2,368,816.88	
" Town of Chicoutimi bonus	12,000.00	3,383,816.38
		$10,240,795.89
Betterments, terminals and new equipment	1,732,172.77	
La Tuque branch construction	1,421,261.52	
Less Dominion Govt. subsidy $150,528.00		
Proceeds of sale of La Tuque land grant	470,686.26	621,214.26
		800,047.26
Gosford branch construction		44,772.26
Lake St. Jospeh Hotel stock and bonus		8,000.00
Chambord water works		1,125.22
Quebec Transport Co. stock		3,622.55
Roberval branch wharf		12,17.08
Lands at La Tuque		13,608.78
Str. Pikouagami		7,161.68
		$12,863,323.49
Branch lines (Gosford and Roberval bonds)		127,800.00
Bills receivable		328,100.00
Coal on hand	83,818.72	
Mechanical and other stores	22,135.99	
		105,954.71
Fire insurance uncarned premiums		2,594.15
Great Northern debenture stock		1,050.00
Lower Laurentian Railway		9,253.38
Lake St. Joseph Hotel Co.		19,121.68
Outstanding accounts due company		36,013.18
Profit and loss		148,653.80
		$13,641,864.39
By capital stock	$4,303,500.00	
City of Quebec stock	220,500.00	
Prior lien bonds	2,433,333.33	
First mortgage bonds	2,153,013.33	
Income bonds	3,116,613.34	
		$12,226,960.00
First mortgage bonds, branch lines		127,800.00
Right of way		711.65
Bills payable—		
La Tuque and Gosford branches, secured by land grant andsubsidies	114,465.81	
Car trust and betterment notes	240,581.97	
Other notes	29,612.00	
		384,599.78
Wages, December		22,051.41
Advances on capital account re La Tuque and Gosford branches, and advances to meet interest charges and other pressing debts		567,807.69
Mortgage balance on new terminals property	35,176.78	
Mortgage La Tuque lands	5,000.00	
		40,176.78
Outstanding accounts due by company		180,567.23
Profit and loss account prior to reorganization (expended in betterments)		91,159.
		$13,641,864.39

Your directors much regret that both gross and net earnings for the year show decreases, the gross earnings being $56,870.57, or 8.58%, and the net earnings $84,454.92, or 51.78% less compared with the previous year's figures. The falling off is due to the trade depression everywhere, and specially to the decline in shipments connected with the manufacture of paper, pulp and lumber, the fluctuations in which are beyond the control of any transportation company, and which have been smaller in North Eastern Quebec than in any other pulp and lumber district. The situation was further aggravated during the early months of the year by the prevalence of unusually severe snowstorms, which increased operating expenses very largely in the effort to keep the line open for traffic, the operating expenses being 86.99% of the gross earnings, compared with 75.37% for the previous year. The increase in passenger receipts is $20,183.00, or 8.91%. This is in face of a decline of 8,681 in the number of passengers carried, and is due to a readjustment of fares, which counterbalanced the disadvantage of a falling off, caused by diminished lumbering operations, in the number of passengers carried, and increased the earnings per passenger train mile by 9c. The freight business declined, both in tons carried and the earnings per traffic train mile; the tonnage to the extent of 46,088 tons, and the earnings per traffic mile from $1.93 to $1.57. But this showing, unsatisfactory as it is, would have been much worse if your directors had further postponed the readjustment of rates, which was found to be absolutely necessary if the methods of the railway were to be brought into good commercial order. The importance of this readjustment is shown by the fact that the earnings per ton mile increased from 1.22 to 1.57c., or 28.69%. If instead of this increase in the earnings per ton per mile the earnings had been on the former basis, the freight earnings would have been only $269,654.56, or $79,216.95 less than they actually were.

A considerable portion of the loss on working expenses was incurred in connection with the La Tuque branch, which was undertaken on the assumption that its cost would be somewhat more than half of what proved to be the case, and in the expectation that the near approach of the completion of the Quebec bridge would soon secure to the company a large freight business from the paper and pulp mills that were to be constructed at La Tuque. But the damages to the bridge, which postponed for several years the advantageous rates, in expectation of which the construction of the branch was undertaken; together with the depression in pulp and lumber industries inevitably retarded the development of this property; and there is no immediate prospect of extensive works at the La Tuque Falls being undertaken. Meanwhile the outlay on maintenance and unremunerative service must be continued.

During the year the wages of trainmen were further increased by the arbitration board appointed under act of Parliament; and further considerable expenditures have been incurred in bringing the equipment nearer to present-day requirements.

The shareholders will observe a change in the form in which the accounts are presented. The only reason for the change was that the newer form is that which is prescribed by the Minister of Railways for Canada.

INCOME ACCOUNT

December 31, 1908.	
Interest on prior lien bonds	$97,333.31
Interest on first mortgage bonds	106,081.45
Directors' fees	2,500.00
Hanson Bros., fees as agents in Canada	486.87
Glyn, Mills, Currie & Co., commission	997.67
Railway Share Trust & Agency Co., fee as trustees	1,946.66
Interest on bills payable	4,339.82
Interest on terminal mortgages	1,283.44
Interest on equipment trust notes	7,686.77
Bad debts written off	1,617.40
J. G. Scott (account salary)	6,000.00
	$230,273.19
January 1, 1908.	
By Balance	$1,940.13
December 31, 1908.	
Net earnings	78,872.07
Interest account	807.19
Balance	148,653.80
	$230,273.19

GROSS EARNINGS

1907.	Class.	1908.	%
$203,563.02	Passenger	$221,472.34	36.53
406,742.28	Freight	348,871.51	57.55
14,455.92	Mails	15,118.19	02.49
8,405.80	Express	10,017.21	01.65
29,956.02	Miscellaneous	10,773.22	01.78
$663,123.04	Total	$606,252.47	100.00

OPERATING EXPENSES

1907.	Class.	1908.	%
$91,201.29	Maintenance of way and structures	$111,253.60	21.09
67,015.73	Maintenance of equipment	78,263.97	14.84
9,795.42	Traffic expenses	10,287.10	01.95
293,142.70	Transportation expenses	296,090.19	56.15
38,640.91	General expenses	31,485.54	05.97
$499,796.05	Total	$527,380.40	100.00

SUMMARY OF EARNINGS AND EXPENSES

1907.	Class.	1908.	%
$663,123.04	Gross earnings	$606,252.47	
499,796.05	Operating expenses	527,380.40	86.99
163,326.99	Net earnings	78,872.07	13.01
			100.00

FREIGHT TRAFFIC

	Tons, 1908.	Tons, 1907
Cordwood	45,129	28,700
Pulpwood	53,636	50,280
Sawn lumber, square timber, ties	67,610	106,140
Pulp and paper, brick and stone, cheese, grain, general merchandise	154,094	181,437
	320,469	366,557

PASSENGER TRAFFIC

	1908	1907
Number of passengers carried	352,419	361,100
Number of passengers carried one mile	11,803,355	12,076,923
Earnings per passenger per mile	1.80c.	1.87c.
Earnings per traffic train mile	$1.02	.93c.

FREIGHT TRAFFIC

Total passenger train earnings	$246,607.74	$226,424.74
Number of tons carried	320,469	366,557
Number of tons carried one mile	22,102,833	33,358,96
Earnings per ton per mile	1.57c.	1.22c.
Earnings per traffic train mile	$1.57	$1.93
Total freight train earnings	$348,871.51	$406,742.28

PASSENGER AND FREIGHT ETC.

Gross earnings per mile of road	$2,245.38	$2,751.55
Operating expenses per mile of road	1,953.26	2,073.84
Net earnings per mile of road	292.12	677.71
Amount required per mile of road to pay fixed charges	849.87	876.12

TRAIN MILEAGE.

Mileage of passenger trains	222,108	241,370
Mileage of freight trains	211,321	210,937

EXPENSES PER TRAVELLED TRAIN MILE

Maintenance of way and structures	25.67c.	24.59c.
Maintenance of equipment	18.06c.	16.72c.
Traffic expenses	2.37c.	2.27c.
Transportation expenses	68.31c.	65.46c.
General expenses	7.26c.	6.96c.
Total	$1.21.67	$1.16.00

There was recently offered for subscription $2,350,000 Canadian Car & Foundry Co., Ltd., 6% first mortgage 30 year sinking fund bonds. The Royal and Dominion Securities Corporations, which made the issue, announced that it was three times oversubscribed, although the books were only open for half an hour. The bonds were issued to provide for the purchase price of the Dominion Car & Foundry Co. and the Canada Car Co.

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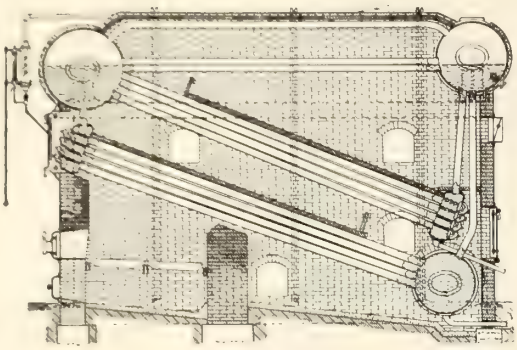

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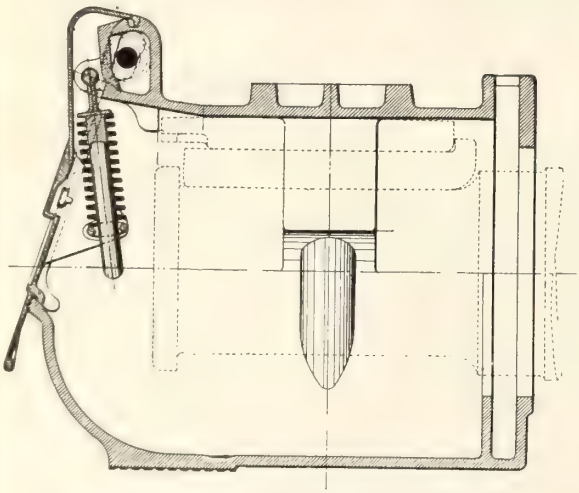

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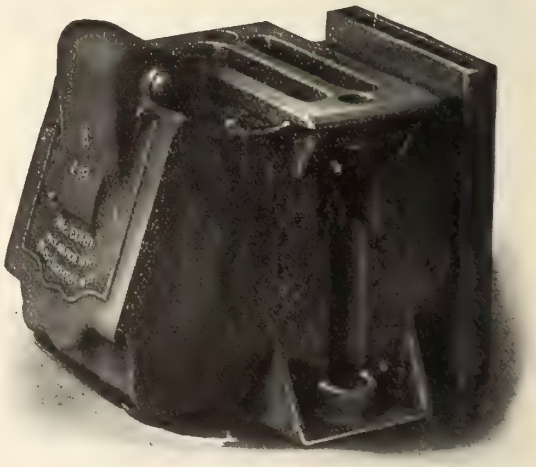

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Old Colony Building, Chicago

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Government Railways Results,

Dealing with the Government railways in the course of his speech in the House of Commons recently, on the work of the Department of Railways and Canals for 1909, the Minister referred at length to the question of what should and what should not be charged to capital account. The Government desired to treat these railways in as approximately a fair way as it did the lines owned by companies. About 75% of the company lines on the continent have gone into liquidation, and the original capital and original stockholders have, for all purposes of profit, been wiped out. Every dollar invested on capital account on the Intercolonial Ry. stands there to-day against it, whereas in many of the company lines one-half of the original capital has been practically wiped out by liquidation. It was sometimes said that the Intercolonial charged small things to capital which should come out of revenue. He submitted that the Intercolonial stood on all fours with company lines, and would compare with them in that same respect as regards age. If the capital account of a railway must cease after a number of years, a number of company lines ought to have come to an end of their capital expenditure years ago. The Intercolonial is doing exactly what these companies are doing as regards expenditures on capital account. The general rule was that anything which will add to the value of the property, any betterment that will add to the power of earning, should go into capital account. There were exceptions as in the case of building new stations, the cost of most of these was charged to capital account. The following figures showed increases on the I.C.R. during the last 13 years:—

	1896.	1909.	Increase %
Length of line	1186.5	1479.13	25
Capital invested	$55,277,034.63	$90,994,664.06	65
No. of locomotives	204	414	100
Tractive power of locomotives, lbs.	2,686,725	10,318,716	284
Passenger car service, number	276	450	60
Freight car service, number	6,667	12,692	90
Ploughs, flangers, etc., number	77	103	30
Engine mileage	4,714,661	9,208,327	95
Car mileage	43,005,684	93,374,119	117
Train mileage	3,842,502	6,865,204	79
No. of passengers	1,471,866	2,933,754	100
Tons of freight	1,379,618	3,552,739	160
Sidings	157.25	365.71	132

In 1909, after a pretty thorough discussion, a Managing Board was appointed for the Government railways. This Board had managed the I.C.R. during the past nine months without any interference from the Department, except in so far as he had suggested that in filling vacancies on the staff, the men who had been discharged on account of the Board's action in reducing staffs, should have the preference. The Board's work really began in July last. It started in to bring about results on the railway, and the members had worked with that idea in the interests of the railway, treating it as a transportation project belonging to all the people of Canada. As is well-known our traffic on all railways had dwindled away very materially, and the receipts on all railways, including the I.C.R., were materially less than they were in the preceding year. There was a deficit of about $800,000 for the year ended Mar. 31, 1909. The Board undertook the work, and wishing to bring about an equilibrium, and put the railway in proper shape, reduced the staff, 503 employes being dropped. In addition to reorganizing the shops, on the transfer to the new quarters, the Board had been enabled to expend $131,507.07 on repairs and renewals, and $100,000 on rail renewals out of revenue. There had also been ballasted 55.5 miles of track; 574,237 new ties had been laid, 11.5 miles were relaid with new 80 lb. steel rails, and 5.33 miles of track were relaid with 67 lb. steel rails, and the maintenance of the track has been generally kept up. On Mar. 31, 1909, there was a credit of $207,262.20 in the fund for renewals of rolling stock. In accordance with the custom established in 1907-08 $25,000 a month was added to this out of revenue, so that at Dec. 31, 1909, the fund amounted to $439,000. Contracts for rolling stock to be delivered by April 1, of the current year, to the value of $445,924 had been made. At the end of the financial year this rolling stock would have been paid for leaving $60,000 at the credit of the fund for further purchases. The thirty 50-ton coal cars, forming part of this rolling stock, have a total carrying capacity of 1,500 tons, against the 1,498 tons of the 153 wooden cars, and 29 20-ton coal cars which they replace. This would mean so much less dead weight to move. Nine of the 11 locomotives purchased, replace old locomotives, the new ones having a tractive power of 338,697 lbs. against 304,681 lbs. of the old. In addition there had been expended out of revenue $553,560 for locomotive repairs, $194,800 for repairs to passenger cars and $440,900 for repairs to freight cars.

As to traffic he claimed that Ontario as well as other provinces get some benefit from the I.C.R. as a Government line, and from the rates which it has always charged. Up to Jan. 4, of this year, the railway had transported 329,699 bush. of grain to Halifax, against 81,904 bush. in the previous year, and 1,165,967 bush. to St. John against 525,753. This grain was handed over by the G.T.R. The average number of employes on the line during the nine months ended Dec. 31, 1909, was 8,833 and the amount of wages paid per month was $427,470.86. Briefly the result of the operations of the line for the nine months ended Dec. 31, 1909, showed as follows: The expenditure on capital account for the year would be approximately $1,280,000 against $3,867,232.60 last year. The gross receipts for the nine months ended Dec. 31, 1909, were $7,073,300.97, an increase of $442,154.87 over last year; the gross working expenses were $6,310,912.36, a reduction of $757,087.98; charged to revenue for rail renewals, $100,000.00, $6,410,912.36; leaving a net revenue on Dec. 31, 1909, of $662,388.61. What the net results of the year's operation would be could only be estimated, but he thought it would be found to be a surplus of about $662,000.

In regard to the Prince Edward Island Ry., he wished to say that he did not expect, and it was not fair to expect that it would keep even. The traffic was not there to keep it even, and the country must be prepared to run the line fairly for the accommodation of the people, and to meet any deficiency out of the consolidated revenues. It was a matter for serious consideration if the passenger service should not be improved, providing for the additional service out of the consolidated revenue. The amount expended on capital account on the P.E.I.R. during the present year would be approximately $170,000. Up to Nov. 30, 1909, the deficit on the line was $44,554.45, and he expected that by the end of the financial year it would be about $70,000, against $89,010.78 for 1908-09.

Railway Commissioners' Traffic Orders.

Summaries of other traffic orders are given on another page under "Orders by Railway Commissioners":—

The Board's Secretary has issued the following circular:—

"Differences of opinion appear to have arisen between some of the railway companies and the public as to the scope of order 4988, July 8, 1908, known as the General Interswitching Order, and judging from their interswitching tariffs, these differences do not seem to be non-existent as between the companies themselves. While of the opinion that the language of the order is clear beyond misinterpretation, the Board declares that, for the purposes of the order:

"(a) The maximum interswitching distance is unqualified, and means, as stated, 'any distance not exceeding four miles.....from the nearest point of interchange,' regardless of the location of the point of interchange, or of station yard limits, or any other limits or boundaries.

"(b) Clause 10 of the order refers, as stated to 'ordinary freight service from station to station'; that is, traffic originating at the common point, as distinguished from interswitched joint traffic."

WOOD PULP RATES FROM THOROLD.

9246. Jan. 12.—The order 9031, Dec. 2, 1909, directing the Niagara, St. Catharines & Toronto Ry. to restore the joint rate of 2c. per 100 lbs. on wood pulp, in carloads, from Thorold, Ont., to Suspension Bridge, N.Y., by Jan. 15, 1910. Leave having been granted the company to appeal to the Supreme Court of Canada from the said order, upon a question of the jurisdiction of the Board to make the order requiring the restoration of the rate to Suspension Bridge, N.Y. Order 9031, is amended by extending the time within which the N.S.C. & T.R. shall be required to restore the said joint rate, until March 15, 1910.

COAL RATES, NIAGARA FRONTIER TO SUDBURY.

9271. Jan. 12.—The complaint of Board of Trade of Sudbury, Ont., complaining that the joint rate charged by the C.P.R. on coal from the Niagara frontier to Sudbury is unreasonable and discriminative as compared with the rate charged by the G.T.R. from the Niagara frontier to North Bay, Ont. It is ordered that the Michigan Central, the C.P., and the Toronto, Hamilton & Buffalo Ry. companies publish and file, not later than Mar. 1, 1910, a joint rate not exceeding $2.60 per ton, in carloads of the customary minimum weights, from Black Rock and Suspension Bridge, N.Y., to Sudbury, Ont. And it is further ordered that the special mileage rates on coal and coke, in carloads, published in the C.P.R. Special Tariff, C.R.C. no. E. 660, to be applied "between stations on the Ontario, Lake Superior (east of North Bay), Eastern and Atlantic Divisions, where specific rates are not published, or when lower than shown in (specific) tariff," be extended so as to include the Lake Superior Divisions, Sudbury and East, and so to conform, territorially, to the company's approved Standard Mileage Freight Tariff, C.R.C. no. E. 1244; the same to become effective not later than Feb. 7, 1910. And it is further ordered that all other of the company's special mileage freight tariffs (if there be any) in which the point of separation between the rates of the Lake Superior Division and the lower eastern scale may be east of Sudbury, be amended so as to include the Lake Superior Division, Sudbury and east, in the said lower eastern scale, and so to conform, territorially, to the company's approved Standard Mileage Freight Tariff C.R.C. no. E. 1244; the same to become effective not later than Mar. 1, 1910.

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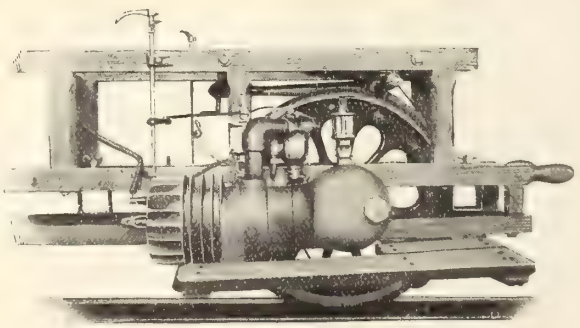

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Railroad Supplies
400-402 Commercial National Bank Building
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RATES FOR ASBESTOS GOODS.

9362. Jan. 24.—Re application of Canadian Asbestos Co., of Montreal, for a carload rating of 5th class on asbestos goods with or without cotton waste and oakum, in mixed carloads, more particularly with reference to shipments to Canadian points west of the lakes, or for a commodity tariff to western points on the same 5th class basis:

It is order that in the Canadian Classification the ratings of asbestos goods, excepting moulded pipe covering, packing, and rope, be reduced, where now higher, to 5th class in carloads, and 3rd class in less than carloads; also that the asbestos items be added to the hardware list, the said changes to be included in the forthcoming amendment to the Canadian Classification when the Board has ruled thereon.

2. That asbestos boiler and pipe covering be added to pg. 38 of Westbound Transcontinental Tariff C.R.C. 242, in the item which now covers asbestos, n.o.s., asbestos roofing slate, and asbestos building paper and felting, at the same minimum carload weight.

3. That the asbestos ratings shown at pg. 38 of the Westbound Transcontinental Tariff C.R.C. 242 be not advanced by reason of the carload commodity rate of $1.20 per 100 lbs. on certain articles of asbestos, cotton waste and oakum, to B.C. Pacific Coast terminals, shown at pg. 27 of Supplement 4 to said tariff, published and filed since the hearing, and that the subsequent application for reduction of said commodity rate of $1.20 per 100 lbs. be refused.

4. That the companies having since the hearing published and filed a commodity rate of 5th class on mixed carloads of asbestos goods, and cotton waste and oakum, to Nelson, B.C., Rossland, B.C., and Nelson and Rossland common points, the subsequent application with respect to the Kootenay rates be refused.

C.N.R. Hotel at Port Arthur.

The Prince Arthur hotel, which is being built by the Canadian Northern Ry. at Port Arthur, is to be a six story and basement structure, 51 by 213 ft. and 75 ft. high. The base is to be of granite, the first two stories of Bedford limestone, treated with pilasters, the caps and cornice forming the finish between the stone and the brick work above. This brick work extends to the level of the sixth story window sills, and will be red face brick with Bedford limestone sills. The band course at the level of the sixth story window sills and the cornice and balustrade above these windows are to be of Bedford limestone. The frieze in which these sixth story windows are set is to be of red brick, laid up in panels. At each entrance will be an ornamental wrought iron and glass marquise, the two entrances being marked by a more elaborate treatment of the stone work projecting out from face of main building wall.

The basement will contain cold storage, boiler room (with space for future extension), elevator machinery, baggage room, servants' dining room, storage rooms for the hotel and for the stores of the first floor, a laundry large enough to do all the hotel work, porters' room and servants' lavatories and locker rooms. The greater portion of the first floor will be devoted to the hotel lobby, writing rooms, ladies' parlor and entrance, cafe grill and pantry, barber shop and toilet rooms. The remainder of the first floor will be taken up by six stores, each running entirely through the building. In general this floor will be wainscotted, with marble base and terrazzo flooring, except in the pantry and space occupied by offices and news stands, where the flooring will be of cork. The walls throughout the first floor will be panelled and the ceilings beamed. Ceilings and plaster cornices will be tinted. On the south-east corner of the second floor will be the dining room, overlooking Thunder Bay. On the north-east corner will be the kitchen, pantry and store rooms. The remainder of this floor will be devoted to 10 bedrooms, the rooms at the western end of the building being arranged en suite, the remaining bedrooms each having a private bath. The natural grade of Cumberland St. has made it possible to place the dining room and kitchen floor lower than the general level of the second floor, leaving the first floor under these rooms at the sidewalk level. The stairway to the dining room from the first floor will have a short run, and the extra ceiling height necessary to rooms of this size will be gained without adding to the total height of the two stories. The problem of service has been most carefully worked out. The dining room will be directly back of the kitchen and over the cafe grill and bar, which in turn will be directly over the servants' dining room and wine room in the basement, thus making it possible to use the dumbwaiters to the greatest advantage. The kitchen and service rooms are to be fitted with every modern appliance for the facilitation of service and will be ample in equipment to allow for any future addition to the hotel. The third, fourth and fifth floors will each have 23 large rooms, averaging in size 17½ by 20 ft.. The rooms at the ends of the building on the south side will be arranged en suite; all other rooms on these floors will have private baths. The sixth floor will contain 24 guests' rooms, each provided with stationary basins and closets. As there will be no private baths on this floor, general bath rooms and lavatories will be provided. At the eastern end of this floor, isolated from the part of the floor devoted to the guests' use will be the servants' quarters, lavatories and housekeeper's apartment.

The stairs throughout the guests' portion of the hotel will be of cast iron with marble treads and wrought iron railings. The service stairs will be of similar construction, but of somewhat less expensive design. The bedrooms and corridors throughout will be trimmed in oak with plaster walls, ceilings and cornices. Bath rooms throughout will have tile floor with sanitary base and wainscotting. The bedroom floors will be so arranged that each room will be perfectly lighted and ventilated, and the use of inside bath rooms with mechanical ventilation will make all the space available. The elevators will be centrally located, and will be of the electric type, the cars being of ornamental iron and glass. There will be 103 rentable rooms in the hotel. The building has been so designed that extensions may be added in the form of wings at each end of the building. The completed structure will then present the form of three sides of a hollow square, with a court facing Thunder Bay. Warren & Wetmore, New York, are the architects and the Imperial Construction Co., Toronto, the contractors.

Canadian Northern Ry. Earnings, Etc.

Gross earnings, working expenses, net profits, and increases or decreases from 1908-09, from July 1, 1909:

	Earnings.	Expenses.	Net Earnings.	Net Increase or Decrease
July	$ 843,400	$ 541,300	$302,000	$26,700 +
Aug.	807,100	607,700	204,400	18,300 +
Sept.	1,076,800	665,400	411,400	60,400 +
Oct.	1,384,200	903,500	480,700	60,600 +
Nov.	1,341,600	970,100	371,500	134,000 -
Dec.	1,140,300	805,900	334,400	49,300 -
	$6,789,400	$4,681,400	$2,108,000	$350,100 +
Inc.	$ 1,154,300	$ 804,200	$350,100	

Approximate earnings for Jan., $750,000, and for two weeks ended Feb. 14, $480,000, against $570,000 and $340,000 for same periods 1909.

C.P.R. Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits, increases or decreases over 1908-9, from July 1, 1909:

	Earnings.	Expenses.	Net Profits.	Net Increase or Decrease
July	7,140,029.93	4,660,159.20	2,479,870.73	205,297.48 +
Aug.	7,426,984.62	4,462,926.75	2,964,057.87	385,159.16 +
Sept.	8,323,178.03	4,891,288.86	3,431,889.17	1,317,281.40 +
Oct.	9,744,596.87	5,358,299.68	4,386,297.19	1,731,030.48 +
Nov.	9,075,963.93	5,383,625.98	3,692,337.95	1,471,258.60 +
Dec.	8,214,758.04	5,099,334.94	3,115,423.10	918,671.53 +
	$49,925,511.42	$29,855,635.41	$20,069,876.01	$6,028,698.65 +
Inc.	$9,213,853.71	$3,185,155.06	$6,028,698.65	

Approximate earnings for Jan., $6,007,000, and for two weeks ended Feb. 14, $2,888,000, against $4,711,000 and $2,292,000 for same periods 1909.

DULUTH, SOUTH SHORE AND ATLANTIC RY.—Operating revenue for Dec., 1909, $236,364.95; expenses, $164,201.12; net revenue, $72,163.83, against $213,228.55 operating revenue; $163,336.86 expenses; $49,891.69 net revenue for Dec., 1908. Operating revenue for six months ended Dec. 31, 1909, $1,719,742.71; expenses, $1,149,182.67; net revenue, $570,660.04, against $1,383,858.12 operating revenue; $987,261.74 expenses; $396,596.38 net revenue, for same period 1908. Approximate earnings for Jan., $219,885, and for two weeks ended Feb. 14, $101,464, against $196,058 and $96,842 for same periods 1909.

MINERAL RANGE RD.—Operating revenue for Dec., 1909, $69,790.85; expenses, $58,463.88; net revenue, $11,326.97, against $65,343.79 operating revenue; $54,928.14 expenses; $10,415.65 net revenue for Dec., 1908. Operating revenue for six months ended Dec. 31, 1909, $439,286.02; expenses, $366,652.25; net revenue, $72,633.77, against $427,846.63 operating revenue; $339,906.91 expenses; $87,939.72 net revenue for same period 1908. Approximate earnings for Jan., $65,600, and for two weeks ended Feb. 14, $30,258, against $61,660 and $31,162 for same periods 1909.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RY.—Operating revenue for Nov., 1909, $1,613,666.45; expenses and taxes, $790,740.86; operating income, $822,925.59, against $1,180,183.63 operating revenue; $674,511.85 expenses and taxes; $505,671.78 operating income, for Nov., 1908. Operating revenue for five months ended Nov. 30, 1909, $7,547,707.71; expenses and taxes, $3,889,505.62; operating income, $3,658,202.09, against $6,108,328.06 operating revenue; $3,505,733.96 expenses and taxes; $2,602,594.10 operating income, for same period 1908. Approximate earnings for Dec., 1909, $1,586,725; for Jan., $1,568,719, and for two weeks ended Feb. 14, $748,521, against $1,481,910, $1,330,378 and $670,628 for same periods 1908-09.

Grand Trunk Ry. Earnings, Expenses, Etc.

Subject to audit, the accounts for the half-year ended Dec. 31, 1909, show the following results:

Gross receipts	£3,632,900
Working expenses (including £255,000 in reduction of engine and car renewal suspense account	2,753,100
Net receipts	£ 879,800
Income from rentals, outside operations and car mileage balance	39,900
Total net revenue	£ 919,700
Net revenue charges, less credits	503,900
Balance	£ 415,800
Deduct, Canada Atlantic deficiency	£17,400
Less, D., G. H. & M. surplus,	12,100
	5,300
Surplus	£ 410,500

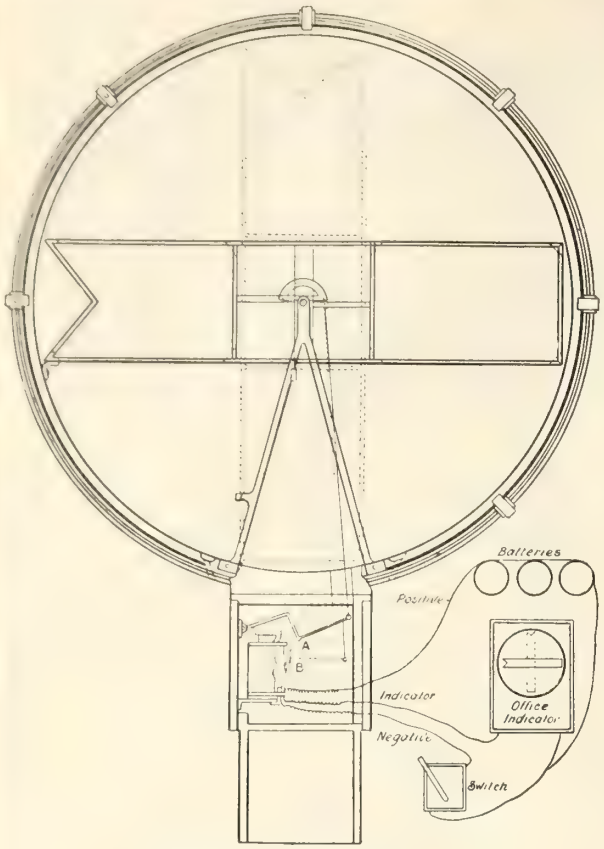
This surplus added to the balance of £9,900 from June, 1909, makes total of £420,400 available for dividend, which will admit of payment of the dividend for the half-year on the 4% guaranteed and first preference stocks, and the full dividend of 5% for the year on the second preference stock, leaving a balance of about £11,800 to be carried forward. The accounts of the G. T. Western Ry. for the half year show a surplus of £25,800, which amount is carried forward to the current half year.

TRAFFIC RECEIPTS FOR THE SYSTEM

Aggregate from Jan. 1 to Jan. 31:—

	1909	1908	Inc
Grand Trunk	£490,217	£408,948	£81,269
Canada Atlantic	29,273	23,220	6,153
G. T. Western	95,664	85,556	10,108
D.G.H. & M.	32,621	24,827	7,794
	£647,875	£542,551	£105,324

The G.T.R. Freight Traffic Department, Montreal, held its third annual dinner at the Montreal Club, Feb. 4.



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The banner in a horizontal position signifies "STOP." When current is applied the banner comes to position of "CLEAR," or perpendicular, as shown by dotted lines; this brings lever A down, making contact with point B, which contact must be made before Office Indicator will operate, and as the Semaphore only works to "CLEAR" electrically, therefore, in case there should be any derangement of the wires, **the banner instantly assumes the position of "STOP" by gravity,** where it will remain until the cause of the disturbance is discovered and removed.

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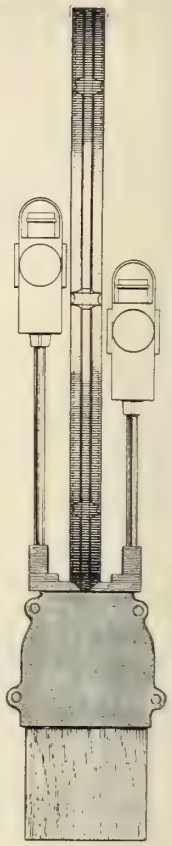

Side View of McAvity Electric Railway Signal, Type B.

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G. W. VAUX, Gen. Passenger and Ticket Agent, MONTREAL

Orders by the Railway Commissioners.

Beginning with June, 1904, we have published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed our paper have a continuous record of the Board's proceedings. No other paper has done this.

The dates given of orders, immediately following the numbers, are those on which the hearing took place and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the date assigned to them.

9261. Jan. 13.—Approving proposed road diversion and highway crossing of G.T.P.R. in s.e. sec. 31, tp. 39, r. 21, w. 3 meridan, West Saskatoon district, Sask.

9262. Jan. 13.—Approving Montreal and Southern Counties Ry. proposed revised location near Riverside St., Montreal.

9263. Jan. 13.—Approving C.N.O.R. revised location near Osaca, Hope tp.

9264. Jan. 13.—Authorizing Montreal and Southern Counties Ry. to cross G.T.R. near Victoria Jubilee Bridge, near Windmill Point, and on Common St., Montreal.

9265. Jan. 12.—Authorizing C.P.R. to construct spur for A. & F. Fraser, Pembroke tp., Ont.

9266. Jan. 13.—Approving G.T.P.R. location, Prince Rupert easterly, mileage 299.15 to 359.00, r. 5, Fort Fraser district, B.C.

9267. Jan. 4.—Dismissing city of Montreal's application for order directing C.P.R. to pay cost of construction of sidewalks and pavement of subway at Iberville St.

9268. Jan. 10.—Ordering C.N.R. to erect fences on each side of its right of way through lots 124 to 127, Portage la Prairie parish, Man.

9269. Jan. 14.—Approving pipe line of Smith, Kerry & Chace over C.P.R., for construction purposes in connection with concrete dam on Illecillewaet River, near Revelstoke, B.C.

9270. Jan. 14.—Authorizing G.T.R. to construct several branch lines in con. 1, Tay tp., near Midland, Ont.

9271. Jan. 12.—Ordering M.C.R., C.P.R. and T.H. & B.R. to file, not later than Mar. 1, a joint rate not exceeding $2.60 a ton on coal in carloads of customary minimum weights, from Black Rock and Suspension Bridge, N.Y., to Sudbury, Ont.

9272. Jan. 14.—Extending until Mar. 1 time within which additional protection may be provided at G.T.R. and Galt, Preston & Hespeler Ry. crossing, Hespeler, Ont.

9273. Jan. 14.—Authorizing city of Winnipeg to construct bridge over C.P.R. connecting Brown St. on the north and Brant St. on the south of the railway yards.

9274. Jan. 13.—Authorizing Nipissing Power Co. to place wires across Bell Telephone Co.'s wires near Callandar, Ont.

9275. Jan. 14.—Authorizing Gillies Hill Telephone Association to place wires across G.T.R. at m.p. 140, con. 7, Eldersle tp., Ont.

9276. Jan. 14.—Authorizing Pipestone municipality, Man., to place wires across C.N.R. near Belleview Siding.

9277. Jan. 14.—Authorizing Shawinigan Cotton Co. to lay water pipe under C.N.Q.R. at Shawinigan Falls, Que.

9278. Jan. 14.—Approving location of C.P.R. Kipp to Aldersyde branch, mileage 50 to 84.45, Alta.

9279. Jan. 15.—Authorizing G.T.R. to construct five bridges on its 20th district.

9280. Jan. 14.—Authorizing G.T.R. to construct spur on Walnut St., Collingwood, Ont.

9281. Jan. 15.—Authorizing C.P.R. to reconstruct bridge 52.7 on its Cranbrook section, B.C.

9282. Jan. 17.—Approving proposed transfer tracks layout between C.N.O.R. and C.P.R. near Cypress St., Toronto.

9283. Jan. 15.—Authorizing Manitoba Government Telephones to place wires across C.N.R. near Clanwilliam station.

9284. Jan. 15.—Authorizing C.P.R. to place wires across its Woodstock section, mileage 105.4, Atlantic Division.

9285. Jan. 6.—Authorizing C.N.Q.R. to build across Charlesbourg Rd., St. Roch parish, Que.

9286. Jan. 4.—Authorizing C.N.O.R. to build across G.T.R. near Powassan.

9287. Jan. 4.—Ordering that the rate of speed at which G.T.R., Kingston and Pembroke Ry. and Bay of Quinte Ry. may operate trains over the crossing in Kingston, Ont., be six miles an hour.

9288. Jan. 17.—Approving proposed location of C.P.R. Sedgewick to Ellershe branch, mileage 93.85 to 3.65.

9289. Jan. 17.—Approving G.T.R. bridges across River St. Lawrence and Soulanges canal, Que.

9290. Jan. 15.—Authorizing C.P.R. to construct spur to Peterboro Hardware Co.'s premises, Peterboro, Ont.

9291. Jan. 17.—Authorizing C.P.R. to make changes in interlocking plant at crossing with G.T.R. at Komoka, Ont.

9292. Jan. 17.—Approving C.N.R. plan and profile of proposed layout for passenger station and local freight yards at Fort Garry, Winnipeg.

9293. Jan. 17.—Ordering C.N.R. to improve condition of ditches along its right of way opposite sec. 23, tp. 2, r. 8 e., and sec. 23, tp. 2, r. 7 w., Man.

9294 to 9296. Jan. 17.—Authorizing C.N.O.R. to build across public roads in Pickering tp.

9297. Jan. 18.—Authorizing Saraguay Electric and Water Co. to place cable under Montreal Terminal Ry. at St. Pierre St., Pointe aux Trembles parish, Que.

9298. Jan. 18.—Authorizing Dominion Light, Heat & Power Co. to place wires across Montreal Terminal Ry. at Air Ave., Maisonneuve, Que.

9299. Jan. 18.—Authorizing C.N.O.R. to cross public road between lots 8 and 9, con. 4, Darlington tp., at station 1492-00.

9300. Jan. 18.—Amending order 8900, Dec. 13, 1909, approving plan of proposed C.P.R. subway at Albert St., Regina, Sask.

9301. Jan. 18.—Authorizing C.N.O.R. to build across public road between lots 15 and 16, and lot 17, con. 4, station 2612-73, Pickering tp.

9302. Jan. 17.—Authorizing C.P.R. to construct siding to Standard Sanitary Manufacturing Co.'s premises across Royce St., Toronto.

9303 to 9305. Jan. 17.—Authorizing Seymour Power & Electric Co. to place wires across G.T.R. at three points in Hastings co., Ont.

9306. Jan. 18.—Extending until May 1, time within which Brandon, Saskatchewan & Hudson Bay Ry. may construct branch in Brandon, Man.

9307 to 9310. Jan. 19.—Authorizing Berlin, Ont., Light Commissioners to place wires over, and gas mains under G.T.R. at four points.

9311 to 9320. Jan. 19.—Authorizing Manitoba Government Telephones to place wires across C.P.R. at 10 points.

9321. Jan. 19.—Authorizing C.N.O.R. to build across public road between lots 22 and 23, con. 1, Scarboro tp.

9322. Jan. 19.—Authorizing C.P.R. to use bridge 41.6 on its Montreal-Ottawa section.

9323. Jan. 19.—Authorizing C.P.R. to cross Water St., St. Andrews, N.B.

9324. Jan. 19.—Authorizing city of Toronto to lay water pipe under C.P.R. on Christie St.

9325.—Standard regulations regarding farm crossings. This order is given fully on another page.

9326. Jan. 18.—Authorizing Ontario & Minnesota Power Co. to divert, for use in U.S., 6,000 electrical horse power developed on the Canadian side of Rainy River near Fort Frances, Ont.

9327. Jan. 20.—Authorizing G.T.R. and C.P.R. to operate trains over crossing east of Weston Rd., West Toronto, Ont.

9328. Jan. 20.—Authorizing C.N.O.R. to build across and divert public road between lots 33 and 34, con. 1, Hamilton tp.

9329. Jan. 20.—Authorizing C.N.O.R. to build bridge over creek at station 1778-30, lot 29, con. 4, Darlington tp.

9330. Jan. 20.—Authorizing C.N.O.R. to build across public road between lots 9 and 10, con. A, Hamilton tp.

9331. Jan. 20.—Authorizing C.N.Q.R. to build across Route Royale,, lot 192 Pointe aux Trembles, mileage 25.13 west from Quebec bridge.

9332, 9333. Jan. 20.—Authorizing C.N.Q.R. to divert highway and build across road in Dombourg village.

9334 to 9337. Jan. 20.—Authorizing C.N.Q.R. to build across public roads in Point aux Trembles, Cap Sante, at mileage 24.75 west from Quebec bridge, and at Dombourg.

9338. Jan. 20.—Authorizing C.N.O.R. to construct bridge over creek at station 1911, lot 4, con. 3, Whitby tp.

9339. Jan. 18.—Ordering G.N.R. to construct spur at Tamarack station, B.C., for Clarkson Bros.

9340. Jan. 18.—Dismissing application of Col. Hughes, M.P., for order directing alteration in C.P.R. and G.T.R. time tables so as to allow persons reaching Peterboro on G.T.R. morning train from Port Hope to catch C.P.R. morning train for Montreal and Ottawa.

9341. Jan. 20.—Authorizing Winnipeg Electric Ry. to operate cars over crossing on Logan Ave.

9342. Jan. 18.—Ordering G.N.R. to establish on its V.V. & E. and N.W. & S. Rys. re-arrangement of train service between Point Guichon and Vancouver; Huntingdon and Cloverdale Jct., Cloverdale Jct. and Vancouver; and tri-weekly service between Hazelmere and Cloverdale Jct., B.C.

9343. Jan. 22.—Authorizing C.P.R. and Canada Atlantic Ry. to operate trains over crossing at St. Polycarpe Jct., Que., without being brought to a stop.

9344. Jan. 21.—Authorizing G.T.R. to construct spur on Anglesea St., Goderich, Ont.

9345. Jan. 18.—Ordering G.N.R. to construct spur at Port Rico station, B.C.

9346. Jan. 21.—Authorizing town of Macleod, Alta., to place electric light wires across C.P.R. at Third Ave.

9347. Jan. 21.—Authorizing Mornington and Wellesley Telephone Association to place wires across C.P.R. at Tralee, Ont.

9348. Jan. 22.—Authorizing the Chinguacousy Municipal Telephone System to place wires across G.T.R. near Cheltenham, Ont.

9349. Jan. 22.—Authorizing New Brunswick Telephone Co. to place wires across C.P.R. in Woodstock yards, N.B.

9350. Jan. 22.—Authorizing Manitoba Government Telephones to place wires across C.P.R. near Poplar Point station.

9351. Jan. 22.—Authorizing G.T.R. to reconstruct bridge over Heads Creek, Copetown, Ont.

9352. Jan. 22.—Amending order 8386, Oct. 6, 1909, authorizing city of Winnipeg to place wires across C.P.R. in Kildonan by substituting other plans for those then approved.

9353 to 9359. Jan. 22.—Authorizing Ontario Hydro-Electric Power Commission to place transmission wires across G.T.R. at seven points.

9360. Jan. 24.—Authorizing G.T.R. to construct spur to Tudhope Carriage Co.'s premises, Orillia, Ont.

9361. Jan. 24.—Authorizing G.T.R. to construct spur to Kirkfield Portland Cement Co.'s premises, Bexley tp., Ont.

9362. Jan. 24.—Ordering change in asbestos items in Canadian Classification.

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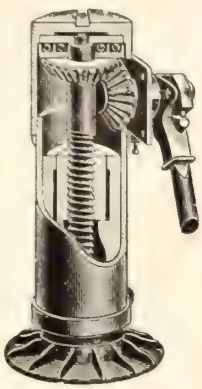
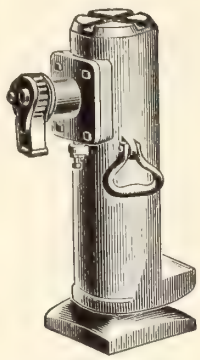


Sectional View



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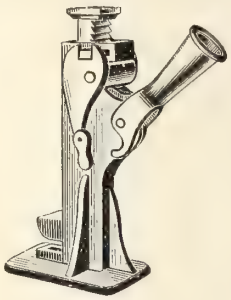

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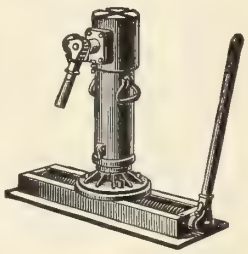

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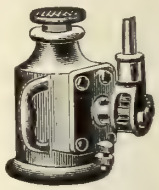

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This order is given fully on another page.

9363. Jan. 24.—Authorizing G.T.R. to extend its public team track on Esplanade St. between Sherbourne and Princess Sts., Toronto.

9364. Jan. 24.—Ordering C.N.R. to erect fences on each side of its right of way in Oliver tp., Ont.

9365, 9366. Jan. 24.—Authorizing C.P.R. to use bridges 0.5, 0.9, 18.8, 19.1, 10.0 and 10.1 on its Ottawa section, and 44.8 Montreal terminals.

9367. Jan. 24.—Authorizing C.P.R. to place wires across its St. Stephen branch, N.B., at mileage 33.58.

9368 to 9371. Jan. 24.—Authorizing Ontario Hydro-Electric Power Commission to place wires across C.P.R. at four points.

9372. Jan. 21.—Dismissing Hazeldean Rural Telephone Co.'s application for order directing Bell Telephone Co. to furnish better connection with its system near Ottawa.

9373, 9374. Jan. 25.—Authorizing Manitoba Government Telephones to place wires across C.P.R. near Brandon and Rapid City.

9375. Jan. 24.—Authorizing Saraguay Electric & Water Co. to place cable under C.N.Q.R. at Rue St. Pierre, Tetraultville.

9376. Jan. 24.—Authorizing Bell Telephone Co. to place wires across T.H. & B.R. at Primrose Ave. and Back St., Hamilton, Ont.

9377. Jan. 24.—Authorizing C.N.O.R. to construct Y across public concession, in Neelon tp.

9378. Jan. 25.—Authorizing C.P.R. to use bridge 25.86, on its North Bay section, Ont.

9379. Jan. 25.—Rescinding order 9297, Jan. 18, authorizing Saraguay Electric & Water Co. to place cable under Montreal Terminal Ry. at Rue St. Pierre, Pointe aux Trembles, Que.

9380. Jan. 25.—Authorizing C.N.Q.R. to open for traffic its Montmorency Branch.

9381, 9382. Jan. 25.—Authorizing Hamilton Cataract Power, Light & Traction Co. to place wires across T.H. & B.R. at Cainsville, and lot 34, con. 4, Saltfleet tp., Ont.

9383. Jan. 25.—Authorizing Canadian Machine Telephone Co. to place wires across G.T.R. at con. 9, Burford tp., Ont.

9384. Jan. 24.—Authorizing Bell Telephone Co. to place wires across C.P.R. telegraph wires near Hammond, Ont.

9385. Jan. 25.—Authorizing G.T.R. to construct several spurs in or near Midland, Ont.

9386. Jan. 20.—Approving C.N.R. location from mileage 0 to 14, Cranberry Lake south to Albreda Summit, B.C.

9387. Jan. 26.—Authorizing G.T.R. to construct spurs to M. Chew's premises on lot 21, con. 3, Tay tp., Ont.

9388. Jan. 26.—Authorizing G.T.R. to construct spur to Dunlop Tire Co.'s premises, Toronto.

9389. Jan. 26.—Authorizing G.T.R. to construct spur to Muskoka Lake Lumber Co.'s premises, Muskoka tp., Ont.

9390. Jan. 25.—Amending order 8769, Sep. 2, 1909, authorizing Canada Atlantic Ry. to construct siding from south of Sapper's Bridge to Chateau Laurier site, Ottawa, by striking out clause re flagman, thus dispensing with services of one.

9391, 9392. Jan. 27.—Authorizing Ontario Hydro-Electric Power Commission to place telephone and relay wires over C.P.R. in Ancaster and Gainsboro tps.

9393. Jan. 28.—Authorizing C.P.R. to construct two additional tracks across road allowance between secs. 24 and 25, tp. 24, w. 2 m., Sask.

9394. Jan. 26.—Authorizing Ontario Hydro-Electric Power Commission to place wires across P.M.R., Yarmouth tp.

9395. Jan. 29.—Authorizing Bell Telephone Co. to place wires across G.T.R. at p.c. near Walkerville station, Ont.

9396. Jan. 26.—Approving overhead crossing of C.P.R. at 6th Ave, Moose Jaw, Sask.

9397. Jan. 29.—Authorizing C.P.R. to use bridges 6.0 and 11.5 on Georgian Bay and Seaboard Ry.

9398. Jan. 29.—Authorizing G.T.R. to construct spur near Sherks station, Humberstone tp., Ont.

9399. Jan. 29.—Authorizing C.P.R. to construct spur across 24th St., Saskatoon, Sask.

9400. Jan. 29.—Approving C.N.O.R. plan of 50 ft. span on its Toronto-Ottawa line, over Greenwood Creek at station 2551.

9401. Jan. 27.—Approving C.N.R. location, mileage 15 to 24.7 up Fraser River from Yale, B.C.

9402. Jan. 31.—Authorizing C.N.Q.R. to divert public road on lots 415, 16 and 17, St. Augustine parish, mileage 19.60 west from Quebec bridge.

9403. Jan. 27.—Authorizing C.N.O.R. to divert side and concession roads at station 313, Scarboro tp.

9404. Jan. 27.—Dismissing application of Scarboro tp., Ont., for order directing C.N.O.R. to build across public road between lots 14 and 15, con. 3, station 625.

9405. Jan. 27.—Dismissing complaint of E. Clark & Son, Toronto, re refusal of Central Ontario Ry. to furnish cars for shipment of lumber on its branch line between Marmora Jct. and Cordova.

9406. Jan. 31.—Authorizing C.P.R. to use bridges 20.13, 26.73 and 87.62 on its Sault Ste. Marie branch, Lake Superior Division.

9407. Jan. 27.—Ordering C.P.R. to acquire necessary land on Dundas St., Cooksville, Ont., north and south of track to give a clear view of approaching trains in either direction.

9408. Jan. 27.—Ordering G.T.R. to install within six months bells at Lancaster and Strange St. crossings on its main line and Queen and Mill Sts. on its Galt branch in Berlin, Ont.

9409. Jan. 31.—Authorizing C.P.R. to use bridges 61.48, 83.23 and 98.76 on its North Bay section.

9410. Jan. 31.—Authorizing C.N.Q.R. to divert public road on lots 418 and 419, St. Augustine parish, mileage 19.23 west from Quebec bridge.

9411. Jan. 31.—Approving G.T.P.R. Branch Lines location from sec. 8, tp. 17, r. 19, to sec. 23, tp. 11, r. 15, w. 2 m., mileage 4 to 50, Assiniboia district, Sask.

9412 to 9414. Jan. 27.—Authorizing C.N.O.R. to build across public roads at three points in Scarboro tp.

9415 to 9421. Jan. 31.—Approving foundation plan, etc., of trestle for seven bridges, Atlantic, Quebec & Western Ry.

9422. Jan. 31.—Authorizing C.N.Q.R. to divert public road on lots 463 and 456, St. Augustine parish, mileage 17.22 west from Quebec bridge.

9423. Jan. 31.—Authorizing Vancouver, Victoria & Eastern Ry. to construct spur to Daly Reduction Co.'s premises, Hedley, B.C.

9424. Jan. 31.—Authorizing C.P.R. to construct hand rail along retaining wall between Sohmer Park Corner and Voltigeurs St., Montreal.

9425. Jan. 31.—Authorizing Atlantic, Quebec & Western Ry. to construct bridges at mileages 40.8, 46.7, 76.9 and 95.8.

9426. Jan. 27.—Authorizing the T.H. & B.R. to construct two spurs to E. W. Bird & Son's premises, Hamilton, Ont.

9427. Jan. 31.—Authorizing Alberta Government to carry telephone wires across G.T.P.R. near Stony Plain.

9428. Jan. 31.—Authorizing town of Macleod, Alta., to lay water main under C.P.R. at 3rd Ave.

9429 to 9431. Feb. 1.—Authorizing Manitoba Government Telephones to place wires over G.T.P.R. and C.N.R. at five points.

9434, 9435. Feb. 1.—Authorizing Citizens Telephone Co. to place wires across C.P.R. at Adamsville and Knowlton, Que.

9436, 9437. Feb. 1.—Authorizing Horton & McNab Telephone Co. to carry wires across Canada Atlantic Ry. and across C.P.R. in Horton tp., Ont.

9438. Feb. 1.—Authorizing Bell Telephone Co. to place wires across Chatham, Wallaceburg & Lake Erie Ry. at St. Clair St., Chatham, Ont.

9439. Feb. 1.—Authorizing Parkhill Rural Telephone Co. to place wires across G.T.R. near Parkhill station, Ont.

9440. Jan. 31.—Approving location of C.P.R. station at Wattsburg, B.C.

9441. Feb. 1.—Authorizing C.P.R. as lessees of Vancouver & Lulu Island Ry. to do certain construction in New Westminster, B.C.

9442. Feb. 1.—Authorizing Temiscouata Ry. to construct bridge over Cabano River, Que.

9443. Jan. 27.—Ordering G.T.R. to cross highway at lot 5, concession road between cons. 3 and 4, Louth tp., at right angles, and to install electric bell, one-fifth of cost of bell to be paid out of the Railway Grade Crossing Fund.

9444. Jan. 27.—Authorizing C.N.O.R. to build across public road between lots 2 and 3, con. B, Hamilton tp.

9445, 9446. Feb. 1.—Approving Temiscouata Ry. plans of bridges 5, mileage 10 over Rocky River, and 29, mileage 75 over Silver Stream, Que.

9447. Jan. 31.—Dismissing application for apportionment of cost of constructing highway crossing over Red Mountain Ry., near Patterson's Creek, B.C., as provided for in order 7787.

9448. Feb. 1.—Approving revision of C.N.O.R. location on Livingstone farm, Hamilton tp., mileage 169 from Ottawa.

9449. Jan. 27.—Authorizing E. N. Richards to place light and power wire over G.T.R. at farm lot 102, Sandwich East tp., Ont.

9450. Feb. 1.—Rescinding order 9372, Jan. 21, dismissing application of Hazeldean Rural Telephone Co. for order directing Bell Telephone Co. to provide better connection with its system near Ottawa.

9451. Feb. 1.—Authorizing C.P.R. to construct spur to Bird's Hill Sand Co.'s pit, authorized by order 3796, and to construct four sidings therefrom.

9452. Feb. 1.—Authorizing G.T.R. to reconstruct bridge across Erie St., Stratford, Ont.

9453. Jan. 28.—Authorizing G.T.R. to construct spur to Knechtel & Son's premises, Hanover, Ont.

9454. Jan. 27.—Authorizing E. N. Richards to lay water main under G.T.R. in Sandwich East tp., Ont.

9455. Feb. 1.—Approving rules of Boston & Maine and Maine Central Rds. for operation of trains in Canada.

9456. Feb. 1.—Ordering C.P.R. to repair embankment known as Dewdney Dyke, B.C., and limiting speed of trains crossing dyke to 20 miles an hour.

9457. Jan. 26.—Authorizing G.T.R. to acquire necessary land for approaches to Mrs. Merrin's and J. Elliott's properties, Toronto, for purposes of improvements.

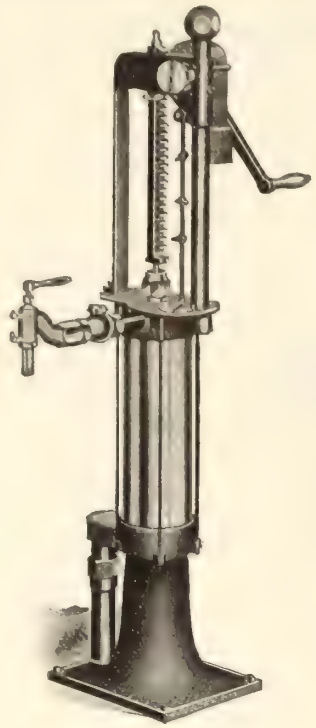
9458. Feb. 3.—Approving G.T.P. Branch Lines highway crossing and road diversion in the n.e. quar. sec. 34, tp. 45, r. 21, w. 4 m., North Alberta.

9459. Feb. 2.—Approving C.P.R. plan showing standard 10 in. stand-pipe.

9460. Jan. 29.—Authorizing Ontario Hydro-Electric Power Commission to erect transmission wires across Hamilton and Dundas Electric Ry. in Ancaster tp.

9461. Feb. 3.—Authorizing Bell Telephone Co. to place wires across C.N.R. telegraph wires near Cyrville station, Ont.

9462. Feb. 1.—Authorizing Ontario Hydro-Electric Power Commission to



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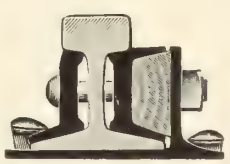

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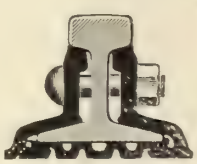

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erect lines across Woodstock, Thames Valley & Ingersoll Electric Ry. in West Oxford tp.

9463. Feb. 2.—Approving rules of New York & Ottawa Ry. and Ottawa & New York Ry. for the operation of trains in Canada.

9464. Feb. 2.—Ordering T.H. & B.R. to remove trees from land on south side of right of way at Moote's Crossing, near Fenwick station; and authorizing operation of trains over the crossing without speed limitation.

9465. Feb. 4.—Approving G.T.P. Branch Lines road diversions in river lots 15 and 16, tp. 46, r. 21, w. 4 m., North Alberta.

9466. Feb. 4.—Authorizing C.N.O.R. to construct bridge over Goforth's Creek, and to lay tracks across public road, lot 26, con. 4, Whitby tp.

9467. Feb. 3.—Authorizing Ontario Hydro-Electric Commission to erect wires across T.H. & B.R. at lot 55, Ancaster tp.

9468. Feb. 1.—Authorizing G.T.R. to proceed with construction of works provided for in order 8338, Oct. 15, 1909.

9469. Feb. 4.—Ordering that pipe proposed to be laid under G.T.R. by Tilbury East tp. have an inside diameter of at least 24 inches.

9470. Dismissing complaint of residents of Chambly, Marieville, St. Cesaire, Granby and Waterloo, Que., of alleged unsatisfactory equipment and irregular service of Central Vermont Ry. and G.T.R.

9471. Feb. 5.—Rescinding order 9298, Jan. 18.

9472. Feb. 5.—Authorizing Grand Valley Ry. and G.T.R. to operate trains over Colborne St., Brantford, Ont., without being brought to a stop.

9473. Feb. 5.—Authorizing G.T.R. and C.P.R. to operate trains over crossing at Drumbo, Ont., without being first brought to a stop.

9474. Feb. 4.—Authorizing Carstairs village, Alta., to construct Minto St. across C.P.R.

9475. Feb. 5.—Amending order 8992, Dec. 17, 1909.

9476. Feb. 4.—Authorizing Bell Telephone Co. to place wires across G.T.R. at Port Hope, Ont.

9477. Feb. 5.—Authorizing C.P.R. to use bridge 5.5 on its Brownville section.

9478. Feb. 4.—Ordering G.T.R. to construct subway in Palmerston, Ont., for pedestrians.

9479. Feb. 8.—Authorizing C.P.R. to construct its Lacombe branch across highways from mileage 50 to 85, Alta.

9480. Feb. 8.—Authorizing C.N.O.R. to place telegraph wires across Bell Telephone Co.'s wires at Russell Road, near Ottawa.

9481. Feb. 8.—Authorizing C.N.O.R. to build under Bell Telephone Co.'s wires at station 2.31, Parry Sound.

9482. Feb. 8.—Authorizing town of St. Louis, Que., to place light and power wires under Montreal and Southern Counties Ry. at Front St.

9483, 9484. Feb. 8.—Authorizing Hamilton Cataract Power, Light and Traction Co. to place transmission wires across G.T.R. in Saltfleet tp., Ont.

9485 to 9488. Feb. 8.—Authorizing Bell Telephone Co. to place wires across C.N.O.R., C.P.R. and G.T.R. at four points in Ontario.

9489 to 9493. Feb. 8.—Authorizing Seymour Power and Electric Co. to place wires across North American Telegraph Co.'s wires at six points in Ontario.

9494. Feb. 4.—Dismissing application of Canadian Freight Association for variation in Canadian Classification rating of automobiles "set up," L.C.L., and directing that Canadian Classification rating of automobiles taken apart (wheels detached), in box cars, L.C.L., actual weight, be double first class. This change to be incorporated in forthcoming amendments to Canadian Classification.

9495. Feb. 5.—Authorizing C.P.R. to construct spur to D. Rabbitt's premises, Bawlf, Alta.

9496. Feb. 8.—Authorizing city of Toronto to lay sewer under C.P.R., Albany Ave.

9497. Feb. 8.—Authorizing C.P.R. to construct spur between Mary and Christina Sts., Westfort, Ont.

9498. Feb. 5.—Authorizing C.P.R. to construct spur for Carter-Halls-Aldinger Co., Winnipeg.

9499. Feb. 5.—Authorizing C.P.R. to extend existing spur from its Pheasant Hills branch, s.e. quar. sec. 27, tp. 29, r. 22, w. 2 m., Sask.

9500. Feb. 10.—Authorizing Saskatchewan Public Works Department to construct crossing over G.T.P.R., n.e. ¼ sec. 10, tp. 20, r. 33, w. p.m.

9501. Feb. 10.—Authorizing Bell Telephone Co. to place wires across C.N.O.R. telegraph wires and tracks at McGill St., Hawkesbury.

9502 to 9508. Feb. 10.—Authorizing Manitoba Government Telephones to place wires across C.P.R. at seven points.

9509. Feb. 10.—Approving rules and regulations of Rutland Rd. for operation of trains in Canada.

9510 to 9517. Feb. 10.—Authorizing the C.N.O.R. Ry. to build across public roads at eight points in East Whitby tp.

9518. Feb. 10.—Authorizing C.N.O.R. to construct bridge over Orono Creek, Clarke tp.

9519. Feb. 7.—Authorizing G.T.R. for delivering freight to C.N.O.R. and its contractors to connect temporary switch at point referred to in order 9243 re Scarboro tp.

9520. Feb. 3.—Authorizing C.N.O.R. to build across public road between lots 22 and 23, con. 4, Whitby tp.

9521. Feb. 11.—Authorizing C.N.O.R. to build across and to divert road on lot 9, con. B, Murray tp.

9522. Feb. 12.—Authorizing G.T.P.R. to divert road in n.e. quar. sec. 12, tp. 44, r. 6, w. 4 m., North Alberta.

9523. Feb. 12.—Approving Chatham, Wallaceburg and Lake Erie Ry. bylaw authorizing J. E. Richards, G.F.A., to prepare and issue tariffs of tolls.

9524. Feb. 12.—Authorizing Ontario Hydro-Electric Power Commission to place wires across T.H. and B.R. at lot 55, con. 1, Ancaster tp.

9525. Feb. 15.—Authorizing Ontario Hydro-Electric Power Commission to place wires across Hamilton and Dundas Electric Ry. in Ancaster tp.

9526 to 9528. Feb. 12.—Authorizing C.N.O.R. to build across public roads at three points in Whitby tp.

9529. Feb. 14.—Approving C.N.O.R. location between lots 24 and 25, mileage 173.9, to line between Durham and Northumberland counties, mileage 177.

9530 to 9537. Feb. 14.—Authorizing C.N.O.R. to build across public roads at eight points in Darlington, Whitby, Scarboro, Pickering and Hope tps.

9538. Feb. 14.—Authorizing C.N.O.R. to use bridge over Seguin River on its Parry Sound spur.

9539. Feb. 14.—Approving plan, etc., of proposed drainage works in Tilbury East tp., Ont., across Canada Southern Ry. property.

9540 to 9544. Feb. 12.—Authorizing C.P.R. to use two bridges on Drummondville section; six on Sherbrooke section; one on its St. Guillaume branch, two on Newport section, and three on Farnham section, Que.

9545. Feb. 12.—Approving G.T.P. Branch Lines highway crossing and road diversion in sec. 22, 23 and 14, tp. 50, r. 19, w. 4 m., Alta.

9546. Feb. 14.—Amending order 9331, Jan. 20, re application of Pointe Aux Trembles municipality, Que., by changing reference to plan on file and approving another plan.

9547. Feb. 15.—Authorizing C.P.R. to use Higgins Avenue subway, Winnipeg.

9548. Feb. 15.—Authorizing C.P.R. to use bridge over Old Man River and the Lethbridge viaduct.

9549. Feb. 15.—Authorizing C.P.R. to use bridge 14.6 on its Columbia and Kootenay section, B.C.

9550. Feb. 14.—Authorizing Kent municipality, B.C., to construct highway crossing over C.P.R. at Harrison River.

9551. Feb. 10.—Amending order 6682, July 14, 1908, directing the Peterboro Radial Ry. to install derails and semaphores on Charlotte St., Peterboro, Ont., and changing system of blocking said derails and semaphores.

9552. Feb. 3.—Approving Niagara, St. Catharines and Toronto Ry. revised and new locations from mileage 13 to 18.55, Humberstone tp., Ont., and authorizing it to construct transfer track from Elm St., Port Colborne, to Dominion Government elevator siding; to build across Killally and Clarence Sts., Port Colborne; concession road between 4 and 5; Neff and Thompson Sts., Humberstone; concession road between cons. 2 and 3; and Main St. West, Humberstone, Ont.; and to cross at grade the G.T.R. air line and G.T.R. Buffalo-Goderich Division.

9553. Feb. 15.—Authorizing G.T.R. to construct branch line to National Manufacturing Co.'s premises, Ottawa.

9554. Feb. 12.—Authorizing St. Jean de Dieu Hospital, Longue Pointe, Que., to place light and telephone wires under Montreal Terminal Ry. and C.N.Q.R.

9555. Feb. 17.—Authorizing Hamiota municipality, Man., to place wires across G.T.P.R. near Oakner siding.

9556 to 9563. Feb. 16.—Authorizing C.N.O.R. to build across eight highways in Clarke tp.

9564. Feb. 16.—Authorizing Atlantic, Quebec and Western Ry. to construct branch line to proposed Government wharf at Adam's Bluff, Gaspe, Que.

9565. Feb. 15.—Authorizing G.T.R. to construct spur to E. Long Manufacturing Co.'s premises, Orillia, Ont.

9566. Feb. 3.—Approving Niagara, St. Catharines and Toronto Ry. revised location through lot 27, con. 6, and lots 26 and 27, con. 7, Crowland tp., mileage 11.53 to 13; authorizing it to cross highways north and south of canal feeder, at stations 307.83 and 314.22, public road at mileage 11.97, and town line between lot 27, Humberstone tp., and lot 27, Crowland tp., and to cross Canada Southern Ry. and T.H. & B. Ry.

9567. Feb. 11.—Authorizing Canada Atlantic Ry. to construct bridge over St. Lawrence River at Coteau, Que.

9568. Feb. 14.—Authorizing C.N.O.R. to divert and cross the Montreal and Ottawa road.

9569. Feb. 15.—Authorizing C.N.O.R. to build across road between lots 16 and 17, con. 3, Clark tp.

9570. Feb. 12.—Authorizing C.P.R. to use two bridges on its Drummondville branch, Que.

9571. Feb. 14.—Authorizing C.P.R. and C.N.O.R. to use for traffic the branch line in Parry Sound, Ont.

9572. Feb. 14.—Authorizing C.P.R. to construct spur line to E. F. Kendall's sawmill, Norman, Ont.

9573, 9574. Feb. 15.—Authorizing C.P.R. to construct spur to J. I. Case Threshing Machine Co.'s premises, Regina, Sask., and Sidney Brick and Tile Co.'s premises, Sidney, Man.

9575. Feb. 16.—Authorizing C.N.O.R. to place telegraph wires across C.P.R., Ottawa and Prescott branch, mileage 56.6, west from Hawkesbury.

9576 to 9579. Feb. 16.—Authorizing C.N.O.R. to carry its joint tracks with C.P.R. under Bell Telephone Co.'s wire from points near Parry Sound.

9580, 9581. Feb. 16.—Authorizing Chinguacousy Municipal Telephone System to place wires across C.P.R. at two points on its Orangeville branch, Ont.

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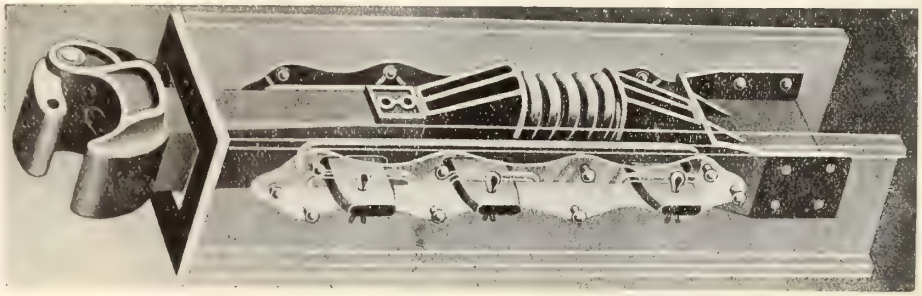

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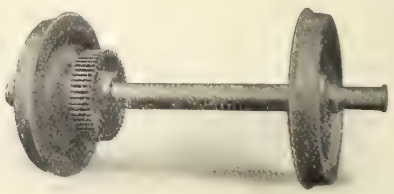

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9582. Feb. 16.—Authorizing Manitoba Government Telephones to place wires across C.P.R. at Keewatin St., Winnipeg.

9583. Feb. 16.—Authorizing Bell Telephone Co. to place wires across C.N.O.R. at Main St., Hawkesbury.

9584. Feb. 16.—Authorizing Bell Telephone Co. to place its wires across Ottawa and New York Ry. at Embrun station, Ont.

9585. Feb. 16.—Authorizing Nipissing Power Co. to place wires across Bell Telephone Co.'s wires at Callander, Ont.

9586. Feb. 16.—Authorizing Hull Electric Co. to place wires across C.P.R. Waltham branch, at milepost 6.18, Que.

9587. Feb. 7.—Dismissing Montreal Terminal Ry.'s application for order authorizing an appeal to the Supreme Court of Canada from Order 9237, Jan. 4.

9588. Feb. 12.—Authorizing Ontario Hydro-Electric Power Commission to carry wires across C.P.R. telegraph wires in Ancaster tp.

9589 to 9592. Feb. 17.—Authorizing C.N.O.R. to build across public roads at three points in Hamilton tp., and one point between Garson and Capreol tps.

9583. Feb. 16.—Authorizing C.N.O.R. to construct bridge over Don River, on its Toronto-Ottawa division.

9594. Feb. 14.—Authorizing C. W. Carman, Carmangay, Alta., to place wires across C.P.R.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers to distinctly understand that we are not paid for the publication of any of this matter and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Fayette Brown, President of the Brown Hoisting Machinery Co., Cleveland, Ohio, died recently, aged 87.

The Wire & Cable Co., Montreal, has appointed The Northern Electric & Manufacturing Co., 918 Pender St., Vancouver, its sales agent for British Columbia.

Burton W. Mudge & Co., railroad supplies, Chicago, Ill., announce the appointment of Otto P. Hening, as Sales Manager, with charge of sales, advertising and purchasing.

The General Railway Signal Co., Rochester, N.Y., and Eastern Townships Bank Bldg., Montreal, has issued in pamphlet form a paper on the use of alternating currents in railway signaling by its chief engineer, W. K. Howe.

The Silliker Car Co., Ltd., Halifax, N.S., recently offered $125,000 seven per cent. cumulative preference stock at par. The prospectus states that the company's authorized capital is $750,000, of which $244,000 is paid up.

The Railway Committee of the House of Commons threw out the bill introduced for the purpose of amending the Railway Act so as to compel railway companies to pay their workmen every two weeks instead of every month.

The House of Commons has passed the act authorizing the Government to acquire by lease lines of railway connecting with the Intercolonial Ry. The lines may be leased in whole or in part, but only if such lines are reported by the Chief Engineer of the Department of Railways to be in good and safe condition for operation. The terms of the lease have to be approved by the Government Railways Managing Board and by Parliament before any line is taken over for operation.

Railway Finance, Meetings, Etc.

Alberta Ry. and Irrigation Co.—Approximate net profits, from all sources, exclusive of land sales for Dec., 1909, $43,820, against $40,340 for Dec., 1908. Cumulative net profits for six months ended Dec. 31, 1909, $257,309. Traffic receipts for Jan., $21,442, against $16,333 for Jan., 1909. Aggregate traffic receipts for seven months ended Jan. 31, $225,428.

Canadian Northern Ontario Ry.—A bill has been passed by the House of Commons authorizing the company to acquire the shares, bonds or other securities issued by a number of other companies; to consolidate the securities heretofore made by itself, or by any other railway company whose stock or property it has acquired, and in lieu thereof to issue consolidated mortgage or other stock.

The Canadian Northern Ry. reported to the Minnesota State Auditor, Feb. 5, that the earnings of its line in that state for the year 1909 were $461,598. The amount of taxes paid on this was $18,563.

Dominion Atlantic Ry.—Gross earnings for Dec., 1909, $97,300, against $91,050 for Dec., 1908. Aggregate gross earnings for seven months ended Dec. 31, 1909, $817,300, against $792,285 for same period 1908.

Guelph Jct. Ry.—The annual meeting was held Feb. 1, when C. Kloepfer, R. L. Torrance and J. Crowe were re-elected directors. The other directors are the Mayor and appointed representatives of the Guelph city council. The shareholders after discussion decided to make the city an offer of the ten $100 shares held by them, so as to enable the city to retain the control of the company, if the bondholders are paid off, as it is understood that the C.P.R., which operates the line under lease, proposes to do. The actual amount of capital stock of the company is $30,000, of which the city holds $20,000, the remaining shares being held by the 10 shareholders who have paid up $100 each on their shares, the city having guaranteed the liability on the balance. The city in addition to taking the company's bonds to the amount of $155,000, advanced $18,000 in 1900.

Quebec Central Ry.—Gross earnings for Dec., $82,409.52; expenses, $62,316.49; net earnings, $20,093.03, against $72,833.00 gross earnings; $56,795.52 expenses; $16,037.48 net earnings for Dec., 1908. Aggregate gross earnings for six months ended Dec. 31, $580,770.09; expenses, $386,439.48; net earnings, $194,330.61; against $552,691.24 aggregate gross earnings; $377,579.80 expenses; $175,111.44 net earnings for same period 1908.

Quebec and Lake St. John Ry.—Total earnings for Jan., $37,654.84, against $46,249.05 for Jan., 1909.

White Pass and Yukon Ry.—Gross earnings for six months ended Dec. 31, 1909, $842,186.

Railway Lands Patented.—Letters patent were issued during Nov., covering railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Canadian Northern Ry.	20.50
Canadian Pacific Ry.	1.54
Grand Trunk Pacific Ry.	10.98
Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co.	2,239.00
Total	2,272.02

The Canadian Transfer Co.'s officers and directors for the current year, are as follows:—President, C. Cassils; directors, H. Paton, G. H. Starke, Sir H. Montagu Allan, H. M. Molson; Manager and Secretary, F. M. McRobie, all of Montreal.

Paper Rates from Grand Mere.

Following is the judgment of the Interstate Commerce Commission in the case of H. R. Williar vs. Canadian Northern Quebec Ry. et al, decided recently:—

"On various dates in July, Aug., and Sept., 1907, complainant caused to be delivered to the C.N.Q.R. Co., at Grand Mere, Que., some 18 carloads of newspaper for transportation to San Francisco, Cal. With one exception the shipments were routed by the shipper via C.P.R., Wabash Rd., Chicago, Burlington & Quincy Rd. and lines beyond; the remaining carload was routed via C.P.R., Wabash Rd., Chicago and North Western Ry. and lines beyond. At the time of movement there was in effect a rate of 75c. per 100 lbs. on newspaper, in carloads, from Grand Mere to San Francisco, but this rate was effective only through Chicago. The Wabash Rd. carried these shipments from Detroit via its East Hanibal gateway, and, with the exception of a single carload, delivered same to the C., B. & Q.R. at Kansas City; the remaining carload was delivered to the Missouri Pacific Ry. at Kansas City. Thence shipments were carried to destination via the lines of the several other defendants. The rate lawfully applicable by the route of movement was 90c. per 100 lbs., and charges were collected in accordance therewith. This rate is alleged by the complainant to be unjust and unreasonable, to the extent that it exceeds the rate of 75c. per 100 lbs. applying through the Chicago gateway. Reparation is sought in the amount of $1,891.93. Effective Jan. 28, 1908, the 75c. rate was made specificially applicable via all routes. The through rate appears to have been canceled on Jan. 1, 1909, but was re-established on June 5, 1909. Certain of the defendant carriers disclaim liability for the collection of the alleged excessive charges upon the plea that it was the duty of the initial carrier, or of the Wabash Rd. to which the shipments were intrusted at Detroit, to forward the same via the Chicago gateway, and that the connecting lines should bear no part of the responsibility for the shipments having been sent by the more expensive route. We may observe that carriers charged with exacting an unreasonable rate cannot escape liability solely upon the ground that the shipments could have been transported via a route carrying a lower rate. If the rate assessed was, in fact, unreasonable, defendants should be required to make reparation irrespective of the fact that the shipper would have enjoyed a lower rate if his shipments had moved through a different gateway. We find that the rate assessed and collected on the shipments giving rise to this complaint was unjust and unreasonable to the extent that it exceeded the rate of 75c. per 100 lbs. which was applicable via the Chicago gateway and has since been made effective via the route of movement. We find further that a reasonable rate to be observed for the future should not exceed 75c. per 100 lbs. Reparation will be awarded in the amount of $1,891.93 as claimed, with interest from the date of payment of freight charges. An order will issue in conformity with these findings."

Toronto Viaduct Question.—The Supreme Court gave judgment at Ottawa, Feb. 15, on the appeal of the G.T.R. and the C.P.R. against the Board of Railway Commissioners' order requiring the companies to construct a viaduct along the Esplanade at Toronto. The Court, with two judges dissenting, dismissed the appeal. It has not been announced whether the companies will make application for leave to appeal against this decision to the Imperial Privy Council.

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Polson Iron Works, Ltd., is suing the city of Toronto for the specific performance of an agreement on the part of the city to sell part of a lot at the foot of Frederick St., which the company declares it bought in 1906 for $12,000. The city denies that the deal was consummated and will fight the case.

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Construction Freight Tariffs.

In the complaint of Baker, Reynolds & Co., of Moose Jaw, Sask., against C.P.R. construction rates the Board of Railway Commissioners' Chief Traffic Officer, J. Hardwell, made the following report Nov. 27:—"I have been in communication with E. W. Beatty, Assistant Solicitor C.P.R. Under the circumstances detailed in complainants' letter, Sept. 17, 1909, complaint is made to the Board against the rates charged by the C.P.R. on some 28 carloads of lumber and shingles shipped from Vancouver, New Westminster and Barnet, B.C., to Brownlee, Tugaski and Outlook, Sask., stations on what is now operated as the C.P.R. Tuxford Branch, which connects with the main line at Moose Jaw. The published rates to Moose Jaw were 49c. on cedar lumber and shingles, and 40c. on fir and spruce lumber. The first "Company" tariff was published to Tuxford, April 11, 1908, at the same rates as to Moose Jaw; to Brownlee and Tugaski, Sept. 30, 1908, and to Outlook, Dec. 2, 1908, the rates to these last three stations being the same on fir and spruce as to Moose Jaw and Tuxford, namely 40c. and 1c. over Tuxford and Moose Jaw, or 50c. on cedar lumber and shingles. All the lumber in question appears to have been way-billed to Tuxford, as the end of the operated line, with the addition of 2c. to Brownlee and 3c. to Tugaski and Outlook. It is the excess over the through rates afterward published and filed as for operation that is complained of. The additional rates appear to have been issued in the form of construction tariffs, but they were not published and filed with the Board. On interrogating Mr. Beatty as to this omission, he writes me that as the operation of the branch lines had not been authorized by the Board at the time the construction tariffs were issued, it would have been useless to file them, as the Board would have no authority to approve them. His traffic officials 'think though they are not positive, that the matter was discussed with me unofficially at the time, and that my opinion was that the company could publish construction tariffs without filing them with the commission.' I cannot recall any such discussion; indeed, the reports I had made to the Board, and the action taken by the Board previously, would not warrant any such conjecture. The construction tariffs are still unfiled.

The Canadian Pacific Co. were authorized to carry freight traffic over the different sections of the new branch line, as construction proceeded, by orders 5364, Sept. 18, 1908; 5919, Dec. 10, 1908; 6083, Jany. 20, 1909, and 6586, Feb. 18, 1909.

In connection with the Grand Trunk Pacific Construction Dept.'s special freight tariffs, the late Chief Commissioner ruled, Oct. 25, 1907, that 'in approving the railway company's Standard tariff unconditionally, the Board did not intend to decide upon the propriety of the company's proposed limitation of the traffic to construction trains; but that the Board is of opinion that such a limitation is not proper in dealing with tariffs; that the Board is of opinion that the nature of the facilities to be furnished for the carriage of traffic depends upon circumstances; and that the same facilities are not to be expected upon a road just opened for traffic, and upon which numerous construction trains are run, as upon a completed railway.'

"Again, with regard to the printing of the words 'On construction trains only' on the G.T.P. tariffs, it was decided that the Board has nothing to do with the question as to whether the traffic is carried on construction trains or otherwise. The Board recognizes that under the circumstances the Company cannot give full freight service; but that the question whether the goods shall be carried on freight trains, or otherwise, is not a question to be considered in deciding on the standard tariff. The Board leaves it to the company to provide such service as the circumstances would reasonably require.

"Order 5153, Aug. 11, 1908, on the application of the G.T.P.R. for leave to carry settlers, etc., on construction trains over the line between Winnipeg and Battle River, provides 'that, in exercising the powers conferred by this order, the applicant company be not thereby subjected to a penalty for contravening any of the provisions of The Railway Act in that behalf.'

"The Great Northern Ry. (U.S.) for its Midland and B.S. & H.B. lines to Portage la Prairie and Brandon, respectively, filed certain commodity tariffs to apply on tariff carried on construction trains. No standard tariff had been filed, and the authority of the Board for the carriage of any traffic whatever had not been obtained. The late Chief Commissioner ruled as follows:—'By sec. 207 (Act of 1903), no railway or any portion thereof, shall be opened for the carriage of traffic, other than for the purposes of the construction of the railway by the company, until leave therefor has been obtained from the Board, as hereinafter provided. The carriage of traffic by the company or its contractors, before leave has been given under this provision, is wholly unauthorized, whether a standard tariff has or has not been approved, and such a practice should not be recognized or sanctioned by the Board. As, however, the public are frequently accommodated in this way, there does not appear to be any reason for the Board to take action unless complaint is formally made to it.'

"In the present case, the C.P.R. appears to have carried traffic on construction trains, under construction tariffs which were not filed with the Board, before the different sections had been inspected by the Board's Engineer, and before the orders cited had been issued. The company has not even supplemented its Standard Tariff C.R.C. no. W. 3, so as to make it cover this new Tuxford branch.

"In Oct., 1907, the Canadian Northern Ry. filed its construction department's special tariff on grain from stations on its new line between Brandon and Regina, which had not been opened for traffic, to Port Arthur. The late Chief Commissioner ruled as follows:—"The Board cannot approve any tariff for a line as to which a standard tariff has not been approved, and the Board cannot approve the carriage of traffic upon a railway until the leave of the Board has been given under either sub-sec. 1, or sub-sec. 7 of sec. 261.'

"The C.P.R. seems to have been in default in three ways; it carried traffic before it had been authorized to do so under sec. 261, it has filed no standard freight tariff, and it filed no special tariffs for traffic carried on construction trains pending formal opening for general traffic.

"The Tuxford branch seems to have been built by the Company's own construction department; but even if it were built by a private contractor, should he not be considered the agent of the company so that any traffic he might carry on his own trains before handing the line over to the Company might, for the purposes of The Railway Act, be considered as traffic carried by the Company itself?"

On considering the Chief Traffic officer's report the Chief Commissioner gave the following decision, Dec. 17:—

"Sec. 26, provides that no railway, or portion thereof, shall be opened for the carriage of traffic, other than for the purposes of the construction of the railway by the company until leave therefor has been obtained from the Board. This makes it clear that a railway company cannot use the road in course of construction for other purposes than carrying construction material. Subsec. 7 of sec. 261 provides that the Board, upon being satisfied that public convenience will be served thereby, may, after obtaining a report of an inspecting engineer, allow the company to carry freight traffic over any portion of the railway not opened for the carriage of traffic generally. This might apply where the company was anxious to convenience settlers before the road was ready for opening generally. Sec. 327 provides for filing standard freight tariffs, and sub-section 4 prohibits the company from charging any toll until the provisions of the section have been complied with. Sub-sec. 5 of sec. 314 prohibits a company charging, levying, or collecting any money for any service as a common carrier, except under the provisions of the Railway Act.

"In the face of all this, it is said a company may carry traffic during construction without the road having been inspected and without tariffs being filed. This contention is entirely untenable. The tolls charged in the case in question were all illegally collected and in violation of the express provisions of the Statute. It is said that the company do not desire to be hampered and delayed by carrying any sort of traffic during construction, and that it is done only to convenience settlers in those new districts. With this position, of course, one is in entire sympathy; but there is no law that I know of that permits it, except upon compliance with the terms of the Act. Tariffs are made out entitled "Canadian Pacific Ry. Construction Department," "Canadian Northern Ry. Construction Department in connection with the Canadian Northern Ry." These are supposed to apply to lines during construction and are not filed with the Board. I know of no authority in the Act for this practice, and none has been pointed out to us. It is all illegal; moneys paid to the Companies for service under these alleged tariffs have been illegally levied. The persons responsible for the issue and use of these tariffs have subjected themselves to the penalties provided for by the Act. Where is there any authority to issue tariffs in the name of a construction department? Is this a department of the railway company or is it a firm of contractors? And, if the latter, where is there authority to operate a railway, issue tariffs, and collect tolls? If it exists, it must be somewhere else than in the Railway Act.

"I have before me a tariff issued by what is called the construction department of the C.P.R. Co.. It has printed upon it the following,—'During construction of Sheho extension—pending the completion and taking over by this company of the extension east of Lanigan (now under construction), for the convenience of settlers, etc., etc.' I have another Canadian Northern tariff attempted to be made applicable to its Maryfield extension during construction, with the words, 'pending the completion and taking over by this company, etc., etc.,' printed upon it. This tariff has also printed upon it at the foot 'Mackenzie, Mann & Co., Ltd., Contractors,' along with the names of the traffic officers of the Canadian Northern Ry. Co. I do not know why this practice has been adopted, or why it is continued in the face of the Act. Let copies of Mr. Hardwell's report and of this memo., as well as Mr. McLean's, be sent to the complainants and the C.P., C.N., and G.T.P. Ry. Companies."

Commissioner McLean gave the following decision:—"Mr. Hardwell's re-

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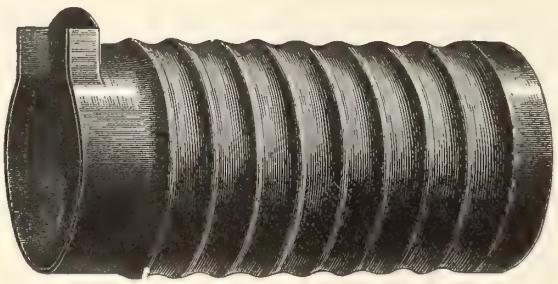

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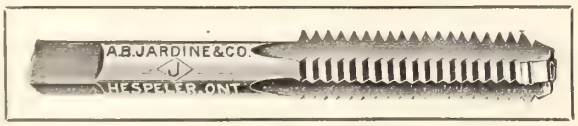

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port raises the question of the alleged right of railway companies to carry freight on construction traiffs, on sections of railway not yet inspected, without such tariffs having been filed with the Board. Mr. Beatty, for the C.P.R., takes the position that where 'the operation of branch lines has not been authorized by the Board at the time the construction tariffs were issued, it would be useless to file them, as the Board would have no authority to approve them.' And he is of the opinion that such tariffs do not need to be filed with the Board. The provisions of sec. 261 of the Railway Act and the policy of the Board as indicated in the citations contained in Mr. Hardwell's report show clearly that Mr. Beatty's position is untenable. The opinion of the late Chief Commissioner as expressed in re Brandon, Saskatchewan and H. B. Railway Company Standard Tariffs, is especially pertinent. It appears to me that the construction tariffs in the case before us have no legal status, and consequently the charges made thereunder have no legal status as well."

C. N. R. Winnipeg Terminal Bonds.

The Canadian Northern Ry. Co. has issued $3,000,000 thirty year mortgage 4% guaranteed gold bonds on its Winnipeg terminal property. Following are extracts from a letter from W. Mackenzie, President, to the purchasers of the bonds:—W. A. Read & Co., of New York. "The proceeds of the bond are to be used entirely for expenditures for the construction of the new station and for improvements on and extension of the Winnipeg terminals. The value of the mortgaged properties will be practically twice the amount of the bonds outstanding. The bonds are a direct obligation of the C.N.R. Co., guaranteed principal and interest by the Province of Manitoba and specially secured by a mortgage on approximately 169 acres of the C.N.R. freight and passenger terminals at Winnipeg. The passenger and local freight terminals are situated in the heart of Winnipeg's business district, and comprises approximately 69.93 acres. It is estimated that the improvements now being made on this property, including passenger station, offices, tracks, freight sheds, etc., will, when completed, amount to over $2,000,000. The mortgage also secures the bonds upon approximately 99.13 acres of freight terminals also within the city limits. The freight terminals comprise extensive shops, yards, freight tracks and other terminal facilities representing an improvement expenditure of over $1,000,000. The terminal bonds are also secured by a charge on all the right, title and interest of the C.N.R. under the agreement for their joint use by the G.T. Pacific Ry. and the National Transcontinental Ry., the rentals for which payable to the C.N.R. Co. amount to, approximately, $97,500, besides any other rental payments which may accrue to the C.N.R. for the use of the terminals by any other railway. The payment of principal and interest of the bonds is unconditionally guaranteed by the Province of Manitoba. The value of the lands comprising the passenger terminals, apart from improvements, based on a valuation which was made on behalf of the G.T. Pacific Ry., the National Transcontinental Ry., and the C.N.R., made for the purpose of determining the rental value of the property together with the cost of two subsequently acquired properties is over $2,500,000. The G.T. Pacific and the National Transcontinental Rys. (which, when completed are, under their agreements, to be operated as one), have agreed to use the city terminals for their passenger and local freight business, paying therefor as rental an amount equivalent to interest at 4% on one-half of $2,625,000 and a further amount equal to one-half of the interest at 4½% on the expenditures for improvements. This agreement, confirmed by act of Parliament, covers 999 years from Jan. 1, 1907. The terminal rental payable by the National Transcontinental Ry. and the G.T. Pacific Ry. amounts to, approximately, $97,500 from these tenant railways as against the total interest of $120,000 accruing on the $3,000,000 terminal bonds now authorized. Should it be arranged to allow additional railways to use the terminals, the amount of rentals would be increased. The passenger terminals are most advantageously located in Winnipeg on the main street and at the door of the business district. Subject to the terms of the terminal agreement with the Government and the G.T. Pacific Ry. Co., about 45 acres of the passenger terminals are owned by the C.N.R. Co. in fee simple, and the remainder, about 24 acres, is held under a 999 years lease from the Northern Pacific Ry. Co. The freight terminals, approximately, 99.13 acres, are equipped with modern facilities for the handling of an extensive freight business. They are in part subject to a mortgage for $300,000 given by the Winnipeg Land Co., which formerly owned part of the lands, as a security for certain first mortgage bonds issued by that company. These bonds were acquired by the C.N.R. Co., and are now being held by the trustees of the mortgage securing the company's 4% consolidated debenture stock."

Too Late for Classification.

Brandon, Saskatchewan and Hudson's Bay Ry.—Application is being made to the Dominion Parliament for the passing of an act extending the time within which the company may complete the construction of its authorized lines of railway.

Grand Trunk Pacific Ry. Branch Lines.—Referring to information published on another page, the contract for the construction of a further 50 miles of the line from Melville to Regina, Sask., has been let to the J. D. McArthur Co., Winnipeg. The line has already been completed from Melville to Balcarres. The same company has also received the contract for the construction of the balance of the line from Tofield to Calgary, Alta. The first 50 miles of this line were placed under contract in 1909, and track was laid to Camrose, 26 miles.

Canadian Northern Ry.—A contract is reported to have been let to T. Kelly & Sons, Winnipeg, for the construction of the piers for a bridge across the Assiniboine River, east of the Main St. bridge, to carry the C.N.R. and G.T. Pacific Ry. tracks. The bridge will be 454 ft. long, and will be of the deck plate girder type. There will be one section of 44 ft. at the north end which will be a through span, then two of the deck plate sections, each 80 ft. in length. The central span will be 90 ft. long, of the trunnion lift pattern, instead of a swing span as in other river bridges across the Red and Assiniboine. At the south end there will be two more deck plate spans of 80 ft. each. The cost of the concrete piers is estimated at $50,000.

Intercolonial Ry.—Tenders will be received to Mar. 15 for the construction of a railway between Nelson and Chipman, N.B., 8.28 miles, and for a line between George's River and Sydney Mines, N.S., 9.09 miles.

Little Nation Ry.—Application is being made to the Quebec Legislature to change the location of the northern end of the main line and grant an extension of time for the construction of the line. (Sept., 1908, pg. 617.)

Northern Quebec Colonization Ry.—Application is being made to the Dominion Parliament to incorporate a company with this title to construct a railway from Tadousac, at the mouth of the Saguenay River, Que., westerly along the north shore of the river to Lake St. John, thence north-westerly to between Lake Chibougamau and Lake Mistassini, thence north-westerly to Hannah Bay, Ont., at the southern end of James Bay. The provisional directors are:—N. Drouin, J. Picard, W. Ray, Quebec; P. Tourigny, Victoriaville, Que.; Jas. B. Phillips, Haileybury, Ont. (Jan., pg. 21.)

The Ottawa Valley Ry. Co.'s application for an act reviving its powers and granting an extension of time for construction was withdrawn from consideration by the Dominion Parliament. (Jan., pg. 21.)

Prince Edward Island Ry.—Tenders have been asked for the construction of a 3-stall engine house at Georgetown, and for the following buildings on the Elmira branch:—a station, freight shed, two way stations, two shelters, two tool houses, a 2-stall engine house and a coal shed.

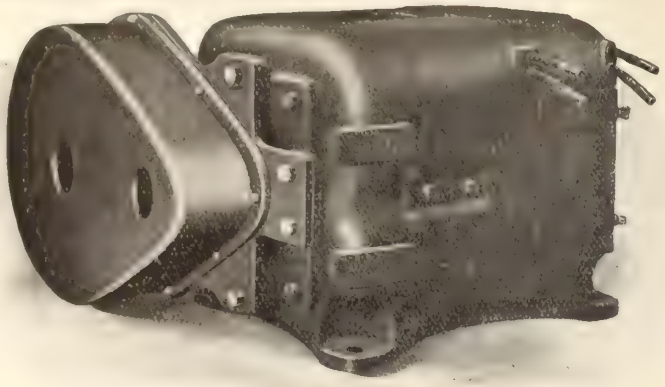
St. John Valley Ry.—A representative of the company was in Ottawa, Feb. 12, for the purpose of ascertaining the requirements of the Dominion Government as to construction. Application is being made to the New Brunswick Government to recommend the Legislature to guarantee the company's bonds to the amount of $25,000 a mile. The Dominion Government was asked to operate the line, taking 60% of the gross receipts, and it is said that this will be done, provided the line is constructed to the same standard as the National Transcontinental Ry., with which it will connect at Grand Falls, N.B. The company, it is stated, was organized "for the public welfare," and it is desired to secure the operation of the railway by one of the lines giving through connections. The company does not want to construct the line itself, unless arrangements cannot be made otherwise. (Dec., 1909, pg. 885.)

Temiskaming & Northern Ontario Ry.—A deputation from North Bay, Parry Sound and the surrounding districts waited on the Ontario Government, Feb. 10, to urge the extension of the T. and N.O.R. from the present southerly terminus at North Bay to Parry Sound, about 75 miles. Consideration of the suggestion was promised.

Toronto Terminal Ry.—When the application of the company for incorporation came before the Railway Committee of the House of Commons it was almost unanimously decided to reject it. (Dec., 1909, pg. 915.)

Toronto, Haliburton and Pembroke Ry.—The Ontario Legislature is being asked to incorporate a company with this title to construct a railway from Barry Bay southerly to Haliburton, or as an alternative from the crossing of the boundary between Lyell and Jones townships by the Canada Atlantic Ry. southerly to Haliburton. Thomson, Tilly and Johnston, Toronto, are solicitors for applicants. The provisional directors are:—W. B. Russell, W. Bilbrough, S. Johnston, R. H. Parmenter, Toronto; E. A. Dunlop, J. G. Fergie, J. F. Munro, Pembroke, Ont. (Feb., pg. 111.)

The Buffalo and Lake Huron Ry. Co.'s report for the half year ended Dec. 31 shows that after providing for interest on the first and second mortgage bonds the available balance, including the amount brought forward from the previous half year, is £14,787 2s. 5d., from which has been declared a dividend of 5s. 3d. a share, leaving a balance of £1,002 9s. 2d. to be carried forward, against £973 0s. 9d. carried forward from the previous half year. This railway is operated under lease by the G.T.R.



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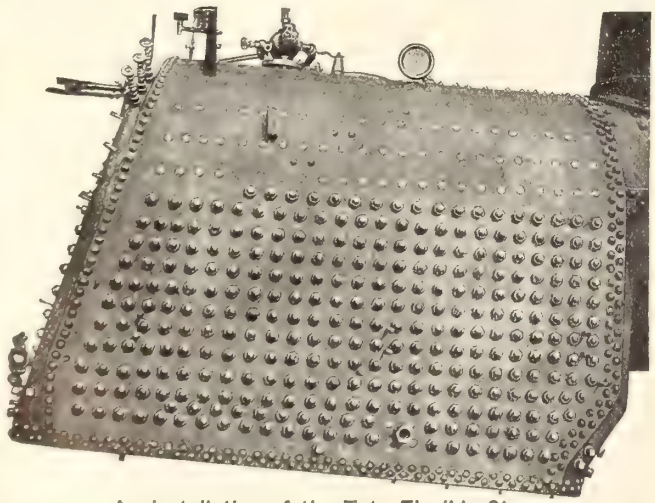

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Railway Rolling Stock Notes.

The Canadian Northern Ry., between Jan. 15 and Feb. 15, received two cafe-parlor cars from the Crossen Car Mfg. Co., Cobourg, Ont.

The G.T.P.R. has ordered two superintendent's private cars, nos. 4,102 and 4,103, from the Canadian Car and Foundry Co., Montreal.

The C.P.R., between Jan. 15 and Feb. 13, received the following additions to rolling stock, from its Angus shops, Montreal:—three Pacific type locomotives, one consolidation locomotive, 24 flat cars, seven vans and one sleeper.

The Canadian Locomotive Co., Kingston, Ont., between Dec. 14, and Feb. 14, delivered four mogul locomotives to the Grand Trunk Ry., and four consolidation locomotives to the Canadian Northern Ry.

The Dominion Parliament has voted the following amounts on account of rolling stock for the Intercolonial Ry.:—$10,000 for air brakes, and $10,000 to exchange drawbars on freight cars; $1,000 for side ladders for box cars, and $66,000 for Pintsch gas apparatus.

The Montreal Locomotive Works, between Jan. 15 and Feb. 15, delivered 15 ten wheel locomotives to the G.T.R.; one locomotive to the Toronto, Hamilton and Buffalo Ry; and one steam shovel to the Canadian Copper Co. It is also building one steam shovel, class 45, for the Canadian Western Improvement Co., and two for stock.

The G.T.P.R., between Jan. 15 and Feb. 15, received the following additions to rolling stock:—200 stock cars, nos. 350,100 to 350,299; 315 box cars, nos. 310,300 to 310,614; five first class cars, nos. 2,026 to 2,030; from the Canadian Car and Foundry Co., Montreal, and 227 box cars, nos. 310,825 to 311,051, from Rhodes, Curry Co., Amherst, N.S.

The Mount McKay and Kakabeka Ry. (electric), has ordered four Otis all steel cars from the Hart Otis Car Co., Montreal. Following are the chief dimensions:—

Length over end sills	21' 1½"
Length inside	19' 1"
Width inside	9' 6"
Height inside	4' 6"
Height top of rail to top of side	8' 10 13-16"
Height from rail to floor	4' 4½"

The C.P.R., between Jan. 15 and Feb. 13, ordered the following rolling stock at its Angus shops, Montreal:—35 vans, 65 box cars, 25 flat cars, six stock cars, one refrigerator car, one steel coal car, 14 first class cars, one second class car, 17 baggage cars, 29 Hart steel ballast cars, seven suburban cars, six combination first and smoking cars, and two G2 locomotives.

Replying to a question in the House of Commons, Jan. 24, the Minister of Railways stated that the special car used by E. Tiffin, a member of the Government Railways Managing Board and General Traffic Manager, had been undergoing repairs at the Silliker Car Works, Halifax, N.S. The I.C.R. shops had been overwhelmed with ordinary repairs, largely due to the fact of the accumulation of work during the transfer from the old to the new shops. This work had since been overtaken, and as the organization improved, new work would be started.

The Hart Otis Car Co., Montreal, has recently received orders for its 1910 design Hart convertible cars, as follows:—20 from O'Brien, Fowler and McDougall, National Transcontinental Ry. contractors; 15 from E. F. and G. E. Fauquier, National Transcontinental Ry. contractors; 35 from the Quebec Central Ry., and 250 from the Canadian Northern Ry. Following are the chief dimensions:—

Length over end sills	[illegible]
Length inside as gondola	34' [illegible]
Length inside as hopper	20' 10"
Width inside	8' 8"
Height inside	3' 9¼"
Height from top of rail	8' 1⅛"
Height from rail to floor	4' 4⅛"

The G.T.R. has ordered 20 ten wheel locomotives from the Montreal Locomotive Works. Following are the chief particulars:—

Weight in working order	167,300 lbs.
Weight on drivers	126,420 lbs.
Weight on engine truck	40,880 lbs.
Wheel base, driving	14' 0"
Wheel base, engine	24' 4"
Wheel base, engine and tender	54' 9"
Cylinders	19" by 26"
Driving wheels diar.	63"
Boiler type	Extended wagon top
Boiler, diar. at first ring	60¼"
Boiler pressure	200 lbs.
Tubes, no. and diar.	263—2"
Tubes, length	13' 6"
Brakes	Westinghouse American
Capacity, water	7,000 gals.
Capacity, coal	10 tons

The Montreal Locomotive Works has received orders for two mogul locomotives from each of the following National Transcontinental Ry. contractors: Cavicchi and Pegano, M. P. and J. T. Davis, O'Brien, Fowler and McDougall, and the Willard Kitchen Co. Following are the chief particulars:—

Weight in working order	131,000 lbs.
Weight on drivers	113,500 lbs.
Weight on engine truck	17,500 lbs.
Wheel base, driving	12' 6"
Wheel base, engine	20' 6½"
Wheel base, engine and tender	50' 0"
Cylinders	19" by 26"
Driving wheels, diar.	50"
Boiler, type	Extended wagon top
Boiler, diar. at first ring	62"
Boiler pressure	180 lbs.
Tubes, no. and diar.	240—2"
Tubes, length	10' 5¼"
Brakes	Westinghouse American
Capacity, water	5,000 gals.
Capacity, coal	9 tons

Following are the chief particulars of the 100 logging cars which the Canadian Northern Ry. has ordered from the Russel Wheel and Foundry Co., Detroit, Mich., as mentioned in our last issue:—

Capacity	60,000 lbs.
Sills	8" by 10" by 24 ft.
Bunks	12" by 12" by 10 ft.
Sway bar between bunks	Solid, 8" by 8"
Bunk centres	10 ft.
Material	White oak
Air brakes	Westinghouse
Bolsters and brake beams	Simplex
Couplers	Simplex
Side bearings	Susemihl
Channel spring planks	12"
Journal boxes	McCord M.I.
Wheels	M.C.B., 600 lbs., 33" diar.
Axles	Hammered steel
Journals	4¼" by 8"

The Temiskaming and Northern Ontario Ry. has ordered three parlor-cafe cars from the Canadian Car and Foundry Co., Montreal, of which the following are the chief particulars:—

Length over vestibule buffer plates	80' 3¾"
Length over side sill angles	70' 3½"
Width over side sill angles	9' 8½"
Width over wood side sills	9' 10⅝"
Width over all at eaves	10' 3¼"
Width at deck opening between deck sills	5' 6"
Height from rail to under side of side sill angle	3' 7½"
Height from rail to top of roof boards	14' 1½"
Height from rail to centre of coupler	2' 11"
Distance centre to centre of trucks	51' 10"
Truck wheel base	11' 0"
Underframe	Steel
Trucks	All steel 6 wheel
Steps, platforms	Standard
Curtains	Pantasote
Heating system	Gold combination
Lighting	Pintsch system
Air brakes	Westinghouse L.N. 1612
Wheels	Solid steel, 36"
Journal bearings	anadian Bronze Co.
Brake shoes	Steel back

The Grand Trunk Pacific Ry. has ordered 10 ten-wheel locomotives from the Canadian Locomotive Co., Kingston, Ont., of which the following are the chief particulars:—

Weight in working order	126,420 lbs
Weight total	167,300 lbs.
Wheel base of engine, rigid	14' 0"
Wheel base of engine, total	24' 4"
Wheel base engine and tender	54' 9"
Length overall	64' 6"
Width overall	9' 11"
Height overall	14' 8"
Heating surface, firebox	160 sq. ft.
Heating surface, tubes	1,917 sq. ft.
Heating surface, total	2,077 sq. ft.
Driving wheels	63"
Driving whel centres	Cast steel and cast iron
Journals	9" by 10"
Cylinders	19" by 26"
Boiler, type	Radial stay
Boiler, pressure	200 lbs.
No. and diar. of tubes	266—2"
Tubes, length	13' 6"
Brakes	Westinghouse ET
Weight of tender loaded	143,300 lbs.
Capacity, water	7,000 U.S. gals.
Capacity, coal	10 tons
Truck	Four wheel arch bar frame
Truck wheels	34"
Wheels	Cast iron centres, steel tired
Journals	5½" by 10"
Brake beams	G.T.R. standard

Following are the chief particulars of the 300 box cars, three first class cars, five second class cars and four combination passenger and baggage cars which the Canadian Northern Ry. recently ordered from the Silliker Car Co., Halifax, N.S., as mentioned in our last issue:—

BOX CARS.

Length over end sills	36' 9¾"
Width over side sills	9' 0¾"
Height from sill to plate	7' 10¾"
Door opening	6' 0"
Bolsters and brake beams	Simplex
Brake shoes	Steel back
Couplers	Janney
Springs	Montreal Steel Works
Journal bearings	Canadian Bronze Co.
Wheels, diar.	33"
Air brakes	Westinghouse
Axles	Nova Scotia Steel & Coal Co.

FIRST CLASS CARS.

Length over end sills	72' 6"
Width over side sills	9' 10½"
Platforms	Standard Coupler Co.
Heating	Gold
Lighting	Commercial Acetylene Co.
Air brakes	Westinghouse
Bolsters	Double wrought iron
Brake beams	Simplex
Springs	Montreal Steel Works
Oil boxes	McCord & Co.
Journal bearings	Canadian Bronze Co.
Wheels	36", steel tired

COMBINATION CARS.

Length over end sills	70' 0"
Width over side sills	9' 10½"
Platforms	Standard Coupler Co.
Heating	Gold
Lighting	Commercial Acetylene Co.
Air brakes	Westinghouse
Bolsters	Double wrought iron
Brake beams	Simplex
Springs	Montreal Steel Works
Oil boxes	McCord & Co.
Journal bearings	Canadian Bronze Co.
Wheels	36", steel tired

SECOND CLASS CARS.

Length over end sills	62' 0"
Width over side sills	9' 10½"
Platforms	Standard Coupler Co.
Heating	Gold
Lighting	Commercial Acetylene Co.
Air brakes	Westinghouse
Bolsters	Double wrought iron
Brake beams	Simplex
Springs	Montreal Steel Works
Oil boxes	McCord & Co.
Journal bearings	Canadian Bronze Co.
Wheels	36", steel tired

Q. and L. St. J. Railway Receivership.

In our last issue we gave particulars of the offer made on behalf of Mackenzie, Mann & Co. to the Quebec & Lake St. John Ry. bondholders and of the rejection of the same by the bondholders. As a result of the Q. & L. St. J. Co. failing to pay the coupons for interest on the first mortgage bonds, which fell due on Jan. 1, the Railway Share Trust & Agency Co., of London, Eng., trustees for the bondholders, has appointed as Receiver and Manager A. J. Gorrie, Managing Director of the Geo. Hall Coal Co. of Canada, Montreal, and formerly General Superintendent of the Great Northern Railway of Canada, which is now part of the Canadian Northern Quebec Ry. system.

The Alberta Attorney General is reported to have announced that a test case will shortly be made on the question of prairie fires, with a view to compelling railway companies to recompense settlers who suffered from such fires last year.

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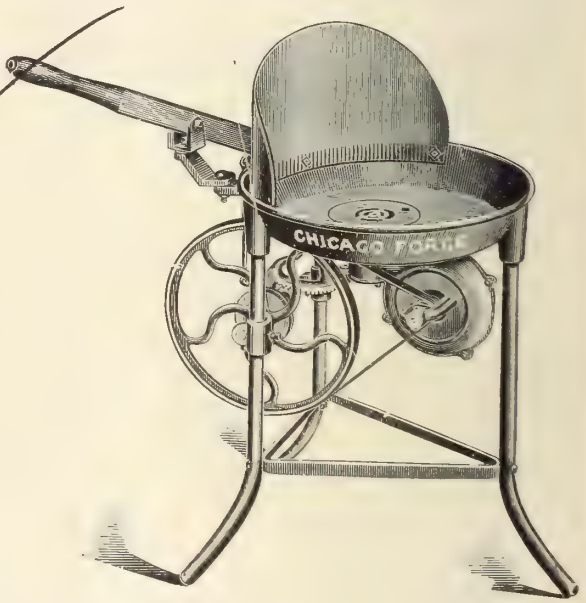

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C.P.R. Betterments, Construction, Etc.

Tobique and Campbellton Ry.—We are advised that parties connected with this company have been negotiating with the C.P.R. to take up the construction of this line, but that nothing definite has been decided. The C.P.R. Tobique Valley branch terminates at Plaster Rock, and the proposed line would be an extension further into the interior, the ultimate idea being to extend it to Campbellton.

Improvements in Toronto.—Very extensive purchases of land have been made in Toronto, along King St., and down to the railway tracks, in the interests of the railways, and particularly of the C.P.R. The latest property acquired is stated to be the Lieutenant-Governor's residence on the corner of Simcoe and King Streets. The object of all these purchases is said to be to enable the company to transfer its freight sheds and yards from south of the tracks to the north, in view of the construction of the viaduct along the water front. It is stated that the company has secured nearly all the property extending from King St. to Front Street, and between Simcoe St. and Spadina Ave. (or Brock St.). To secure some of the lands not at present acquired expropriation proceedings will be necessary.

Western Lines Construction.—W. Whyte, Second Vice President, spent the early portion of Feb. in Montreal, during which time he was in conference with the President, and as a result it was decided to build about 500 miles of additional railway lines in the Prairie Provinces and British Columbia, in addition to second track work, which will be referred to separately below. Following are the lines decided on:—

The line from Lauder, Man., which is built to Tillston, on the Manitoba-Saskatchewan boundary, will be extended 24 miles into Saskatchewan.

Regina southerly to Griffin, Sask., a station midway between Stoughton and Weyburn, about 79 miles.

Regina to Bulyea, Sask., a station on the Pheasant Hills branch, about 50 miles. This line is already built for about 10, so the new construction will be about 38 miles. This line will afford a short cut off from the district north, east and west of the Qu'Appelle valley to Regina, and will be a most important line to that city.

Regina to Colonsay, Sask., a station between Lanigan and Saskatoon, about 110 miles.

From Weyburn, Sask., a line has been built about 26 miles to Forward. This will be extended for about 25 miles, to a point about 51 miles westerly from Weyburn.

From Outlook, Sask., on the branch from Moose Jaw, an extension of 93 miles will be built in the direction of Caster, the present terminus of the Calgary and Edmonton Ry. Lacombe branch. It is not intended to build east from Caster.

An extension westerly from the 93 miles from Outlook to Macklin, a station on the Saskatoon-Wetaskiwin line, 54 miles.

An extension of 20 miles from Irricana, on the Red Deer branch, easterly into the irrigation lands of the branch under construction from Langdon, Alta., to Red Deer. The Langdon-Red Deer line is already built for about 25 miles.

An extension of 30 miles from Carmangay of the present line of 28 miles from Kipp northerly to Carmangay.

From or near Elko, on the Crow's Nest Pass line, to Fort Steele, about 25 miles. This will be the first section of the Kootenay Central Ry.

Tenders for these various lines will be invited in the near future.

West of Brandon a large number of long sidings will be put in at various points to provide additional passing tracks and avoid delays in traffic.

Winnipeg to Brandon.—It has been decided to build a double track from Winnipeg to Portage la Prairie, 55.6 miles, this year, and contracts will be awarded at an early date. It is the present intention to extend the second track next year from Portage la Prairie to Brandon, 131.1 miles.

Branch Lines Authorized.—The House of Commons has passed a bill authorizing the company to construct a line from tp. 22, range 2, northerly or northwesterly to tp. 34, ranges 5, 6 or 7, west of 1st meridian; and from near Asquith to tp. 38 or 39, ranges 10, 11 or 12; and granting an extension of time for the construction of a number of previously authorized branch lines.

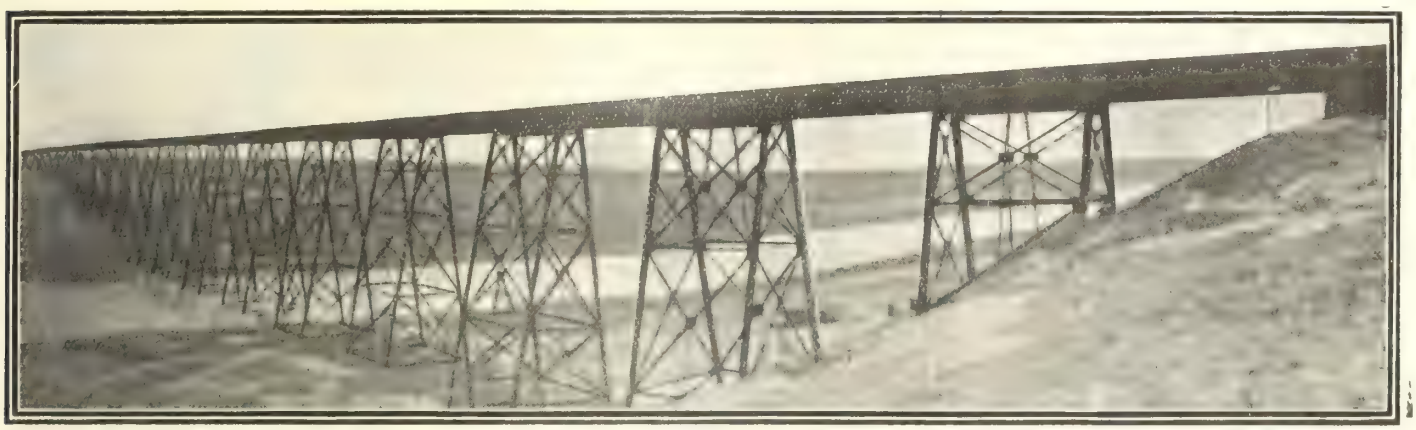
Manitoba and North-Western Ry.—A bill has been passed by the Senate and is now before the House of Commons granting the company an extension of time for the construction of the branch line authorized to be constructed by sec. 1, chap. 126 of the statutes of 1908, and authorizing the construction of a branch from Birtle to Hamiota, Man., and another from near Russell to Lake Winnipegosis, at the mouth of Shoal River.

Souris, Man., Shops.—We are advised that the press report as to the purchase of 400 acres of land at Souris, Man., for shops and sidings is without foundation. The company's traffic at Souris is growing and will doubtless require additional facilities before long.

Station at Regina, Sask.—Plans are reported to have been filed for the construction of a union station at Regina, Sask., the estimated cost of which is about $600,000. The new building will it is said, be 480 ft. long, and a portion of it will be four stories high, affording accommodation for offices of the C.P.R., the Canadian Northern Ry. and the G.T. Pacific Ry. The general waiting room will be 100 ft. square, and on the main floor of the building there will also be provided accommodation for ticket offices, waiting rooms, baggage rooms, express rooms, etc. We are advised that nothing has yet been settled as to the erection of a union station.

Calgary and Edmonton Ry.—The House of Commons has before it a bill passed by the Senate granting an extension of time for the construction of the branch line authorized by sec. 6, chap. 89 of the statutes of 1903, and authorizing the construction of an extension of the Lacombe branch from its present terminus at Stetler to Outlook, Alta., where a junction will be effected with the branch from Moose Jaw.

Steel Viaduct at Outlook.—The company has under consideration tenders for the construction of a steel viaduct over the South Saskatchewan River, at Outlook, Alta., which will form the connection between the Moose Jaw-Outlook branch of the C.P.R., and the extension of the Lacombe branch of the Calgary and Edmonton Ry., for the construction of which the Dominion Parliament has just given the necessary authority. The viaduct will be 3,000 ft. 6 in. long from face to face of ballast wall, and will be entirely of steel, resting on concrete and piers and pedestals. There will be 18 sets of four piers each to support the towers, with 20 sets of two pedestals each to carry the intervening uprights. These are to be of concrete, and are to be carried down to solid ground, piles to be used if necessary. The bridge will have a gradient of 0.4% from each end to the centre, the rail level at this point being 123.3 in. above high water mark. Provision is made for the use of the bridge for general traffic by the including of a floor for a highway having a clear width of 20 ft. This highway will start from pier three, and will run off at pier 45. The J. D. McArthur Co., Winnipeg, has the contract for the piers and abutments. The superstructure contract has not been let. It is expected the erection of the bridge will take about a year.



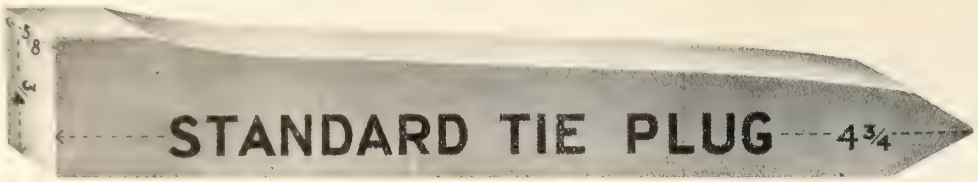
CANADIAN PACIFIC RAILWAY BRIDGE OVER THE OLD MAN RIVER, ALBERTA.

Old Man River Bridge.—The bridge on the Lethbridge-Macleod cut-off, across the Old Man River, an illustration of which is given on this page, although not so long nor so high as that over the Belly River, is one of considerable magnitude. It is 1904 ft. long, and at its highest point is 146 ft. above high water level. The structure is entirely of steel.

Columbia and Western Ry.—A bill has been passed by the Senate and is now before the House of Commons granting an extension of time for the completion of this railway in British Columbia.

Lytton to Hope, B.C., Realignment.—We are advised that the question of the improvement of the alignment and the

"Note the Size and Shape"



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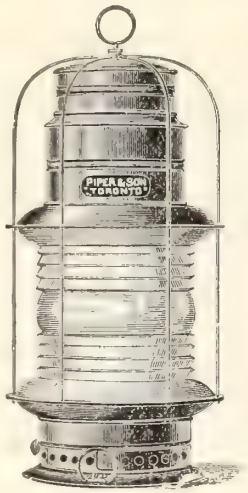

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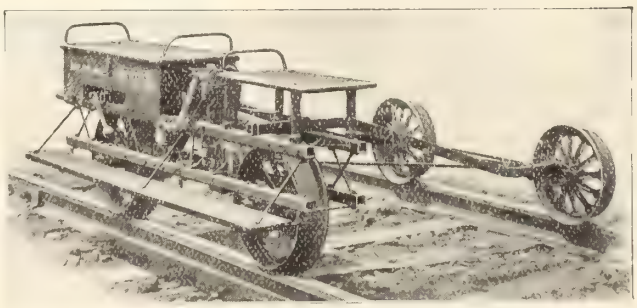

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reduction of the gradient on the main line, between Lytton and Hope, B.C., is under the consideration of the company's engineers, but that all the data necessary for a decision have not yet been worked out.

Vancouver Hotel.—An additional wing is to be built to the company's hotel at Vancouver, B.C., which will provide 70 more rooms. The cost of the addition is estimated at $150,000.

Esquimalt and Nanaimo Ry.—A bill has been passed by the Senate and is now before the House of Commons granting an extension of time for the construction of the extension of the main line to Comox and branches, and providing that the company shall not construct any portion of the branch lines to settlements on the east coast of Vancouver Island unless first authorized to do so by the Governor in council.

Minneapolis, St. Paul and Sault Ste. Marie Ry.—The question of the further extension of the company's line from Thief River Falls to Duluth, Minn., is under discussion. The construction of this extension would enable the operation of C.P.R. trains between Montreal and Winnipeg, via Duluth. (Feb.,

A press report states that the company is preparing to let contracts for the construction of the following lines:—Cut-off from New Richmond, Wis., to Withrow, Minn., 17 miles, the maximum gradient to be 0.5% with light curvature; cut-off from Spencer, Wis., westerly to Owen, 19 miles, the maximum gradient to be 0.3%, with light curvature.

Atlantic, Quebec & Western Railway.

This company issued from its London, Eng., office recently a prospectus of 1750 five per cent, 1st mortgage debenture bonds of £100 each at £98 a bond, being balance of an issue restricted to £525,700. The bonds are repayable after July 1, 1935, but can be redeemed by the company at six months' notice on Jan. 1, 1915, or on any subsequent July 1 or Jan. 1 at £110.

Under agreements with the Dominion Government, the company is entitled to the following subsidies in respect of its Gaspe or coast section (102 miles), which is expected to be opened for traffic in 1910, viz.:—

$6,400 per mile on 102 miles	$652,800
For bridges	250,000
Total subsidies	$902,800
Deduct amount already received	156,672
Balance	$746,128

The bondholders have in the first place a first charge on the net receipts; in addition, the balance above mentioned, as received from the Government, will be paid over to the trustees for the bondholders, and be applicable towards payment of interest on the bonds to Dec. 31, 1915.

Under the company's act of 1903 the company was authorized to construct two railways, viz., a line through the interior from Gaspe to Edmunston, and the Gaspe section shortly approaching completion, and the act empowered the issue of first mortgage debenture bonds to be secured by mortgage of these railways to an aggregate amount of £1,866,000. Accordingly these railways with their appurtenances have been mortgaged by trust deeds to secure an aggregate issue of such bonds to the authorized amount, and under the same deeds all rolling stock and plant purchased in respect of these railways is to be included in the security. But first mortgage debenture bonds to the amount of £350,700 only have been issued, and the company has recently precluded itself from issuing more than the £175,000 now offered by entering into an agreement with the contractors for the railways to restrict the total issue of first mortgage debenture bonds to £525,000, and to provide for future payments in excess of that amount under the contract by an issue of consolidated bonds instead of by the remaining authorized issue of first mortgage debenture bonds. The consolidated bonds are postponed to the first mortgage debenture bonds, and when issued instead of first mortgage debenture bonds they reduce the number of first mortgage debenture bonds which can be issued. By agreements with the Quebec Government the company is entitled to a subsidy of 400,000 acres of land in respect of its Gaspe or coast section, of which the company is entitled to an immediate grant of 80,000 acres. The right to all land subsidies to which the company is so entitled has been conveyed to the trustees for the bondholders. The proceeds of the sale of the bonds offered will be paid out from time to time on certificates of the company's Engineers-in-Chief, Sir Douglas Fox & Partners, for work to be done towards the completion of the Gaspe section. Every effort is being made to complete this section as rapidly as possible. When finished it will provide the long-desired railway communication between Gaspe and the rest of Canada, serve the considerable population already settled along the route followed by the line, and open up Gaspe Harbor.

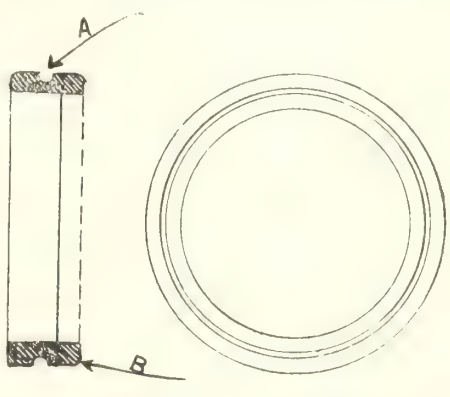
The Engineers in Chief, Sir Douglas Fox & Partners, report as follows:—"The length of the Gaspe or coast section is 102½ miles, and is divided into 10 sub-sections, commencing near New Carlisle; the first nine are each 10 miles long, and the last 12½ miles. The number of stations at present proposed is 16. The whole of the land has been acquired and cleared, and a large proportion of the fencing has been erected. Sub-sections 1 and 2 (ending at Port Daniel) are complete and open for public traffic. Sub-sections 3 and 4 (mileage 20 to 40) are sufficiently complete to carry construction traffic and should be open for public traffic in Dec., 1909. Work is rapidly proceeding on sub-sections 5 to 10 and excellent progress has been made in all departments. The rock excavations and about 75% of the earthworks have been executed. The sub-structures of the bridges are being built, and the steel work for superstructures is in course of manufacture. The permanent way has been laid over 75% of sub-section 10. The permanent works on the railway are of a substantial character and will compare favorably with similar works on the best Canadian railways. Special attention has been given to the designs of the steel superstructures of the bridges, and they may be regarded as a combination of the best English and American practice. All bridge designs are approved by the Railway Commissioners. The railway and bridges are designed to carry loads equal to the loads provided for on many main lines in this country, and may be relied upon to carry with safety fast passenger and heavy goods trains without incurring more than the usual expenses of maintenance. Under normally favorable working conditions, the whole of the coast section of the railway should be finished by [illegible]

During Dec., 14 employes were killed and 29 injured in the course of their work on Canadian railways. Of the fatalities, eight were due to being run over, three to being caught between cars, and one each to machinery, to a fall and to falling material, while of the other accidents, 11 were due to falls, six to being caught between cars, three to being run over, two each to tools and to being struck by a locomotive, and one each to a collision, to falling material, to machinery, to flying material and to being struck by an object in passing.

Hints on Piston Valves

By H. J. Larkin, General Shop Foreman C.P.R., Fort William.

It is practically understood that friction is the resistance which two contracting surfaces have when one is moving over the other. There is an enormous strain on the valve motion or gear and one which causes it to wear rapidly. The piston valve has many good qualities. It permits much greater port area, and takes less space than the slide valve. It is supposed to be a perfect balance valve. I am not sure that this is correct. Its perfection depends to a great extent upon the width of the rings. As long as the steam exerts a pressure under the rings, holding them to the walls, they create an unbalanced friction equal to their area. It would be impossible to fit the rings steam tight in the grooves, without sticking, but the better they are fitted the less friction there will be. The more the sides of the rings are worn the greater will be the pressure under the ring to force against the walls. I do not think the principle of reducing clearance is so great as claimed, although the valve ports are near the ends of the cylinder, which is less than with the slide valve. It must not be lost sight of that



the clearance space that extends clear round the valve must be filled with steam, which reduces the expansive force and increases the exhaust. I have noticed piston valve rings, when removed for examination, to have sharp cutting edges through wear. These rings have a tendency to cut the walls of the valve bush and keep the wall from the necessary lubrication. I am satisfied a good lubrication is of the uttermost importance, especially with superheated steam. When the valve becomes dry the friction is greatly increased and requires more power to move. The acompanying sketch shows a style of valve ring which will give good results and reduce friction to some extent, and is much more durable than the flat, square edge ring. The centre of this ring will be noticed to have an oil groove ⅛ in. deep, as marked at A. The edges of the ring have a radius of ⅛ in., as marked at B. By this style of ring the oil groove in the centre provides for lubrication; the width of bearing surface on walls is reduced, which reduces friction; the outer edges having a radius prevents the valve from cutting the bushes; the wear on the valve motion is greatly reduced, and the engineer is able to reverse the engine much more easily.

A club, on very similar lines to the Engineers' Club of Montreal, is being promoted in Toronto. Nearly 350 members have been secured at an entrance fee of $25 and an annual subscription of $25. At a preliminary meeting Feb. 11, presided over by A. W. Campbell, Deputy Minister of Railway and Canals, a committee was appointed to prepare a constitution and by-laws and to secure a charter and [illegible]

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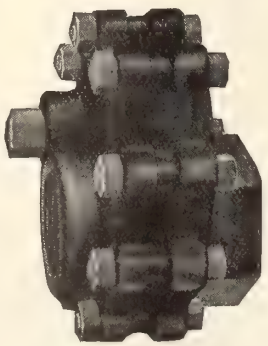

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TRANSPORTATION APPOINTMENTS.

The information under this head, which is almost entirely gathered from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Anglo-Newfoundland Development Co.—The railway lines of this company in Newfoundland are under the charge of the following officers:—General Superintendent, W. Scott; Mechanical Superintendent, P. D. Park; Roadmaster, D. Steel.

Canadian Northern Quebec Ry., Quebec and Lake St. John Ry., Halifax and South Western Ry.—M. M. Beekman has been appointed South Eastern Passenger Agent. Office, 1416 New York Ave., Washington, D.C.

H. R. Stevens has been appointed Travelling Passenger Agent. Office, 1,416 New York Ave., Washington, D.C.

Canadian Northern Ry.—J. E. Nelson, heretofore Trainmaster at North Battleford, Sask., has been appointed Trainmaster at Rainy River, Ont., vice B. T. Chappell, transferred.

S. J. Hungerford, heretofore Superintendent Winnipeg shops, C.P.R., has been appointed Superintendent of Rolling Stock, C.N.R. Office, Winnipeg.

M. Helston has been appointed Chief Dispatcher at Port Arthur, Ont., vice W. I. Munroe, whose appointment as Chief Dispatcher at Dauphin, Man., was announced in our Feb. issue.

E. H. Williams, heretofore Locomotive Foreman at Kipling, Sask., has been appointed general foreman at Brandon, Man.

B. T. Chappell, heretofore Trainmaster at Rainy River, Ont., has been appointed Trainmaster District 4, North Battleford, Sask., vice J. E. Nelson, transferred.

Canadian Pacific Ry.—We are advised, unofficially, but on excellent authority, that J. W. Leonard, General Manager Eastern Lines, has resigned on account of ill health, and that he and Mrs. Leonard, who is also not in good health, will go away for a change in the near future. The daily press has printed a lot of rumors lately, one being to the effect that in future there would be three general managers, instead of two, for Eastern and Western Lines, as at present. We do not think there is any foundation for this report. The great growth of the territory embraced in the Western Lines will, however, probably necessitate an increase of staff there, and it would not surprise us to see the present three grand divisions, Central, Western and Pacific, increased to four, which would necessitate the appointment of another general superintendent.

F. B. Haney, who has been connected with the Legal Department, is reported to have been appointed Assistant Tax and Insurance Commissioner and Claims Adjuster, Eastern Lines, at Montreal.

C. E. Benjamin, heretofore General Agent Passenger Department Atlantic Steamship Service, Chicago, Ill., has been appointed General Tourist Agent. Office, Montreal.

W. Webber, heretofore purser on the s.s. Empress of Britain, has been appointed General Agent Passenger Department Atlantic Steamship Service, Montreal, vice I. E. Suckling, transferred to Toronto.

F. L. Hay, hertofore Superintendent Sleeping, Dining and Parlor Cars and News Service, Vancouver, B.C., has been appointed Assistant General Superintendent same service, Eastern Lines. Office, Montreal.

W. H. Pearson, hertofore general car foreman, Farnham shops, has been appointed General Car Inspector Eastern Lines, Montreal.

R. A. McAdam, heretofore Air Brake Instructor, has been appointed Air Brake Inspector, vice C. W. Carey, deceased. Office, Montreal.

G. A. G. Bartlett, heretofore Assistant Air Brake Instructor, has been appointed Air Brake Instructor, vice R. A. McAdam, promoted. Headquarters, Montreal.

H. C. Harragin has been appointed Assistant Air Brake Instructor, vice G. A. G. Bartlett, promoted. Headquarters, Montreal.

R. H. Marengo, heretofore foreman painter, Farnham shops, Que., has been transferred to Angus shops, Montreal, as assistant foreman painter.

I. E. Suckling, heretofore General Agent Passenger Department Atlantic Steamship Service, Montreal, has been appointed General Agent Passenger Department Atlantic Steamship Service, Toronto, vice S. J. Sharp, transferred to Winnipeg.

C. Mead, heretofore Inspector Sleeping, Dining and Parlor Cars and News Service, has been appointed Sleeping and Dining Car Agent at Fort William, Ont., vice J. S. Youngson, who has been appointed a dining car conductor.

S. J. Sharp, heretofore General Agent Passenger Department Atlantic Steamship Lines, Toronto, has been appointed General Agent Passenger Department Atlantic Steamship Lines, Winnipeg, vice H. M. MacCallum, transferred to Chicago, Ill.

H. M. MacCallum, heretofore General Agent Passenger Department Atlantic Steamship Lines, Wininpeg, has been appointed General Agent Passenger Department Atlantic Steamship Lines, Chicago, Ill., vice C. E. Benjamin, transferred to Montreal.

G. Moth, heretofore Road Foreman of Locomotives, District 4, Pacific Division, Cranbrook, B.C., has been appointed Trainmaster, District 1, Western Division, Moose Jaw, Sask., vice W. H. McConnell, transferred.

L. E. W. Bailey, heretofore District Master Mechanic at Moose Jaw, Sask., has been appointed Road Foreman of Locomotives, District 4, Western Division, Cranbrook, B.C., vice G. Moth, transferred.

A. C. Harshaw, heretofore Trainmaster District 4, Western Division, Macleod, Alta., has been appointed acting Superintendent, District 4, at Cranbrook, B.C., during the absence of J. Brownlee on leave.

A. N. McIntyre, heretofore Yardmaster at Revelstoke, B.C., has been appointed acting Trainmaster at Field, B.C., vice L. A. Warner, assigned to other duties.

W. M. Ansley, heretofore Trainmaster, has been appointed acting Superintendent District 1, Pacific Division, Revelstoke, B.C., vice T. Kilpatrick, appointed acting General Superintendent at Vancouver, B.C.

C. A. Cotterell, heretofore Chief Train Dispatcher, has been appointed acting Trainmaster, District 1, Pacific Division, Revelstoke, B.C., vice W.M. Ansley, appointed acting Superintendent there.

J. H. Armstrong, heretofore Train Dispatcher, has been appointed acting Chief Train Dispatcher, District 1, Pacific Division, Revelstoke, B.C., vice C. A. Cotterell, appointed acting Trainmaster.

J. Beck, heretofore conductor, has been appointed acting yardmaster at Revelstoke, B.C., vice A. N. McIntyre, promoted.

T. Kilpatrick, Superintendent District 1, Pacific Division, Revelstoke, B.C., has been appointed acting General Superintendent Pacific Division, Vancouver, B.C., during the absence of F. F. Busteed on leave.

E. W. Bateman has been appointed Local Right of Way and Lease Agent, Pacific Division, Vancouver, B.C., vice W. F. Brougham, resigned.

A. W. Porter has been appointed Superintendent Sleeping, Dining and Parlor Cars and News Service, District 5, Vancouver, B.C., vice F. L. Hay, promoted to Montreal.

Government Railways Managing Board.—D. Pottinger, a member of the Board, has been appointed Deputy Chairman, by order in council.

Grand Trunk Pacific Ry.—P. H. McFadden, heretofore General Roadmaster, has been appointed Superintendent Prairie Division, vice W. C. C. Mehan, promoted. Office, Melville, Sask. The position of General Roadmaster has been abolished.

W. C. C. Mehan, heretofore Superintendent Prairie Division, has been appointed General Superintendent Mountain Division. Office, Prince Rupert, B.C.

Grand Trunk Ry.—J. D. Scott, heretofore Locomotive Foreman at Brockville, Ont., has been appointed Locomotive Foreman at Turcot, Que., vice R. Ivers, resigned.

G. Woodsum has been appointed acting Locomotive Foreman at Island Pond, Vt., vice M. B. Dube resigned.

F. W. Warren has been appointed Locomotive Foreman at Brockville, Ont., vice J. D. Scott transferred.

W. Hamilton, heretofore Locomotive Foreman at Stratford, Ont., has been appointed Master Mechanic (Road) Western Division, vice E. D. Jameson, assigned to other duties. Office, Battle Creek, Mich.

A. J. Roberts, heretofore chargeman T. & N.O.R. shops, North Bay, Ont., has been appointed Locomotive Foreman at Stratford, Ont., vice W. Hamilton, promoted.

Intercolonial Ry.—John Campbell having retired from the service, the office of Car Accountant has been abolished, and reports heretofore sent to the Car Accountant will in future be addressed to the Superintendent of Car Service.

Rutland Rd.—R. A. White has been appointed General Auditor. Office, New York.

Rutland Transit Co.—R. A. White has been appointed General Auditor. Office, New York.

New York Central and Hudson River Rd.—The organization of the Accounting Department has been changed, as follows:—General Auditor, R. A. White; Auditor, C. H. Chambers; Assistant Auditor and Auditor of Subsidiary Lines, A. L. Linn, Jr.; Auditor of Disbursements, J. H. Foulds, Jr.; Assistant Auditor of Disbursements, M. R. Connell; Freight Claim Agent, R. L. Calkins; Assistant Freight Claim Agent, J. K. Lovell; Auditor of Revenue, W. T. McCulloch; Auditor of Freight Accounts, F. E. Briggs; Auditor of Passenger Accounts, J. L. Snow; Auditor of Miscellaneous Accounts, J. F. Fairlamb; Assistant Auditor of Miscellaneous Accounts, W. A. Cormier; Chief Travelling Auditor, C. L. Cormier.

E. F. Haubold has been appointed Assistant Auditor of Freight Accounts, New York.

W. J. Fripp has been appointed General Superintendent Eastern District, with which has been incorporated the Mohawk division, transferred from the Western District, vice C. F. Smith. Office, Albany, N.Y.

New York Central & Hudson River Rd. and Boston & Albany Rd.—C. F. Smith, heretofore General Superintendent Eastern Division, Albany, N.Y., has been appointed General Superintendent of Passenger Transportation, in charge of all matters pertaining to passenger traffic, reporting to the Assistant General Managers of Transportation. Office, New York.

New York Central and Hudson River Rd., West Shore Rd., and Boston and Albany Rd.—Gerrit Fort, heretofore Assistant to the Vice President in charge of traffic, N.Y.C. & H.R.R., B. & A. Rd., and West Shore Rd., has been appointed

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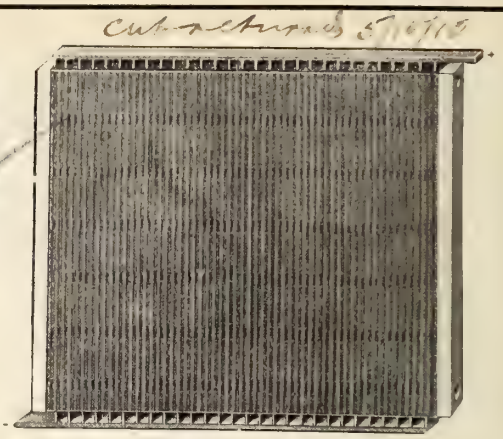

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General Passenger Agent, vice J. F. Fairlamb. Office, New York.

L. F. Vosburgh, heretofore General Eastern Passenger Agent, has been appointed Assistant General Passenger Agent. Office, New York.

New York Central Lines.—F. C. Clarke has been appointed Purchasing Agent Dining Car Service Department N.Y.C. & H.R. Rd., L.S. & M.S. Ry., M.C. Rd., C.C.C. & St. L. Ry. and L.E. & W. Rd.

MAINLY ABOUT PEOPLE.

Mrs. Shanly, wife of the late Frank Shanly, C.E., died in Toronto, Feb. 20, aged 76.

The late Archer Baker's estate is reported to have been valued for probate, at £12,352.

C. Cockshutt, director Niagara Navigation Co., died at Toronto, Jan. 9, aged 55, of pernicious anæmia.

D'Arcy Tate, G.T.P.R. Solicitor, Winnipeg, has been appointed a Commissioner for the taking of affidavits in Manitoba.

Sir Thos. G. Shaughnessy, President C.P.R., returned to Montreal, Feb. 2, from Europe, where he spent a short holiday.

D. B. Hanna, Third Vice President Canadian Northern Ry., is expected to return to Toronto from England towards the end of March.

F. C. Salter, European Traffic Manager G.T.R., has returned to England after having gone over the G.T.R. and G.T.P.R. systems.

Miss M. E. Brent, third daughter of J. Brent, G.T.R. agent, Malton, Ont., was married at Weston, Ont., Feb. 2, to H. A. C. Carr of Malton.

A. W. Campbell, Deputy Minister of Railways and Canals, addressed the University of Toronto Engineering Alumni Association, Feb. 10.

A. W. Smithers, Chairman of the Board, G.T.R., was the chief speaker at the Canada Club dinner in London, Eng., in the early part of Feb.

J. W. N. Johnstone, General Passenger Agent Reid Newfoundland Co., St. John's, Nfld., was married there recently to Miss Beatrice Gordon.

The engagement is announced of Miss Aileen Sinclair, daughter of Angus Sinclair, railway contractor, Toronto, to Kenneth MacKenzie, barrister, Toronto.

D. McDonald, Manager Montreal St. Ry., is one of the promoters of a company which has been organized to operate taxi-cabs in Montreal.

H. G. Reid, Vice President Reid Newfoundland Co., returned to Canada from Great Britain, Feb. 3, and left for Newfoundland, Feb. 5.

G. Fauquier, one of the National Transcontinental Ry. contractors, and Mrs. Fauquier are spending the winter at Fauquier, north of Lake Nipigon, Ont.

The C.P.R. directors at their meeting, Feb. 14, passed a resolution expressing their regret at the death of Sir Geo. A. Drummond and sympathy with the members of the family.

F. F. Busteed, General Superintendent C.P.R. Pacific Division, Vancouver, B.C., was recently granted leave of absence for six weeks, on account of Mrs. Busteed's ill health.

Miss M. C. Bassett, daughter of Captain W. J. Bassett, of the Western Steamship Co., Collingwood, Ont., was married there recently to M. Lemon, of Owen Sound.

F. W. Morse, formerly Vice President and General Manager G.T.P.R., is being mentioned in the press as likely to be appointed President of the Buffalo and Susquehanna Rd.

Mrs. J. P. Mabee, wife of the Chief Railway Commissioner, died at their home in Toronto, Feb. 25, aged 50, after a long illness. She was buried at Port Rowan, Ont.

D. B. Hanna, Third Vice President Canadian Northern Ry., sailed from New York on the s.s. Mauretania, Feb. 9 for England, on C.N.R. business. He will probably return to Toronto in March.

Thos. Reynolds, the C.P.R. conductor, who displayed great bravery in connection with the accident at Spanish River, Ont., Jan. 21, has been awarded the Albert medal of the first class by the King.

Lord Strathcona has subscribed $5,000 to the Mansion House Fund, being raised by the Lord Mayor of London, Eng., for the benefit of the sufferers by the recent floods in Paris, France.

E. D. Jameson, Road Master Mechanic G.T.R., Battle Creek, Mich., has been granted leave of absence on account of ill health. What position he will occupy on his return, has not been decided on.

The estate of the late Jno. Proctor, of Hamilton, Ont., who was at one time in the G.T.R. service, has paid $4,868 as succession duties to the Ontario Government. The estate is valued at $168,000.

W. A. Dube, District Superintendent Intercolonial Ry., Levis, Que., has been named as a likely appointment as a member of the Government Railways Managing Board, should it be decided to increase the number.

J. C. Schreiber, of the Egyptian State Railways, who died at Cairo, Egypt, Feb. 7, was a brother of O. P. Schreiber, of the National Transcontinental Ry. engineering staff, and a cousin of Collingwood Schreiber, C.M.G.

Arthur Hawkes, Superintendent of Publicity, Canadian Northern Ry., lectured at Chicago University, Feb. 8, on the gain in international goodwill from the multiplying of communications between Canada and the United States.

D. J. Rochon, C.P.R. City Ticket Agent, Winnipeg, who was appointed to that position in Dec., on the resignation of A. C. Smith to enter private business, died there Feb. 19, of pneumonia, after a very short illness.

A. W. Campbell, whose portrait appears on the first page of this issue, was recently appointed Deputy Minister of Railways and Canals. Biographical information respecting him was published in our Feb. number.

Hugh A. Allan, who is at present in England in connection with the reorganization of the Allan Line, purposes remaining there some time, probably until all arrangements have been completed for the transfer of the head office to Montreal.

C. M. Hays, President G.T.R. and G.T.P.R., left Montreal, Feb. 25, for England, with his wife and daughters. Miss Louise Hays will christen the s.s. Prince George, the second vessel for the G.T.P.R. service, which will be launched at Wallsend-on-Tyne about the middle of March.

J. Markey, Master Mechanic G.T.R., Toronto, was fined $20 and costs, with the option of 30 days' imprisonment, at Toronto, Feb. 4, for permitting dense smoke to be emitted from the G.T.R. roundhouse chimney, in excess of the time allowed by the law.

Winnipeg press reports state that M. H. McLeod, General Manager Canadian Northern Ry., Winnipeg, will shortly be transferred to British Columbia to take charge of the railway construction in that province. Nothing is known at the head office of the company regarding this.

E. B. Osler, M.P., director C.P.R., who has contributed $25,000 to the Toronto Playgrounds Association, has been elected Honorary President, and has, also with W. Mackenzie, President Canadian Northern Ry.; Hon. G. A. Cox, director G.T.P.R., and M. J. Haney, become a life member.

The Misses Mackenzie, daughters of Wm. Mackenzie, President Canadian Northern Ry. and Mrs. Hugh Sutherland, wife of the Executive Agent C.N.R., sailed from New York, Feb. 3, on the s.s. Celtic for the Mediterranean. Mr. Sutherland will probably go to Europe in March, returning to Winnipeg with Mrs. Sutherland in the spring.

Sir Geo. A. Drummond, director C.P.R., and President Bank of Montreal, died at Montreal, Feb. 2, aged 81. Among other offices he held at various times, were those of First Vice President, and from 1886 to 1888, President Montreal Board of Trade, during which latter period he did good work in the interests of the harbor and the St. Lawrence River navigation generally.

With reference to the recent report that F. P. Brady, member of the Government Railways Managing Board and General Superintendent Government Railways, was about to enter the Dominion Iron and Steel Co.'s service, J. H. Plummer, President, has stated that there is nothing whatever in it, nor could he understand how such a report could have started.

M. Helston, who has been appointed Chief Dispatcher Canadian Northern Ry., at Port Arthur, Ont., was, from 1890 to 1898, train dispatcher M.C. Rd., at Michigan, Jnd.; 1898 to 1909, Night Chief and Chief Dispatcher Northern Pacific Ry., at Staples, Minn.; and from May to Oct., 1909, train dispatcher, Minneapolis, St. Paul and Sault Ste. Marie Ry., at Minneapolis and Enderlin, since when he has been train dispatcher on the Canadian Northern Ry.

Among the Express Companies.

J. E. Maley pleaded guilty at Strassburg, Sask., recently, to the theft of a money package from the Dominion Ex. Co.'s office there. He had been engaged as a telegraph operator at Strassburg, and was arrested at Tuffner Lake, N.Y.

W. Dobson, an employe of the Canadian Ex. Co., and P. Whistler, were recently sentenced to four and three years, respectively, in the peitentiary, for conspiracy and stealing $14,169 from the Canadian Ex. Co., at Niagara Falls, Ont., by means of a bogus hold-up on Nov. 4, 1909.

The Canadian Northern Ex. Co. has opened offices at Howell, Sask., and Kittscoy, Alta.

F. G. McKay, agent Dominion Ex. Co., at London, Ont., died there Jan. 29, aged 47. He had been in London for about 15 years, having previously been route agent between Toronto and Detroit.

At the recent half-yearly meeting of the Dominion Ex. Co., held at Montreal, the report showed that the company had enjoyed a fairly prosperous year. The usual dividend of 8% for the year was declared. With regard to the proposed new building in Montreal, on the site of the St. Lawrence Hall, it was stated that the present building would be pulled down, and a 10-story structure erected in the spring, but as the plans were still in the hands of the architects it could not yet be said whether an hotel would be included in the building or not.

Temiskaming and Northern Ontario Ry.—Traffic earnings for Nov., $157,-727.78, operating expenses, $114,660.22, net earnings, $42,567.56; ore royalties, $4,784.48; total income, $47,352.04; less hire of equipment, $6,804.51; net result, $40,547.53; percentage of expenses to earnings, 72.08. Traffic earnings for Dec., $168,303.28; operating expenses, $120,012.52; net earnings, $48,290.76; less hire of equipment, $5,258.28; net result, $43,032.48.

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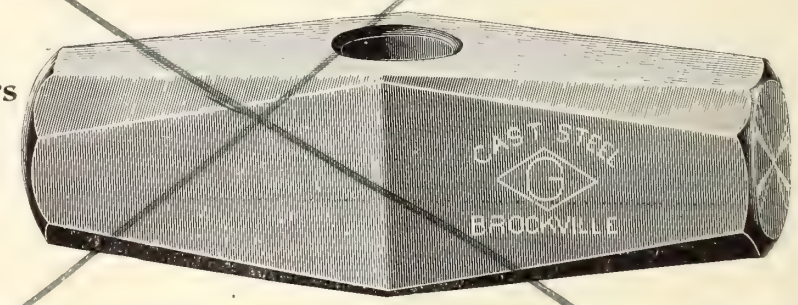

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Telegraph and Cable Matters.

The C.P.R. telegraph system consists of 11,500 miles of poles and cables and 65,000 miles of wire.

The M.C.R. telegraph operators on the Canadian division, have been granted an increase in wages, to date from Dec. 1, 1909.

The Dominion Government telegraph system comprises 973.75 miles of land lines, 259 miles of cable and 401 offices.

The C.P.R. telegraph department has completed its through wire between Winnipeg and Edmonton, through Saskatoon and Wetaskiwin.

H. McDougall, who died recently at Toronto, aged 63, was formerly local manager G.N.W. Telegraph Co. at Winnipeg.

The Dominion Public Works Department received tenders Feb. 15, for the freighting of supplies for the Yukon telegraph line for 1910, 1911 and 1912.

F. H. Knight has been appointed agent Canadian Northern Telegraphs at Fort William, Ont., vice H. E. Fraser, who has been transferred to Saskatoon, Sask.

The telegraph line along the National Trancontinental Ry., between St. Boniface and Superior Jct., 249½ miles, has been completed and put into operation.

H. E. Fraser, heretofore agent Canadian Northern Telegraphs, Fort William, has been appointed agent at Saskatoon, Sask., vice E. S. VanAlstyne, who has left the service.

The Premier stated, in the House of Commons, Feb. 7, that the Government proposes to protect all trade routes by the erection of wireless telegraph stations at suitable points.

H. A. Shambrock, heretofore chief delivery clerk C.P.R. Telegraphs, Toronto, has been appointed Local Manager at Toronto, vice D. G. Sturrock, who has resigned on account of ill health.

The bill for the compulsory equipment of all vessels on the Canadian register of 1,200 tons and over, with a wireless telegraph system, which was introduced in the House of Commons, has been reported against in committee.

F. C. Robertson, heretofore Chief Operator C.P.R. Telegraphs, Toronto, has been appointed Inspector of the Ontario Division, with office at Toronto, and is succeeded by H. J. Lillie, hertofore wire chief.

An Ottawa press dispatch states that the Marconi Wireless Telegraph Co. is planning to erect a number of wireless telegraph stations at various points throughout Canada, and that such a system will be in operation in the spring.

The dispute between the Grain Exchange at Winnipeg and the telegraph companies operating on the floor, has terminated by the companies refusing to pay rent for the space occupied and removing their instruments from the building.

The Marconi Wireless Telegraph Co., of Canada, has a scheme on hand for the widening of its scope in Canada, and, it is stated that J. N. Greenshields, K.C., is visiting England for the purpose of discussing the matter with the directors of the English company.

The Great North Western Telegraph Co. operates over 13,410 miles of poles, 49,686 miles of wire, and 406 miles of cable. It has 1,360 offices, 1,183 of which are in Canada, and of the total number, 894 are engaged exclusively in the company's business.

The Governor of Newfoundland, in his speech at the opening of the Legislative Assembly, intimated that the wireless telegraph system on the Labrador and northeast coasts would be extended during the year, and also the telegraph system in the St. Barbe district.

W. C. Furness, local manager G.N.W. Telegraph Co., London, Ont., died there Feb. 13, aged 70. He was manager of the London office for 40 years under the Montreal Telegraph Co., and the G.N.W. Telegraph Co., and prior to going to London was stationed at Hamilton, Ont.

The Anglo-American Telegraph Co., since 1904 has received a subsidy of $5,000 a year from the Dominion Government, and $1,800 a year from the P.E.I. Government and exclusive rights for a telegraph service in Prince Edward Island. The agreement, which was for five years, expired at the end of 1909.

It is reported that a contract has been placed for the erection of 1,000 miles of telegraph line by the Northern Commercial Telegraph Co., Ltd., a company which was incorporated about six years ago, with a capital of £750,000, to construct telegraph and telephone lines throughout Canada. Similar reports have been current frequently, but little or nothing has been done.

W. Marconi has arrived in Nova Scotia to superintend the installation of the apparatus at the new Glace Bay station of the Marconi Wireless Telegraph Co., in place of the one destroyed by fire a few months ago. The station at Clifden, Ireland, has been re-equipped, and it is anticipated that communication will be again established across the Atlantic in March.

Press reports state that at a recent conference on the subject of establishing a wireless telegraph system on the Pacific, it was recommended that high power stations be erected at Sydney, Australia; Doubtless Bay, New Zealand; Suva, Fiji Island and Ocean Island, and medium power stations in the New Hebrides and Solomon Islands. All the stations to be controlled by the British Government.

The Montreal Telegraph Co.'s balance sheet for 1909, shows assets of $2,292,-851.97, of which $1,625,890 represents telegraph lines in Canada and the U.S., and $33,487.39 telegraph cables. The usual dividend of 8% for the past year has been paid quarterly as was customary. The officers and directors were re-elected for the current year, as follows: President, H. A. Allan; Vice President, W. McMaster; other directors, W. R. Miller and W. Wainwright.

A bill has been introduced into the House of Commons by the Postmaster General, to control the rates and facilities of ocean cable companies, and to amend the Railway Act with respect to telegraphs and telephones and the jurisdiction of the Board of Railway Commissioners. The bill provides for placing under the jurisdiction of the Board all matters pertaining to cable traffic with Canada, which shall include messages transmitted from Canada to any other country, or to Canada from any other country, or through, or into, or from any part of Canada, acting in conjunction with land lines, or by land lines acting in conjunction with cables, by means of a through route or otherwise.

The Board of Railway Commissioners has passed the following order:—9164. Dec. 22.—The complaint of the Canadian Manufacturers' Association Transportation Department against the G.N.W., C.P.R., and Western Union Telegraph Companies in connection with the transmission of code messages between points in Canada. It is ordered that the amendments to rule 4, in so far as they apply to code messages between points in Canada, and when embodied in proper tariffs filed by the telegraph companies with the Board, be approved, the amended rule to be put in force not earlier than July 1. The amendments mentioned in the order provide for charging code words on the basis of five letters constituting one word.

Grain Elevator Notes.

Forwarders, Ltd., Kingston, Ont., will, it is stated, build an elevator at Fort William, in the spring.

Alberta is credited with having 245 elevators at the end of 1909, with a total capacity of 8,050,400 bush.

The International Elevator Co.'s elevator at Clearwater, Man., was destroyed by fire, Feb. 6, with about 700 bush. of grain.

An elevator at Inglewood, Ont., together with 3,000 bush. of grain, was destroyed by fire recently. The loss is stated as $5,500, partly covered by insurance.

Goderich, Ont., ratepayers, defeated a by-law, Jan. 1, providing for an exemption of taxation for 10 years of a proposed extension of the Goderich Elevator and Transit Co.'s elevator there.

The Ellison Milling and Elevator Co., Ltd., with a capital of $150,000 and head office at Lethbridge, Alta., has been licensed to carry on business in British Columbia, with S. Herchmer, Fernie, as its attorney.

The Lieutenant-Governor's speech at the opening of the Manitoba Legislature, Feb. 10, mentioned the inclusion of a scheme for the Government ownership of elevators in the legislative programme for the current session.

The Western Farmers' Elevator and Milling Co., Ltd., has been incorporated under the North West Territories Companies Ordinance, with office at Lethbridge, Alta. Press reports state that the company intends to build several elevators, each of 30,000 bush. capacity, between Taber and Medicine Hat, Alta., and Lethbridge, Alta., and Weyburn, Sask.

E. H. Heaps, who is interested in the recently incorporated A.B.C. Elevator and Wharf Co., is reported to have said, recently, that the company had received a promise of assistance from Alberta Government, in aid of its project to erect elevators in Vancouver, Prince Rupert and New Westminster. A meeting of the company would shortly be held, when it would be decided as to when construction would commence.

Goderich, Ont., ratepayers, defeated a by-law, Jan. 1, providing for an exemption of taxation for 10 years of a proposed extension of the Goderich Elevator and Transit Co.'s elevator there, and on Feb. 14, passed by-laws granting fixed assessments to the Goderich Elevator and Transit Co., and the Western Canada Flour Mills Co., in connection with the addition to the capacity of 500,000 bush., in the former case, and the erection of a 500,000 bush. elevator in the latter case.

The Mechanics' Handbook, issued by the International Correspondence Schools, Scranton, Pa., is a convenient reference book for the pocket for all interested in engineering, both civil and mechanical. The volume extends to 330 pages, and contains rules, formulas, tables, etc., in most common use, together with explanations concerning them and practical examples illustrating their use. The daily wants of engineers are anticipated, and the information sought is given in the manner best suited to the needs of the user. Being of pocket size, the volume can always be carried about, and is therefore readily accessible when most wanted. The present is the seventh edition, and brings the total number issued to 317,000.

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Chapter III.—Analysis of Roof Trusses.—Section I.—Forms of Trusses. Section II.—Loads and Reactions. Section III.—Analysis of Trusses.

Chapter IV.—Analysis of Bridge Trusses for Uniform Loads.—Section I.—Types of Trusses, Loads and Reactions. Section II.—Analysis of Simple Beams. Section III.—Trusses with Horizontal Chords and Single Web Systems. Section IV.—Trusses with Inclined Chords and Single Web Systems. Section V.—Trusses with Multiple Web Systems. Section VI.—Trusses with Subdivided Panels. Section VII.—Skew-Bridges.

Chapter V.—Analysis of Bridge Trusses for Concentrated Loads.—Section I.—Influence Lines. Section II.—Beams Loaded Continuously. Section III.—Trusses with Horizontal Chords and Single Web Systems. Section IV.—Methods of Calculation. Section V.—Trusses with Inclined Chords and Single Web Systems. Section VI.—Trusses with Subdivided Panels—Trusses with Multiple Web Systems. Section VII.—Skew-Bridges. Section VIII.—Conventional Load Systems.

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British Columbia Electric Ry., Co.

Following are extracts from the reports of the year ended June 30, 1909:—

The gross receipts show an increase of $339,699, or 17%, and the net earnings, including income from investments in subsidiaries, and after charging renewals, an increase of $48,792, or 5.6% over the preceding year. From the close of the financial year up to October 31 there has been a still further increase in gross earnings of $231,961, or 32%, and in net earnings of $98,086, or 28%. From January 1, 1909, in pursuance of its long-established policy of allowing the public to share in its prosperity by treating them in the most liberal manner possible, spontaneously reduced its charges for electric light by about 17%. The rates now charged compare favorably with those of the largest cities of Canada. Various reductions in railway fares and charges have also been made during the year. It was anticipated when these reductions were put into force that they would involve considerable diminution of profits, but the increase in the volume of business has more than compensated for the reduced charges, and the above-mentioned satisfactory results are shown for the whole year. The following charges have been made against the revenue account of the year:—

Provision for renewals maintenance (from which £16,674 11s. 10d. has been deducted for adjustments and expenditures on renewals during the year)	£36,447	14	5
Bonus to employes	9,683	14	5
Amount added to capital amortization fund	2,018	1	10
The net profit for the year, after making the above deductions, amounts to	163,306	6	9
Add balance brought forward from last year	4,973	18	11
	£168,280	5	8
Deduct			
Interest on debentures and debenture stock to June 30, 1909. £39,889	7	4	
Dividends already paid—			
On 5% cumulative perpetual preference stock for year ended June 30, 1909 20,000	0	0	
On preferred ordinary stock for year ended June 30, 1909 24,000	0	0	
ary stock for 6 months to Dec 31, 1908 20,000	0	0	
	103,889	7	4
Leaving available for further distribution and reserves	£64,390	18	4
From this the Directors have decided—			
To recommend the payment of a dividend on the deferred ordinary stock at the rate of 8% per cent. per annum for the six months to June 30, 1909, making 8% for the year. £20,000	0	0	
To transfer to reserve fund	37,329	15	5
	57,329	15	5
To carry forward to next account.	£7,061	2	11

The number of passengers carried during the year was 25,183,739, an increase for the year of 3,855,559. Although your directors have every confidence that the business will continue to increase steadily in the future, they point out that the extraordinary increase in earnings of the last few months is attributable only to exceptional causes. The exhibition at Seattle has attracted thousands of tourists, who have visited Vancouver and Victoria, besides which the great salmon run (which occurs every fourth year) has this year largely increased the earnings of the Lulu Island branch.

The great influx of settlers into British Columbia is indicated by the fact that the permanent population of Vancouver City alone is now reliably estimated at over 100,000. As a natural and necessary result of this growth, which your directors, after most careful examination of conditions, are satisfied will continue, the company is extending its railway system and general undertaking as the interests of the country and the requirements of the public demand. The new railway lines may not prove immediately remunerative, and must be expected to increase the ratio of expenses during the next two or three years, but they will undoubtedly in time develop a very valuable business. During the year £286,181 11s. 9d. has been spent in extensions and improvements. Very satisfactory progress has been made with the construction of the Fraser Valley branch to Chilliwack (65 miles), and it is estimated that the first section, 21 miles, to Cloverdale will be open for traffic towards the end of Nov., 1909, and a further section, 22 miles, to Abbotsford will be in operation towards the end of January, 1910, the whole line being completed and in operation some time during the spring of 1910. The opening of this line is eagerly looked for by the settlers in the districts through which it runs, and the prospects of traffic are good. Various extensions of the company's system in the districts adjacent to Vancouver and New Westminster have been undertaken, aggregating altogether about 31 miles of railway. The company has also built a short new branch line from Victoria City. When these extensions are completed, the company will be operating 164 miles of line.

In view of the demand for electrical energy, an increased supply of water power in the future has had to be considered. The directors have authorized the construction of a new dam of greater height at Lake Coquitlam, and also the enlargement of the tunnel between Lake Coquitlam and Lake Buntzen. It is estimated that this will enable the plant at Lake Buntzen to be gradually increased to about 62,000 h.p., which should satisfy the requirements of Vancouver and the neighborhood for years to come. At present the plant at Lake Burtzen is capable of generating 22,500 h.p., and an additional unit of 10,500 h.p. which is in course of erection will be available within a few weeks. It has also become necessary to increase the supply of power for the City of Victoria, but before undertaking the large capital expenditure for this purpose the directors entered into negotiations with the city, which have resulted in a satisfactory agreement, protecting the company from municipal competition. The development of a large water power on Jordan River is now in progress, and your directors are advised that it will when completed adequately meet the requirements of the city for many years to come, while it will also enable the company largely to extend its business.

The construction of the new freight sheds, referred to in the last report, has been completed. Plans are also being considered for new terminal buildings which will be in every way worthy of the City of Vancouver and of the company. They will, moreover, enable considerable economies to be effected in the general administration of the company's business. It has also become necessary to largely increase the company's equipment for the construction of rolling stock. The output from the company's existing workshops is satisfactory, both as to quality and cost, but with the present accommodation it is quite impossible to produce the new rolling stock required, or to deal efficiently with the requisite overhauling and repairs. The directors are therefore considering the advisability of moving the car shops to a more convenient and commodious site and of erecting workshops of large capacity, built and equipped in the most modern manner.

The following capital expenditures were made during the year:—

Rolling Stock		$255,308 57
Track work		221,615 96
Double tracking		153,866 97
Lighting extensions		136,917 47
Power extensions		37,326 47
Railway feeders		9,259 48
Land and buildings		205,800 70
Extending the railway, light and power system under municipal charters—		
Light and power extensions. $13,412 13		
Light and power extensions $13,412 13		
Railway extensions 28,022 54		
Lands and buildings.. 5,320 11		
Electrical machinery .. 4,560 93		
	51,315 71	
New Westminster and Eburne—		
Electrification of line	11,226 98	
One 2,000 k.w. rotary	56,333 04	
Three 500 k.w. stepdown transformers	6,951 30	
Storage battery, Victoria	34,308 69	
Steam shovel	6,120 00	
Sundries	26,779 66	
Real estate, buildings and plant purchased—		
Sub-station site, Vancouver	11,820 85	
" Westminster	372 15	
" Burnaby	52 10	
Sub-station building, Vancouver	34,209 27	
" Westminster.	5,260 21	
" Burnaby	5,970 50	
Sub-station machinery, Vancouver	104,095 18	
" Westminster	9,337 73	
" Burnaby	11,327 74	
Transmission lines in Vancouver city	12,503 98	
	$1,387,980 71	

Toronto Ry Co's Report.

Following are extracts from the report for 1909, presented at the annual meeting, Feb. 2:—

The passenger earnings continue to show gratifying increases, amounting to $3,878,145.82, as compared with $3,566,493.72 for 1908. While the passenger earnings show an increase in gross of 8.73% over 1908, the net revenue from operation shows an increase of 12.19%, the percentage of operating and maintenance charges to passenger earnings for the year being 51.4%.

A summary of the report and statements dealing with the year show the following:—Gross earnings, $3,926,828.43; operating and maintenance charges, $1,995,914.64; net earnings, $1,930,913.79. From the net earnings there was paid to the city of Toronto: percentage of earnings, $507,827.49; pavement charges, $82,127.62; general taxes, $50,326.34; total, $640,281.45. The corresponding payments during 1908 were $578,994.56, thus showing that the payment to the city during the year increased $61,286.89. The total payments to the city since the commencement of the franchise, Sept. 1, 1891, amount to $5,250,066.50. The other deductions are: Four quarterly dividends of 1¾%, $560,000.00; bond interest, etc., $198,250.23. There has been transferred this year to the contingent account provision for renewals, $150,000. There has been transferred from profits to the credit of this account $900,000, and there has been expended to date $[illegible]379.42 for the purpose of future renewals. The principal charges to this account were in connection with the renewal of track and overhead work.

The capital expenditure during the year was only $138,081.49, compared

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Cost, compressed air (inc. oil) per day.....	.1.15
2 men @ $2.50.....	5.00
1 man @ $2.25.....	2.25
Total.....	$8.40

BY HAND

2 men @ $2.50.....	$5.00
2 men @ $2.25.....	4.50
	$9.50
Cost per rivet by hand	.0380
Cost per rivet with riveter.	.0168
Saving per rivet	.0212

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Structural Engineer	Architect
Civil Engineer	Bookkeeper
Mining Engineer	Stenographer
Air-Brake Inspector	Ad Writer
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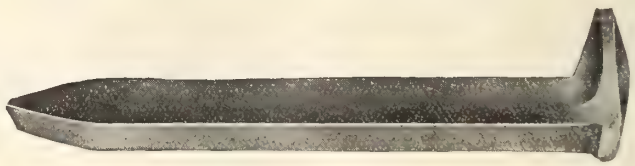

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with $431,870.94 during 1908. It is to be regretted that owing to the position taken by the city council in refusing to allow the company to construct new lines which it considered necessary to meet the public requirements, the company was compelled to discontinue the construction of new cars, which it has been constructing continuously for the past 16 years. The same might be said of track and overhead work, as the only new track built during the year was on Roncesvalles Ave. from Queen St. to Dundas St., 979 ft. Having in view that authority will ultimately be granted for the construction of additional tracks, which will necessitate the adding to our rolling stock a number of new cars, a contract has been entered into for the construction of a large up-to-date car house on Lansdowne Ave. Not only will this car house take care of a number of the new cars when constructed, but it will provide for a more even distribution of houses throughout the city for car storing and repairing purposes.

The business of the Toronto and York Radial Ry. system continues to show gratifying increases in all of its branches. After meeting all maintenance and operating charges, bond interest, etc., there was carried to the credit of profit and loss, $42,133.30. An interesting feature of the company's business is the steady growth of express traffic, etc., on the Metropolitan division. The company has co-operated with several York county municipalities in building up and establishing weekly markets, all of which are in a flourishing condition and with every prospect of creating increased business.

Tabulated statements show the Toronto Ry. Co.'s gross income, $3,926,828.43; operating and maintenance expenses, $1,995,914.64; net earnings, $1,930,913.79; passengers carried, 98,117,991; transfers, 38,137,688; percentage of operating expenses to passenger earnings, 51.4 for 1909, against $3,610,272.98 gross income; $1,889,046.62 operating and maintenance expenses; $1,721,226.36 net earnings; 89,139,571 passengers carried; 32,700,576 transfers; 52.9 percentage of operating expenses to passenger earnings, for 1908.

ASSETS.

Road and equipment, real estate and buildings, including pavements, etc.		$14,110,972 49
Advances to subsidiary companies		768,741 69
Stores in hand	$311,997 60	
Accounts receivable	121,400 16	
		433,397 76
Cash in bank		637,324 44
		$15,950,436 38

LIABILITIES

Capital stock	$8,000,000 00
Bonds	3,998,326 66
Mortgages	70,375 00
Accounts and wages payable	163,382 74
Accrued interest on bonds	69,743 02
Dividend payable Jan. 2	140,000 00
Toronto Power Co. sinking fund guarantee	109,456 20
Unredeemed tickets	75 482 91
Provision for renewals, $900,000 00	
Less expenditure to date 597,620 58	
	302,379 42
Insurance fund for injuries and damages	52,789 73
Profit and loss at Dec. 31, 1908	2,586,118 59
Balance surplus	382,382 11
	$15,950,436 38

TORONTO AND YORK RADIAL RY.

Gross Income:—		
Passenger	$293,959 77	
Freight	47,317 08	
Sundry	10,183 57	
Total income		$351,460 42
Maintenance and operating expenses		200,885 50
Surplus		150,574 92
Interest on bonds and loans		108,441 62
Net surplus		$42,133 30

THE TORONTO POWER CO., LTD.

INCOME ACCOUNT.

Gross revenue from leased properties		$651,830 77
Maintenance and operating expenses		142,608 32
		$509,222 45
Rentals paid and accrued		498,680 26
Surplus from operation		$10,542 19
MISCELLANEOUS INCOME.		
Income from bond investment, etc.	$119,121 16	
Less interest on debenture stock	$104,005 29	
Less miscellaneous charges	5,632 95	
	109,638 24	
Balance of miscellaneous income		9,482 92
Net surplus		$20,025 11

The officers and directors were re-elected for the current year as follows:—President, W. Mackenzie; Vice President, F. Nichols; other directors, Hon. G. A. Cox, Sir Henry M. Pellatt, W. D. Matthews, R. Forget, M.P., J. Gunn.

Ottawa Electric Ry. Co.'s Report.

Following are extracts from the report for the year 1909, presented at the annual meeting, Feb. 7:—

The gross earnings were $677,357.11, compared with $616,229.37 in 1908; 14,983,799 passengers were carried, compared with 13,711,382 in 1908. Dividends amounting to 12% were paid. The net profit of $247,285.25 was disposed of as follows:—Interest paid on bonds and loans, $30,081.26; four quarterly dividends of 2½% and bonus of 2%, $149,724.00; mileage payments, $12,467.25; taxes, $6,881.81; placed to credit of contingent account to be applied to reduction of track renewal, car equipment and other accounts, $36,119.81; transferred to credit of profit and loss account, $12,011.12. The balance at credit of profit and loss account is now $47,000, and of rest account $200,000.

Each month throughout the year showed a gratifying increase in earnings over the previous year, the largest increases being in the last three months. The Dominion Government has let contracts for damming Lakes Temiscaming and Kippewa, and it is the intention to give out other contracts for additional dams in the near future, which will form part of the series of storage dams proposed to be constructed to conserve the waters of the Upper Ottawa. Our business is increasing at such a rate that it will be necessary to add to the rolling stock without delay. During the past season 80 lb. rails were laid on the Rockliffe line from the car sheds to the old terminus; on Somerset St. from Bronson Ave. to Preston St., and from Bayswater Ave. to Irving Ave. on Somerset and Wellington Sts. The balance of Wellington St. to Holland Ave. will be renewed next summer. It is proposed to lay new 100 lb. rails on Sparks St. next spring. The rails and other material for this work are on hand. It is expected at the same time that the Ottawa corporation will improve the pavement on this street, which is now in a dilapidated condition. With the increase of traffic more power is required, and the question of duplicating our present water-power power house is being considered.

ASSETS.

Roadbed and equipment, water power property and plant, real estate and buildings	$2,285,625 88
Cash	14,016 08
Accounts receivable	4,328 33
Stores	6,092 93
Insurance paid in advance	5,200 00
	$2,315,263 22

LIABILITIES

Capital stock	$1,247,700 00
First mortgage, 4% bonds	500,000 00
Dividend payable Jan. 1	56,146 50
Interest on bonds, payable Jan. 5	10,000 00
Unpaid dividends	39 00
Pay list to Dec. 31, 1909	10,711 00
Bills payable	192,500 00
Accounts payable	14,695 24
Contingent account	36,119 81
Rest account	200,000 00
Profit and loss account	47,000 00
	$2,315,263 22

PROFIT AND LOSS ACCOUNT

Balance at credit of profit and loss, Dec. 31, 1908	$ 34,988 88
Net profit for 1909	247,285 25
	$282,274 13
Dividends and bonus	149,724 00
Taxes	6,881 81
Mileage payments	12,467 25
Interest on bonds and loans	30,081 26
Contingent account	36,119 81
Balance at credit, Dec. 31, 1909	47,000 00
	$282,274 13

Gross receipts, $677,357.11; expenses, $479,502.18; net income, $197,854.93; passengers carried, 14,983,799; percentage of operating expenses to receipts, 63.5, for 1909, against gross receipts, $616,229.37; expenses, $455,827.80; net income, $160,401.57; passengers carried, 13,711,382; percentage of operating expenses to receipts, for 1908, 66.4.

The officers and directors were re-elected for the current year as follows:—President, T. Ahearn; Vice President, P. Whelen; other directors, W. Y. Soper, G. P. Brophy, Hon. G. A. Cox, T. Workman.

London Street Railway Co.'s Report.

Following are extracts from the report for the year 1909:—

EARNINGS.

	1908.	1909.
Passengers	$230,866.09	$238,267.23
Miscellaneous	4,166.31	5,092.16
Gross earnings	$235,032.40	$243,359.39

EXPENSES.

MAINTENANCE		
Way and structures	$13,573.55	$21,735.66
Equipment	28,128.03	24,743.43
TRANSPORTATION		
Power plant	30,125 42	27,796 46
Car service	68,845.27	67,866.35
GENERAL	26,894.55	27,688.54
Total operating expense	$167,566.72	$169,830.44
NET EARNINGS	$67,465.68	$73,528.95

DEDUCTIONS.

Interest on bonds	$25,005.82	$28,345.86
Interest on overdraft	3,448.92	541.70
Total deductions	$28,454.74	$28,887.56
NET INCOME	$39,010.94	$44,641.39

The following changes have effected your property during the year:—Increases—track and roadway, Ottaway Ave. derail, $292.93; miscellaneous bond issue, $25.00. Paving—Adelaide St., Dundas to Dufferin, $1,695.17; Dundas St., opposite fair grounds, $885.25; Rectory St., Dundas to G.T.R., $2,459.41; Ridout St., Dundas to King St., $742.53; total, $6,100.29. Decreases—Sale of lots, corner Horton and Ridout Sts., $2,000.00; Artesian well rights, back of power plant, $100.00; interest and discount, $62.50; total, $2,162.50; net increase, $3,937.79.

The expenditure for track purposes and general maintenance of the entire system was noticeably increased, and considerable reconstruction was accomplished at a minimum cost, owing to favorable conditions effecting both material and labor. The general adoption of the pay-enter system throughout the country has caused us to make some changes along the lines, but owing to local conditions, a pay-leave system was considered more desirable; consequently a number of cars were adapted to this plan and are being tried at present. As considerable dissension arose relative to the proposed locations of the north end extension, the city council dropped negotiations. We have been solicited by the city to negotiate for Niagara power,

NORTH AMERICAN LIFE

SPLENDID RECORD FOR 1909

The Twenty-ninth Annual Meeting of the North American Life Assurance Company was held at its Home Office in Toronto on Thursday, Jan. 27, 1910, when the Report of the business for the year ended Dec. 31, 1909, was presented.

INCREASE IN CASH INCOME

The cash income for the year from premiums, interest, etc., was $2,028,595.40, showing the satisfactory increase of $133,117.95.

ECONOMICAL MANAGEMENT

The business continues to be conducted on an economical basis; the ratio of expenses to premium income remains practically the same, notwithstanding the large increase in new assurances.

LARGE PAYMENTS TO POLICY-HOLDERS

The amount paid on policyholders' account was $789,520.41. Of this sum $138,329.47 was for surplus or dividends, while $327,111.96 represents payments for Matured Endowment and Investment Policies.

ADDITION TO ASSETS

The assets increased in 1909 by $899,826.81, and now amount to $10,490,464.90. As heretofore, they continue to be invested in the best class of securities available, the addition to mortgage loans being $710,285.39.

INCREASE IN NET SURPLUS

After making ample provision for all liabilities and distributing during the year the relatively large amount for dividends mentioned, the net surplus on policyholders' account was increased to $1,018,121.25.

INSURANCE INCREASED

The policies issued during the year, together with those revived, amounted to the sum of $5,091,029, being an increase over the previous year of $625,807; the total business in force amounted to $41,964,641.

CAREFUL AND SYSTEMATIC AUDIT

A monthly examination of the books of the Company was made by the Auditors, and at the close of the year they made a thorough scrutiny of all the securities.

A Committee of the Board, consisting of two Directors, made an independent audit of the securities each quarter.

J. L. BLAIKIE, President. L. GOLDMAN, Managin Director.

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IN NOVA SCOTIA the Halifax and Southwestern Railway, from Halifax to Yarmouth, serves seven hundred miles of ocean shore; two score generous trout streams and the famous Rossignol lake system.

IN CAPE BRETON, sixty miles of the Gulf of St. Lawrence shore is skirted by the Inverness Railway, which gives easy access to the Margaree valley—far-famed for its salmon fishing.

IN QUEBEC, the Canadian Northern, Quebec and Quebec, and Lake St. John Railways give easy access to the Saguenay, Upper St. Maurice, the Batiscan, the La Tuque game and fish preserve, and the valleys of the St. Lawrence and Ottawa. All good fishing waters, abounding with ouananiche, trout and bass.

IN ONTARIO, the entire range of the Muskokas, the Georgian Bay hinterland, the French, Pickerel, Still and Maganetawan rivers—well stocked with bass, mascalonge, and pickerel, are best reached by the Canadian Northern Ontario Railway.

IN WESTERN ONTARIO and the prairie provinces, the Canadian Northern Railway serves over three thousand miles of splendid territory. The Rainy River section follows the old Dawson fur trail, which is the finest canoe trip on the continent. There is an amplitude of sporting opportunities for the camera hunter, the fisherman and canoeist.

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and as it will be necessary to increase our plant shortly, several other plans are also under consideration. As a result of the favorable vote, the question of Sunday cars was referred to the Legislature, which passed an Act requiring a population of 50,000, but as the committee could not give a satisfactory return, the matter was laid over until this year. The new stock authorized at the last meeting is entirely subscribed and 50 shares have been paid in full, although no calls have yet been made. Your directors have disposed of $25,000 of of bonds at a fraction over par, the proceeds being used to pay overdraft and to provide for other requirements, so that our present condition is excellent. It is with pleasure that we draw your attention to the increases in the gross earnings and surplus, which under existing conditions were very good, and we confidently expect the coming year will also prove satisfactory. Our relation with the public is good, and it is the constant aim of the management to improve the service so as to obtain the best results. No suits of consequence are pending against the company. There were 64 shareholders of record at Dec. 31.

Following are the officers and directors for the current year:—President, H. A. Everett, Cleveland, O.; Vice President, T. H. Smallman, London, Ont.; other directors, P. W. D. Broderick, W. M. Spencer, London, Ont.; H. S. Holt, Montreal; E. W. Moore and C. W. Wason, Cleveland, O.

Halifax Electric Tramway Co.

Following are extracts from the report for the year 1909:—

The gross and net earnings are viewed with much satisfaction, and we are assured will be appreciated by the shareholders. The proportion of operating expenses to income of 53.54% is a gratifying feature of the year's operations, and is largely due to the efficient condition of our railway and lighting services. The company is now carrying a "use and occupancy" insurance policy in addition to the regular fire and boiler explosion risks, and is arranging for the installation of an up-to-date sprinkler system, whereby the premium on fire policies will be greatly reduced. During the past year four "pay-as-you-enter" cars have been placed in operation, two having been built by the Silliker Car Co., and all of which appear to be giving general satisfaction.

ASSETS.

Property	$2,412,000.00
Accounts receivable	37,421.65
Supplies	11,169.66
Suspense account	12,857.49
Real estate	7,326.27
Cash on hand	44,764.53
	$2,525,539.60

LIABILITIES

Capital stock	$1,400,000.00
5% Bonds	600,000.00
Accounts payable	38,871.50
Mortgages	7,000.00
Tickets outstanding	2,365.75
Bond interest	15,000.00
Dividend due Jan. 1	24,500.00
Surplus account	437,802.35
	$2,525,539.60

INCOME ACCOUNT.

Passenger receipts	$ 197,330.15
Light and power earnings	191,322.89
Gas earnings	57,797.44
Sundry earnings	1,129.36
	$ 447,579.84
Operating expenses	$ 239,606.05
Coupons	30,000.00
Net earnings	177,973.79
	$ 447,579.84

SURPLUS ACCOUNT

Balance, 1908	$ 360,464.44
Net earnings, 1909	177,973.79
	$ 538,438.23
Three dividends paid	$ 63,000.00
Dividend due Jan. 1	24,500.00
Interest	1,129.94
Renewals	12,005.94
Balance	437,802.35
	$ 538,438.23

The officers and directors for the current year are:—President, Hon. D. MacKeen; Vice Presidents, J. Y. Payzant and W. B. Ross; other directors, A. Kingman, J. Hutchison, J. C. Mackintosh, C. C. Blackadar, F. B. McCurdy and M. C. Grant.

Electric Ry., Finance, Meetings, Etc.

British Columbia Electric Ry.—Gross earnings for Dec., 1909, $269,179; working expenses, $151,522; net operating earnings, $117,657; renewal funds, $17,833; net earnings, $99,824; approximate income from investments, $16,500; net income, $116,324; against $206,050 gross earnings; $105,991 working expenses; $100,059 net operating earnings; $11,544 renewal funds; $88,515 net earnings; $13,550 approximate income from investments; $102,065 net income, for Dec., 1908. Aggregate gross earnings for six months ended Dec. 31, 1909, $1,480,871; net earnings, $657,366, against $1,143,639 gross earnings, and $535,139 net earnings for same period 1908.

British Columbia Electric Ry.—The new lease of the Vancouver and Lulu Island Ry. to the B.C. E. Ry. Co., which has just been signed, is an extension of the old lease for 21 years from July 1, 1909, with an option of renewal for a like period, up its expiry. The original agreement provided for the electrification and operation by the B.C.E. Ry. of the Eburne-New Westminster extension, which has just been completed.

Calgary St. Ry.—The municipally owned street railway started operation on July 5, 1909, and up to Jan. 31 the total receipts were $54,000. After meeting operating expenses and paying interest on the cost, $10,000 has been paid into the city treasury as profit. It is expected that the cost of operation will be reduced considerably as soon as the city's hydro-electric plant is placed in operation. The cost of the street railway to Jan. 31 was $476,000.

Detroit United Ry.—At the annual meeting, Feb. 1, it was decided to continue the practice of not paying dividends until the betterment of the tracks and rolling stock had been completed. The net earnings from operation aggregated $3,004,000, and there is on hand a surplus of $2,744,529, after paying off $500,000 of betterment notes Feb. 15. The company owns the Sandwich, Windsor and Amherstburg Ry. in Canada.

Halifax Electric Tramway.—The annual meeting was held Feb. 14. The report for the year 1909 shows passenger receipts, $197,330.15; earnings from light and power, $191,322.89; gas, $57,797.44; sundry, $1,129.36; total, $447,578.84; operating expenses, $239,606.05; coupons, $30,000, leaving $177,973.79 as net earnings. Dividends paid were $85,129.94, and $92,843.85 was taken to surplus account, which stands at $437,802.35. The percentage of operating expenses to income for the year was 53.54.

Approximate earnings for Jan., $15,510.09, and for two weeks ended Feb. 14, $6,913.26, against $13,785.59 and $6,198.52 for same periods 1909.

London St. Ry.—Gross earnings for Jan., $18,363.71; expenses, $13,578.22; net earnings, $4,785.40; deductions, $2,441.75; net income, $2,343.74, against $17,737.83 gross earnings; $12,985.11 expenses; $4,752.72 net earnings for Jan., 1909.

Montreal St. Ry.—Passenger earnings for Jan., $323,045.07; miscellaneous earnings, $2,575.89; total earnings, $325,620.96; operating expenses, $205,059.74; net earnings, $120,561.22; city percentage on earnings, $16,883.87; interest on bonds and loans, $14,273.67; rent leased lines, $552.90; taxes, $4,000; total charges, $35,690.44; surplus, $84,870.78; expenses per cent. of earnings, 62.98; against $291,698.83 passenger earnings; $3,754.54 miscellaneous earnings; $295,453.37 total earnings; $199,644.45 operating expenses; $95,808.92 net earnings; $15,230.09 city percentage on earnings; $15,107.19 interest on bonds and loans; $498.67 rent leased lines; $2,700 taxes; $33,533.95 total charges; $62,272.97 surplus; 67.57 percentage of expenses to earnings for Jan., 1909. Passenger earnings for four months ended Jan. 31, $1,316,411.91; miscellaneous earnings, $35,650.45; total earnings, $1,352,062.36; operating expenses, $791,938.71; net earnings, $560,123.65; total charges, $132,035.28; surplus, $428,088.37; percentage of expenses to earnings, 58.57; against $1,198,309.67 passenger earnings; $32,214.80 miscellaneous earnings; $1,230,524.47 total earnings; $748,839.47 operating expenses; $481,685.00 net earnings; $124,104.88 total charges; $357,580.12 surplus; 60.86 percentage of expenses to earnings, for same period 1908-09.

St. Thomas St. Ry.—The St. Thomas city council is applying to the Ontario Legislature for the passing of an act repealing sections 2, 3 and 4, chap. 3, of the statutes of 1904, by which the management of the municipal street railway was placed in the hands of a commission to be appointed by the council, and providing that hereafter the street railway shall be under the sole and direct authority of the city council. Authority is given to the council to place in the annual estimates of the current expenditure of the corporation such sum as may be necessary to provide for the maintenance and operation of the railway, and to raise the same annually by a general rate at the same time and in the same manner as other municipal rates are levied and collected.

Toronto Ry.—Earnings for Jan., $326,307.62, against $287,981.16 for Jan., 1909.

Winnipeg Electric Ry.—Gross earnings for Dec., 1909, $283,500; expenses, $151,900; net earnings, $131,600, against $241,400 gross earnings; $118,200 expenses; $123,200 net earnings for Dec., 1908. Aggregate gross earnings for 12 months ended Dec. 31, 1909, $2,623,700; net earnings, $1,303,000, against $2,206,000 gross and $1,117,200 net for same period 1908.

Winnipeg Electric Ry.—Application is being made to the Manitoba Legislature for the passing of an act ratifying the agreement for amalgamation between the company and the Western Power Co., Manitoba Gas and Electric Light Co., Northwest Electric Light Co., and some other companies.

The report that the G.T. Pacific Ry. proposed erecting a 15-story hotel at Quebec at the foot of Mountain Hill was denied by officers of the company at Montreal, Feb. 4.

The Commission operating the Port Arthur and Fort William St. Ry. has refused the demands of the operating employes for increases in wages, and there has been some talk of a strike, but it is not thought that such a step will be taken.

In connection with the contract which has been let for the removal of the fallen portion of the Quebec bridge which now lies in a tangled mass upon the south shore of the river, press reports state that the steel is to be severed for removal by means of a mechanical cutter. Not much credence should be placed in the statement, for the reason that the obviously ideal method would be to use the oxy-hydrogen or oxy-acetylene flame, whose apparatus is so portable as to render it ideal for setting up in the many difficult positions which would be necessary.

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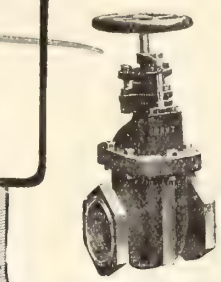

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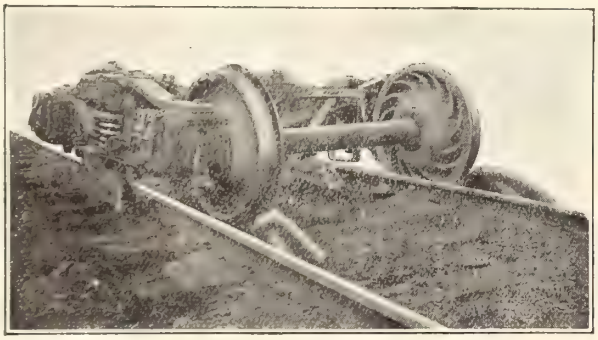

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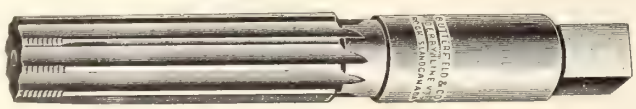

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Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—Some delay has been experienced with the project for the erection of the new terminal station in New Westminster, owing to certain portions of the site not having been vacated. The work will not be started before April 1. These terminals will accommodate both passenger and freight traffic, not only for the interurban line to Vancouver, but also for the Vancouver and Lulu Island Ry. via Eburne to Vancouver, and for the Chilliwack line now under construction. Except for the completion of the ballasting, the first 12 miles of this line is in operation, and tracklaying was expected to be completed to Abbotsford by Mar. 1. Surveys have been completed for a line from Vancouver through Burnaby and along Burnaby Lake, which would also reach New Westminster from the east. An extension is also planned from the east end of the city to the Fraser River Mills. Both these lines will probably be built next summer. Work is in progress for a cut-off of the present line between New Westminster and Vancouver whereby the line will be shortened and the hill on 12th street, a 10% grade, will be eliminated. The line will also be double tracked. Plans are being prepared for the construction of a line down Lulu Island from New Westminster.

By an agreement with the Vancouver and Lulu Island Ry. the company has undertaken to construct 10 miles of extensions within five years from Oct. 26, 1910, in district lot 526, on routes to be arranged with the C.P.R.

The company has acquired a block of land on the east side of Douglas St., Victoria, for terminal purposes. (Feb., pg. 147.)

Calgary, Alta.—A press report states that it expected to construct some 12 miles of extensions to the municipally owned street railway during the current year. (Jan., pg. 57.)

Coteau Power Co.—A resolution has been passed by the town council of Vernon, B.C., endorsing the proposal made by E. G. Warren, representing the company, for the construction of an electric railway, and a plant for the supply of power and light. The company's proposal is to develop power at Shuswap Falls, and deliver it to Vernon and other points in the Okanagan Valley, and to construct an electric railway from Shuswap Falls to Vernon. A. E. Ashton is Chief Engineer in charge of the surveys at Vernon. According to press reports, it was stated that the company had decided to construct its line on the mono rail principle, and to use the gyroscope car, invented by L. Brennan, but we are informed that there is no truth in the report. (Nov., 1909, pg. 848.)

The Dominion Ry. and Plaster Co. has applied to the Sydney, N.S., City Council for right of way over certain streets for its projected electric railway from Sydney to the gypsum deposits at East Bay. The company expresses its willingness to accept conditions similar to those in the city's contract with the Cape Breton Electric Co., which, it is said, has a right to construct a line on King's Road, but has declined to construct it although the city has asked it to do so. The new company is willing to arrange to enter the city over that line, but would construct its own line if given the franchise. The matter was referred to the Board of Works. (See Sydney and East Bay Ry., Nov., 1909, pg. 849.)

Dunnville, Wellandport and Beamsville Electric Ry.—The Ontario Legislature is being asked to authorize the company to construct an extension of the present authorized line from Jordan Harbour to St. Catharines, Ont., and giving power to issue bonds in respect of a certain portion of this line to the amount of $30,000 a mile. (Feb., pg. 147.)

Fredericton Street Ry.—Application is being made to the New Brunswick Legislature to incorporate a company with this title to construct an electric railway in the city. R. B. Hanson, solicitor for applicants, in the course of an interview said the promoters' plans hinged on the obtaining of cheap power. Some arrangement would have to be arrived at for cars crossing the river, and several propositions were under consideration. The idea is to have the lines run to St. Marys, Gibson and Marysville, and possibly Nashwaaksis, and also to Springhill and Victoria Mills. A company was granted a charter for the construction of electric lines over a considerable part of this territory some years ago, but did nothing and the charter lapsed.

Grand Valley Ry.—A good deal of work is in progress on the G.V.R. lines in Brantford, Ont., and it is said work will be continued during the year. The company is preparing to let contracts for the erection of a new power house at Brantford, to be equipped with three 500 k.w. motor generator sets. W. P. Kellett is chief engineer. (Feb., pg. 147.)

The Hamilton, Waterloo and Guelph Ry. Co.'s application to the Dominion Parliament for an amendment to its act of incorporation has been given consideration by the Railway Committee of the House of Commons. It was opposed by the Toronto City Council, and as a result several alterations were made, some of which, however, are still debatable. The bill as amended in committee provides for the increasing of the capital stock from $2,000,000 to $6,000,000; authorizes the construction of a line from Hamilton to Toronto, which may be constructed south of High Park, north of the G.T.R., and at the same elevation, or such other route as may be agreed upon between the company and the Toronto City Council; the company, unless with the consent of the Toronto City Council, shall not have any rights east of Roncesvalles Ave. It is authorized to enter into an agreement with the Hamilton Radial Electric Ry. for a lease or for running rights over that company's line from Burlington to Toronto, provided always that there shall only be one right of way through High Park, to be decided according to section two; such right of way to be used in common on terms to be approved by the Board of Railway Commissioners. The bill as amended was put down for the committee stage in the House of Commons, Feb. 24. (Feb., pg. 147.)

International Ry.—We are advised that there is nothing in the press reports that the electric line now terminating at Queenston is to be extended to Niagara-on-the-Lake, and that the International Ry. representatives recently had a conference with the municipal authorities in reference to it. The electric railway now terminating at Queenston is operated by the International Ry., but its charter title is the Niagara Falls Park and River Ry. A dispatch from Niagara Falls, Ont., Feb. 18, stated that as the International Ry. would not build the desired extension a local company was being formed to undertake the work.

Lethbridge, Alta.—At a meeting of the City Council, Feb. 10, a committee was appointed to collect information from other cities with respect to the cost of the construction and operation of electric street railways. The committee consists of Aldermen King, Hatch and Frayne. (Jan., pg. 57.)

London and Lake Erie Ry. and Transportation Co.—The bill for the incorporation of a company with this title has been given a considerable amount of attention by the Railway Committee of the House of Commons. The purpose of the company is to take over the South Western Traction Co.'s lines, recently purchased at a sale by order of the courts, and extend them so as to furnish a complete system of radial lines in that section of Ontario and to connect them with other lines. The committee put in amendments protecting the rights of municipalities under existing agreements, but declined to put in a section prohibiting the operation of cars on Sundays, which was asked for by the Lord's Day Alliance. The opposition which had developed in London was settled after a conference between the provisional directors and the city council, Jan. 31. (Feb., pg. 147.)

Monarch Radial Ry.—The application to the Ontario Legislature for incorporation is being opposed by Toronto City Council. The promoters propose to construct an electric railway from a terminus at Dupont and Bathurst Streets, Toronto, to Orillia. The route proposed would parallel the Toronto and York Radial Ry's Metropolitan Division as far as Aurora, whence it would diverge so as to serve Holland Landing, Bradford, Deerhurst, Churchill, Stroud, Allandale and Barrie, with branches to Lake Simcoe and Markham. The provisional directors are:—W. H. Price, C. M. Garbey, J. F. Caughlin, N. R. Lindsay, S. F. Adalia; the engineers are Wragge and Fox, Toronto.

Moncton Electric St. Ry., Heat and Power Co.—Application is being made to the New Brunswick Legislature to change the name of the company to the Moncton Tramways, Electricity and Gas Co.; to increase the capital stock to $1,500,000; authorizing the issue of bonds up to $500,000, and particularly authorizing the company to exercise all the rights, franchises, etc., conferred upon or granted to the company by the Legislature and various municipalities. W. F. Wheeler is Secretary. (May, 1909, pg. 367.)

Montreal St. Ry.—Application is being made by the company to the Montreal city council for its sanction to a number of new routes in various parts of the city. (Jan., pg. 57.)

Mount McKay and Kakabeka Falls Electric Ry.—Application was made, Feb. 3, to the Port Arthur city council, by A. E. Babcock, Slate River, Ont., with regard to the running rights of the M. McK. and K. F. E. Ry. through the rural municipalities and into Port Arthur. No action was taken. (Nov., 1909, pg. 849.)

Nelson St. Ry.—The city of Nelson, B.C., has granted a franchise for 20 years for the operation of a street railway in the city. Some additional plant has been installed in the substation at a cost of $6,055, and a new transmission line has been erected from the substation to Bonnington Falls, at a cost of $9,508. A contract has been let for the supply of poles, ties, etc., to be delivered by Mar. 15, and for the supply of 123 tons of 56 lb. relaying rails, turnouts, spikes, etc. (Feb., pg. 57.)

Niagara, St. Catharines and Toronto Ry.—The Bridgeburg, Ont., town council passed a resolution, Feb. 13, granting permission to the company to use the right of way from Fort Erie into Bridgeburg, where it will be enabled to connect with the G.T.R., Wabash Rd., and Michigan Central Rd. The company is now operating cars into Welland, and has completed the grading for an extension from Welland to Port Colborne, on which track will be laid in the spring. The route has been surveyed for a further extension from Port Colborne to Fort Erie, and it is in connection with this extension that the negotiations with Bridgeburg have been carried on.

Press reports recently stated that the long-talked-of project for the erection of a high-level bridge over the old Wel-

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The Canadian Pacific Railway Company have 9,000,000 acres of selected lands for sale in Manitoba, Saskatchewan and Alberta.

Maps, as enumerated below, showing these lands in detail, will be sent free on application.

Map No. 1—Winnipeg to Second Meridian	$ 8.00 to $15.00 per acre.
Map No. 2—South-Eastern Saskatchewan, 2nd to 3rd Meridians	10.00 to 25.00 per acre.
Map No. 3—Main Line, 3rd Meridian to Range 10, W. 4th Meridian (generally)	8.00 to per acre.
Map No. 5 South-Western Alberta	8.00 to 15.00 per acre.
Map No. 6—Part of Alberta, Edmonton, Battle and Saskatchewan Rivers Districts—4th Meridian to Range 7, West 5th Meridian	10.00 to 25.00 per acre.
Map No. 7—Part of Western Saskatchewan, 3rd to 4th Meridians	10.00 to 25.00 per acre

All prices are subject to change without notice.

TERMS OF PAYMENT

An actual settler may purchase not more than 640 acres on the ten instalment plan by paying a cash instalment at time of purchase, interest at six per cent. on the unpaid purchase money at the end of the first year, and the balance of the principal, with interest, in nine equal instalments annually thereafter, as shown in the following table:

160	Acres at	$ 8.00	per acre,	cash payment	$191.70	first year's interest	$ 65.28	and nine instalments of	$160.00
"	"	9.00	"	"	213.70	"	"	"	73.46	"	"	180.00
"	"	10.00	"	"	239.70	"	"	"	81 62	"	"	200.00
"	"	11.00	"	"	263.60	"	"	"	89.78	"	"	220.00
"	"	12.00	"	"	287.60	"	"	"	97.96	"	"	240.00
"	"	13.00	"	"	311.55	"	"	"	106.10	"	"	260.00
"	"	14.00	"	"	335.60	"	"	"	114.32	"	"	280.00
"	"	15.00	"	"	359.50	"	"	"	122.44	"	"	300.00

Purchasers who do not undertake to go into residence on the land are required to pay one-sixth of the purchase money down, balance in five equal annual instalments with interest at the rate of six per cent. per annum.

Interest at six per cent. will be charged on overdue instalments.

F. T. GRIFFIN, Land Commissioner, Winnipeg.

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F. T. GRIFFIN, Land Commissioner, Winnipeg.

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NOTICE is hereby given that the Annual Meeting of the Shareholders of the Victoria Rolling Stock and Realty Company of Ontario, Limited, will be held at the offices of Messrs. Osler & Hammond, 21 Jordan Street, Toronto, on Wednesday, March 2, 1910, at twelve o'clock noon, for the reception of the Annual Report and election of Directors for the ensuing year.

By order,

G. T. CHISHOLM,
Secretary.

Toronto, February 12, 1910.

land Canal at St. Catharines would be started at an early date, and that the project was in connection with the N. St. C. and T. Ry. Later advices state that the bridge had nothing to do with the railway, its promoters including W. D. Woodruff, W. H. Merrit and R. H. Leonard, C.E. We have been officially advised that nothing definite has been decided as to the construction of the bridge, but that the idea is, if such a bridge is constructed, to make it of sufficient strength to permit the running of electric cars over it. (Feb., pg. 147.)

North Midland Ry.—The Ontario Legislature has under consideration a bill granting an extension of time for the construction of the lines authorized to be constructed by chap. 84 of the statutes of 1904. (Feb., pg. 147.)

Ottawa Electric Ry.—Application is being made to the company to extend its lines to and through Ottawa South, the recently annexed part of the city. The proposal has been referred to the city council's railway extension committee.

People's Ry.—At a meeting in Guelph, Ont., Feb. 4, a resolution was passed favoring the aiding of this line by the city, and the city council is preparing a bylaw for submission to the ratepayers.

A bill has been given a first reading in the Ontario Legislature authorizing the company to construct a number of additional lines, particulars of which were given on pg. 931 of our Dec., 1909, issue. (Feb., pg. 147.)

Port Arthur, Ont.—Application is being made to the Ontario Legislature by the city council of Port Arthur to abolish the Electric Railway and Light Commission and to provide for the government of the city and all its public utilities by a board of paid commissioners. It is also sought to have legislative approval to a number of bylaws, among which are the following:—Authorizing the city to pay the costs of the street railway litigation; to provide for the additional expense of double tracking the electric railway from Current River to the southerly boundary of the city; to enlarge the storage battery; to authorize the purchase of machinery and fittings for the new car barn and for the storage battery already installed; to authorize the purchase of a motor generator; and to authorize the Council to enter into an agreement with J. J. Carrick to provide for the extension of the electric railway to certain points. (See Port Arthur and Fort William Electric Ry., Jan., pg. 59.)

Queen Victoria Niagara Falls Park.—A bill is under consideration by the Ontario Legislature with reference to the property vested in the Park Commissioners and the powers which they have in reference thereto. The park is provincial property and is administered by a commission appointed by the Ontario Government. The act provides among other things that all the rights of the old St. Catharines, Thorold and Niagara Falls Road Co. are vested in the Commissioners, and that the Commissioners have power to construct and operate a street railway over the road and may construct the same to any point on lands vested in the Commissioners and may charge tolls on the same. The Commissioners may empower the Clifton Suspension Bridge Co. to operate its cars by any power except steam to and from its bridge across the Chain Reservation, subject to any order of the Board of Railway Commissioners, and subject to any rights of the Niagara Falls Park and River Ry., and to the terms of any agreement made with that company.

Queenston to Niagara Falls.—See International Ry.

Rainy River Radial Ry.—Application was made to the Dominion Parliament to incorporate a company with this title to construct the following lines of railway:—from the northern boundary of Minnesota near Fort Frances to the Lake of the Woods near the mouth of Big Grassy River; from an intermediate point on the line to the mouth of Little Grassy River; from the last mentioned line to the northern boundary of Minnesota near the Long Saulte rapids on the Rainy River and to the town of Rainy River. The provisional directors named were:—P. A. Smith, Fort Frances, Ont.; J. J. Warren, J. H. Spence, Toronto; W. A. Dowler, F. G. Depew, Fort William, Ont. Objection was made to the passing of the act on the ground that the lines proposed to be constructed were wholly within the province of Ontario, and that they were purely local in their character, although it was desired to secure connection with the Canadian Northern Ry. The bill was "talked out" by the committee. (Sept., 1909, pg. 685.)

Sherbrooke Street Ry.—At a meeting of the Sherbrooke, Que., city council, Feb. 3, the new agreement with the company came up for signature. There are a few minor matters to be adjusted before the agreement takes effect.

The company is making application to the Quebec Legislature to amend its charter in regard to its name, the location of its head office and its powers respecting the following matters:—The territory within which such powers may be exercised; borrowing; the extent of lands which may be acquired by the company; the privilege of the company in the use of its tracks; the approval of shareholders required in certain cases. C. B. Hibbard, formerly of the Quebec, Montreal and Southern Ry., is acting for the promoters of the new company. (Jan., pg. 59.)

Toronto Ry.—The Toronto city council is applying to the Ontario Legislature for an act authorizing it among other things to compel the Toronto Ry. to extend its service to districts recently annexed to the city, but so that such legislation shall not in any way extend the period of the present franchise. (Nov., 1909, pg. 849.)

Western Central Ry.—The Ontario Legislature has under consideration a bill to grant an extension of time within which the company may construct the lines authorized by its act of incorporation. The company also asks for authority to guarantee the bonds of other companies engaged in any business incidental to the working of a railway.

Winnipeg Electric Ry.—The residents of St. Francois Xavier have laid the following proposition before the company in reference to an extension of the line from Headingly west to that point:—"That the municipality will raise $500 a mile, and that each person will grade the road across his place, and will facilitate any reasonable arrangement for the construction and operation of an extension to St. Francois Xavier, and would ask the company to give this matter early consideration, with a view to having such extension in operation on or before Oct. 1, 1910." The proposal is under the consideration of the Suburban Rapid Transit Co., under which title the W.E. Ry. operates the Headingly line. (Feb., pg. 149.)

Victoria Rolling Stock Co. Supplementary letters patent have been granted to this company under the Ontario Companies' Act, changing its name to the Ontario Rolling Stock and Realty Co. of Ontario, and authorizing it to deal in all kinds of real estate and to undertake the business provided for in chaps. 203, 204 and 205 of the Revised Statutes of Ontario, 1897.

C. H. Mackay, President Commercial Cable Co., gave a dinner to the New York officers and staff recently in celebration of the 25th anniversary of the inauguration of the company.

Electric Railway Notes.

The Hull Electric Ry., has received one wing plow from the Ottawa Car Co.

The British Columbia Electric Ry. is reported to have ordered 100 freight cars to be built at its New Westminster shops.

The Mount McKay and Kakabeka Ry., has ordered four Otis all steel cars from the Hart Otis Car Co., Montreal.

The Ottawa Electric Ry., has ordered eight pay-as-you-enter cars, with double trucks, 35 ft. long, from the Ottawa Car Co.

The Nelson St. Ry., has ordered two semi-convertible double truck cars, 43 ft. overall, from the Ottawa Car Co., Ottawa.

The Quebec Ry. Light and Power Co., has ordered 16 pay-as-you-enter single truck cars, with 18 ft. bodies, from the Ottawa Car Co.

N. P. Baker, heretofore Assistant to General Manager International Ry., Buffalo, N.Y., has been appointed Treasurer of the Company.

Application has been made for a Quebec provincial charter for the Montreal Elevated & Underground Ry. Co., with a capital of $20,000,000.

The Port Arthur and Fort William Electric Ry. has ordered four pay-as-you-enter cars, similar to those already in operation, from the Preston Car and Coach Co., Preston, Ont.

The St. Thomas, Ont., Street Ry. Commissioners are making arrangements for the overhauling of two cars, so as to make them into convertible cars for summer or winter use, at the Michigan Central Rd. shops at St. Thomas.

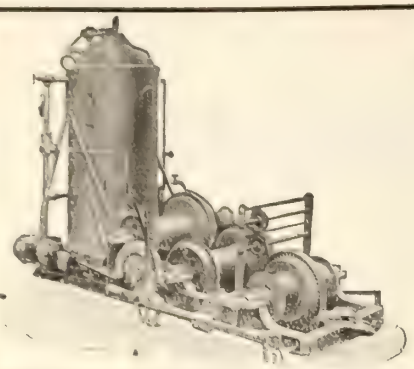
The Toronto City Engineer's Department is preparing a plan which would give a single fare service to Mount Pleasant Cemetery, by running the Toronto Ry. cars there, a new rail with two grooves to be laid on the Toronto and York Radial Ry.'s Metropolitan Division on account of the difference in gauge.

The Nipissing Central Ry. has received two cars, fully equipped, 43' 6" long over all, 32' 6" over bodies, with 4' 6" wheel base, G.E. 80 motors, quadruple equipment, Westinghouse AMM air brakes, and snowplows and pilots at each end, from the Preston Car and Coach Co., Preston, Ont. A further two cars similarly equipped are being delivered.

J. S. Clarke, formerly President of the Grand Valley Ry., laid an information which came before the Police Magistrate at Brantford, Feb. 15, against A. J. Pattison, A. Easson, J. H. Couch and J. Costin, alleging conspiracy against the company. The magistrate refused to grant a warrant for the arrest of Couch, who did not appear, and Clarke refused to go on in his absence.

The Quebec Ry., Light and Power Co. is seeking an injunction from the Quebec courts to restrain the Quebec and Lake St. John Ry. and the Canadian Northern Ry. from using a bridge over the St. Charles River, and claiming $10,000 damages. The bridge is owned jointly by the plaintiff company and by the Q. and L. St. J. Ry., and the question at issue appears to be the amount to be charged for the use of the bridge.

In a case against the Toronto Ry., Feb. 7, the widow of a passenger, who died from injuries received through falling from a car while intoxicated, sued for damages, on the ground that the conductor had neglected his duty in not attending to the passenger. Chief Justice Falconbridge in non-suiting the plaintiff, stated that the conductor fulfielled his duty, and from questions submitted to the jury it was held that the company is not responsible for the safety of intoxicated persons travelling on its cars.



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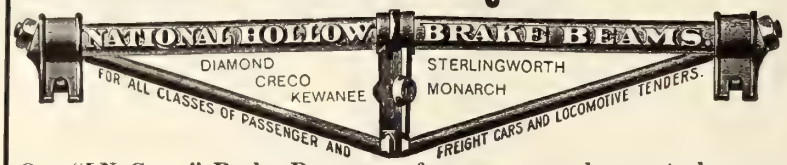

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CHAIRMAN, E. E. Horsey, Kingston, Ont.
SECRETARY, Jas. Morrison, Montreal.

International Water Lines Passenger Association.

PRESIDENT, W. M. Lowrie, New York.
SECRETARY, M. R. Nelson, New York.

The Shipping Federation of Canada.

PRESIDENT, A. A. Allan, Montreal; MANAGER, AND SECRETARY, T. Robb, 526 Board of Trade, Montreal.

Ship Masters' Association of Canada.

GRAND MASTER, Capt. J. H. McMaugh, Toronto, Ont.; GRAND SECRETARY-TREASURER, Capt. H. O. Jackson, 376 Huron St., Toronto.

Shipping Federation of Canada.

At the annual meeting in Montreal recently the report of the executive committee was presented by J. Thom, chairman. Following are extracts:—Navigation opened on May 1 with the arrival of the s.s. Corinthian, and closed with the sailing of the s.s. Montcalm, on Nov. 26. The number of seagoing vessels that arrived during the season was 659, with a tonnage of 1,893,595 tons, a decrease of 74 vessels and 83,854 tons as compared with previous season, this decrease in vessels and tonnage being the result of the trouble in the coal trade in Cape Breton. The passenger business showed a marked increase over that of 1908, and was most decided in the west-bound traffic, a fact showing the returning and increasing prosperity of the Dominion since the slump in the latter part of 1907. The shipments of apples increased by 219,030 barrels, cheese increased by 82,-648 boxes, lard decreased by 10,346 packages, eggs by 10,282 cases, butter by 53,612 packages, box meats by 57,658 packages, flour and meal increased by 339,208 barrels, cattle decreased by 5,056 head, and sheep by 8,494 head, lumber increased by 7,851,842 ft. b. m., pulp and paper decreased by 9,582 tons, hay increased by 17,265 tons, and grain and seeds show a decrease of 3,871,117 bushels. This decrease in exports following on the bad year of 1908 with increased maintenance and working charges, shows what a small margin of profit accrues to the shipowner. As a matter of fact the greater number of vessels have been unremunerative for some time. Whether the slight improvement that is showing in other shipping trades will extend to the Canadian trade remains to be seen, meanwhile we can only hope that the worst is now past.

No trouble of any kind occurred on the wharves during the season, and sufficient men were available at all times to carry on the work. Employment was slightly less than in 1908, the daily average number of men employed being 659, compared with 669 in 1908.

The Signal Service stations were in full use during the season, and proved of great benefit. They have been supplemented by the erection of a Marconi wireless station on Tarte pier, thereby enabling steamers to communicate with the shore between Montreal and Quebec in thick weather.

Continuous work with dredges proceeded in the different sections of the ship channel, and the deepening at Beaujeu bank is now practically completed. The Government is obtaining a rock breaker for use at Cap a la Roche, with the aid of which it is expected that the deepening there will be finished in much less time than by the system at present in use. The buoys and lights gave every satisfaction during the season, and any defects reported to the department were at once attended to. The number of defects reported by masters and pilots was 53.

The structure and fittings of the last of the 14 new steel sheds in Montreal harbor was completed during the season, and the installation of the extension of the grain conveyors to nos. 11, 12, 13 and 14 was nearly completed at the close of navigation. This finishes the first part of the scheme of harbor extension. The wharves and roadways are in a very much superior condition now to what they were six or seven years ago, at the same time shipowners feel that they are not receiving value for the rents paid by them for shed accommodation, nor will they until some system for the cheap and expeditious handling of cargo to and from the upper storeys is in operation. The Harbor Commissioners at the beginning of the year proposed an increase in wharfage dues on certain classes of goods, and the importers took up the matter and petitioned the Premier strongly against the increase with the result that the proposal was held over. The floating crane built for the Commissioners arrived and was put into commission during the season, and should prove a valuable addition to the harbor facilities.

P200 C. A. JAQUES,
General Manager, Merchants Mutual Steamship Line, Montreal and Lake Erie Steamship Co., and Montreal and Great Lakes Steamship Co.

In conjunction with the Quebec Harbor Board, a deputation from the Federation waited upon the Government to urge the construction of a dry dock of sufficient capacity, to take the large ships now engaged in the St. Lawrence trade. As an alternative scheme we put forward the construction of a floating dock, but so far nothing has come out of the representation. Every season it becomes more imperative that this want should be remedied. To urge the importance of at once formulating a scheme for a dry dock, we further petitioned the Government in May last.

The following resolution was carried unanimously. Resolved that the members of the Shipping Federation of Canada, record a cordial vote of thanks to Hugh A. Allan, who has been President since the inauguration in 1903, and who, owing to his absence from Canada, is now retiring, for his valuable services during the period in which he has held office. The interest manifested by Mr. Allan in all its affairs, together with his business experience and tact, have placed the members of the Federation under great obligation to him, and they regret that the increased demands of his business elsewhere deprives them of a continuation of those valued services.

The following officers were elected for the current year: President, A. A. Allan; Executive Council, J. Thom, Chairman; D. W. Campbell, R. W. Reford, W. R. Eakin, F. A. Wanklyn (or) A. Mackenzie; Treasurer, J. R. Binning.

The total tonnage entered with the Federation was 498,874 in 1908 and 512,-198 in 1909.

Lake George Steamboat Co.

This company is building another steamboat for service between Lake George and Baldwin, N.Y. She will be 230½ ft. long over all, 59 ft. breadth outside; the engine will have a 52-in. diameter cylinder, 10 ft. stroke; there will be patent feathering wheels, and her speed will be 20 miles an hour. The hull will be steel. The boat, which will be ready for service next year, will be named the Horicon. A great variety of names was suggested, all of which had more or less to recommend them, and in selecting this one the management is carrying out a precedent already established, as is evidenced in the cases of the Vermont, the Ticonderoga, and the Mohican. The name Horicon signifies silvery waters, and has its origin from a tribe of Indians once inhabiting the shores of the lake; it is suggested by J. Fenimore Cooper's Last of the Mohicans The present steamboat, Horicon, has been in service on Lake George since 1877 and has carried thousands of people through the Lake each season without interruption or accident; she has been a very popular steamer, and no serious accident or loss of life has occurred in her long career. The advent of the new steamboat will mean the discontinuance of the old one, and trips operated by the new boat will be from Lake George to Baldwin and return, and will be the service which has been performed by the Sagamore since 1902. The Sagamore will perform the service from Baldwin to Lake George and return, which is now operated by the Horicon, and will also take care of the large number of excursionists who go to Lake George over the Delaware & Hudson Rd. for a day's outing.

R. & O. N. Co.'s Steamboat Rochester.

The Richelieu & Ontario Navigation Co., as stated in our last issue, has secured incorporation in Michigan under a similar title, the immediate object being to operate the s.s. Rochester between Youngstown and Ogdensburg, N.Y., on the schedule given in our last issue. The Rochester, which was launched at Wyandotte, near Detroit, Mich., last year, is expected to be completed in time to go into service on June 18, and will be thoroughly up to date.

The entrance hall, reached from the passenger gangway, will be finished in polished mahogany, with rubber tiled floor. Back of the entrance hall will be the dining room, capable of seating 150. This room will be panelled in oak, with rubber tiled floor and will have observation windows. In the entrance hall will be purser's office and parcel check room. The fore part of the main deck will be utilized for express matter, automobiles, etc. Ascending by the main staircase the main saloon is reached, both sides of which will be filled up with staterooms, many fitted with brass beds with bath and toilet rooms. At the bow and stern will be large open decks. The

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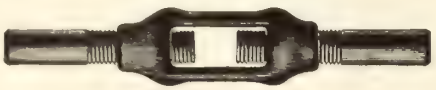

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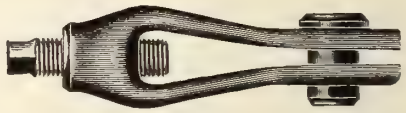

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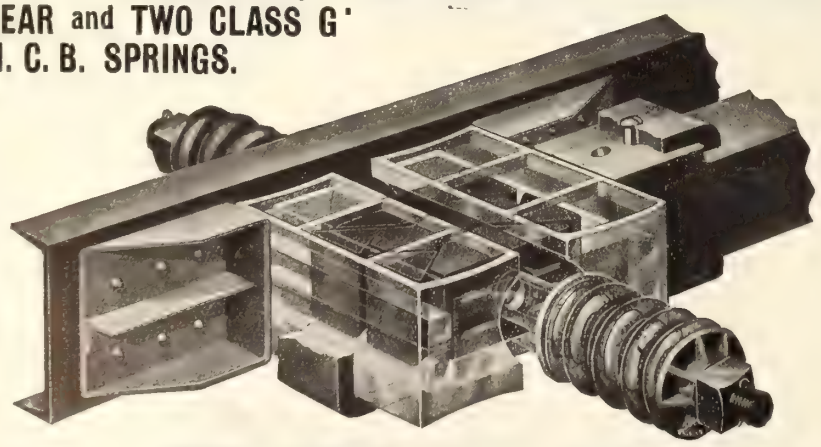

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gallery tier of staterooms will be arranged in the same way as the main saloon, and above this will be found the ladies' parlor, buffet and smoking rooms. The ladies' room will be decorated in cream and pink, in art nouveau style. The smoking room will be panelled in oak. Both rooms will have large windows affording an unobstructed view.

The Canadian Canals.

In his annual review of the work of the Department of Railways and Canals, the Minister speaking in the House of Commons recently in regard to the national waterways said Canada had shown more courage in making her canals free than had foreign countries. The port of Manchester, though 60 miles from the sea by canal and river, was an open port. He desired to draw attention to the fact that Montreal was now an open port, though many miles further from the ocean than Manchester. Canada had spent many millions in making Montreal an ocean port. Taking the expenditures on railways, canals and waterways generally, it was not at all out of the way to say that Canada had shown greater courage than any other country in the world in the amount of money expended per head of the population for carrying out these great works. The opinion of the Government with regard to the Georgian Bay Canal and the Welland Canal was well known. He had been for some time impressed with the necessity, owing to the great increase in canal traffic, of constructing another lock at Sault Ste. Marie. He would hazard a guess that such a lock would cost from $8,000,000 to $10,000,000. That lock, if constructed, ought to provide for a depth of 25 to 27 ft. of water, because it would be folly to half do the work, when in a few years the lock would have to be deepened or reconstructed.

During the season of navigation of 1909, the canals of Canada carried perhaps the largest volume of traffic in their history. The freight which passed through was 33,720,748 tons, compared with 17,502,820 in 1908. This was an increase of 93% in one year. To give an idea of the measure of increase in the freight traffic through the canals, he stated that three years ago the total traffic was only 10,523,185 tons, and 10 years ago it was only 5,013,693 tons; so that last year it was nearly seven times as much as it was 10 years ago. Of the traffic of 1909, 27,976,399 tons was eastbound and 5,744,349 westbound. He had not the figures at hand, but he could state generally that while the Canadian canals carried a large volume of U.S. traffic, the proportion of increase of Canadian traffic was perhaps a little more than that of U.S. traffic.

Referring to the Port Colborne harbor and elevator, the Minister pointed out that a large amount had been spent by his department and by the Department of Public Works in order to protect the entrance to the harbor, to make it deep enough to accommodate the vessels using it after the construction of the elevator. More work, however, would have to be done in the way of building breakwaters in order that the harbor might be fully protected, and that vessels might be perfectly safe there in taking on or discharging their cargoes, no matter what storms might be raging outside. The elevator had a capacity of 850,000 bush., and there were foundations and other provisions for increasing that to 2,000,000 bush. In 1909, there was put through the elevator about 1,500,000 bush., a very small quantity, but he was not at all sanguine that this elevator, if carried on by the Government, would handle any great quantity of grain. He was told by a very large shipper that the fact that there was such an elevator at Port Colborne, ready to tranship grain from the larger vessels into smaller ones, had a very modifying effect on the freight rates by other routes. It had been said it resulted in the saving of a cent a bushel, but even if it was only a half or a quarter of a cent a bushel it would mean a great deal to the people shipping their grain from the west. He had not made up his mind on the question of leasing the elevator to some one of the lines of transportation, but if that were done, unless some restrictions were imposed, it might deprive the Government of the benefit the elevator now conferred of keeping down the freight rates on other routes.

He did not think there was any chance of an amount being provided this year for the commencement of the Georgian Bay canal. He had not been discussing the subject. However, it was a great work which was before the people, and would be constructed in due time by the Government, which had always undertaken the great projects that the country required.

The act granting an extension of time to the Montreal, Ottawa and Georgian Bay Canal Co., within which to construct its deep-waterway from Montreal by the Ottawa and French Rivers to the Georgian Bay, was passed by the House of Commons, Jan. 21. Replying to a question the Minister of Railways and Canals said sec. 5, which allowed the Government on behalf of the country to take over the work at any time upon payment of the money which had been expended by the company, amply protected it, and when exercised would transfer to the Government whatever powers the company had.

An Ontario Steamship Merger.

Jas. Playfair, of Midland, Ont., President of the Midland Navigation Co., Ltd., and of the Empress Transportation Co., Ltd., has, with associates whose names have not been made public, bought a large block of stock in the Inland Navigation Co., Ltd., which has its headquarters at Hamilton, Ont. The purchase includes R. O. and A. B. Mackay's holding in the Inland Company, 2,700 shares; also G. Lynch Staunton's holding, some 300 to 400 shares. R. O. Mackay withdrew from active steamship work when the Inland Company was formed, and now A. B. Mackay retires, and it is said he has undertaken not to engage in the business again for at least five years. It is said that the price paid for the stock is 133, which would yield R. O. and A. B. Mackay $360,000 and make the total purchase by the Playfair interests from $390,000 to $400,000.

The Inland Navigation Co., Ltd., which was incorporated in 1908, took over the following companies and properties:—Hamilton and Fort William Navigation Co., New Ontario S. S. Co., Union S. S. Co., Dundee S. S. Co., Dunelm Ltd., Rosedale Ltd., Hamilton and Montreal Navigation Co., Winona S. S. Co., New Ontario Dock and Coal Co.'s wharf and coal business at Sault Ste. Marie, Ont., R. O. and A. B. Mackay's wharf, cartage and coal business at Hamilton and their wharf, shed and wharf privileges at Montreal. The Inland Co. has a capitalization of $2,000,000.

Following are the vessels in the three companies' fleets:—

Inland Navigation Co.—Neepawah, Wahcondah, Rosedale, Glenellah, Dundee, Dunelm, Winona, Strathcona, Donnacona, Dundurn, Stadacona.

Midland Navigation Co.—Midland Prince, Midland King, Midland Queen.

Empress Transportation Co.—Empress of Midland, Mount Stephen.

We are advised that the Inland Navigation Co., the Midland Navigation Co. and the Empress Transportation Co. will be merged, but at the time of our information it had not been decided what the name of the new company will be, though it is likely that the word Inland will be retained in some way. A number of the directors of the Inland Co. have retained their shares and will be interested in the new company.

Richelieu & Ontario Navigation Company.

Following are extracts from the report for the year 1909:—Gross earnings were $1,238,044.31, and net profit, after providing for fixed charges, interest, etc., $257,562.29. Operating expenses show a saving of 1% against the previous year. Four dividends, at the rate of 1¼% quarterly, were paid during the year.

The steamer Rapids Queen, mentioned in the last annual report, was placed in service July 1. In order to provide for the natural expansion of the company's business and to protect its interests, it was recommended at the last annual meeting that a modern twin-screw steamer be constructed for the Lake Ontario-Thousand Islands trade, and the steamer Rochester has been built and will go into commission in June. An additional Rapids and excursion steamer has also been ordered for the 1910 season. Having regard to future necessities and the benefits to be obtained, the company has purchased a general office building on Victoria Square, Montreal. The Insurance Fund has been credited with $36,000 out of the year's earnings, and $157,046.23 now stands to the credit of this account, of which $156,918.93 has been invested in bonds. This is in addition to insurance placed with insurance companies on shore properties, steamers, etc. During the year there were issued £50,000 of debentures, due 1937, to repay the company 75% of the expenditure made since the last issue for new steamers and property. There were also redeemed and cancelled, in accordance with the deed of trust, £3,400 of outstanding debentures.

ASSETS

Steamers, real estate and buildings, wharves, etc.		$4,346,505.06
Bonds in treasury	$170,820.00	
Accounts receivable	24,177.71	
Coal, Stores, Provisions, etc.	85,351.16	
Suspense account	85,533.33	
Loans on colateral Securities	50,000.00	
Cash	23,357.15	
		439,239.35
Insurance Fund Investment		156,918.93
		$4,942,663.34

LIABILITIES

Capital stock		$3,132,000.00
Bonds 5% sterling	$1,216,666.66	
Less cancelled	33,093.33	
		1,183,573.33
		4,315,573.33
Accounts payable	$75,513.26	
Unclaimed dividends	159.00	
Accrued fixed charges	15,670.66	
		91,342.92
Insurance fund		157,046.23
Surplus		378,700.86
		$4,942,663.34

INCOME ACCOUNT

Surplus Dec. 31, 1908	$350,305.35
Net profit for 1909	257,562.29
	$607,867.64
Dividend paid in 1909	$156,000
Carried to insurance fund	36,000.00
Written off steamers, etc.	36,766.78
Net surplus	378,700.86
	$607,867.64

The directors for the current year are as follows:—President, R. Forget, M.P.; Vice President, W. Wainwright; G. Caverhill, W. Hanson, C. O. Paradis, A. H. Sims, Sir Henry M. Pellatt, Hon. J. P. B. Casgrain, Hon. E. B. Garneau, H. M. Molson.

The North Vancouver City Ferries, Ltd., is considering tenders for the construction of a double end steel ferry steamer, 165 ft. long by 29 ft. beam.

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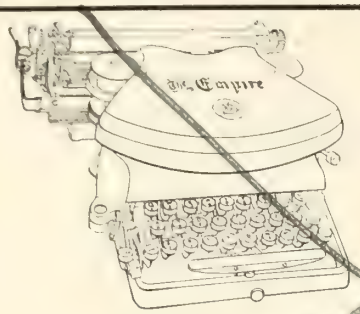

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Dividends for the half-year ended 31st December, 1909, have been declared as follows:—

On the Preference Stock, two per cent.
On the Common Stock, three per cent.

A further sum equal to one-half of one per cent. on the Common Stock will be paid thereon at the same time out of interest on the proceeds of land sales.

Warrants for the Common Stock Dividend will be mailed on 31st March next to Shareholders of record at the closing of the books in Montreal, New York and London respectively.

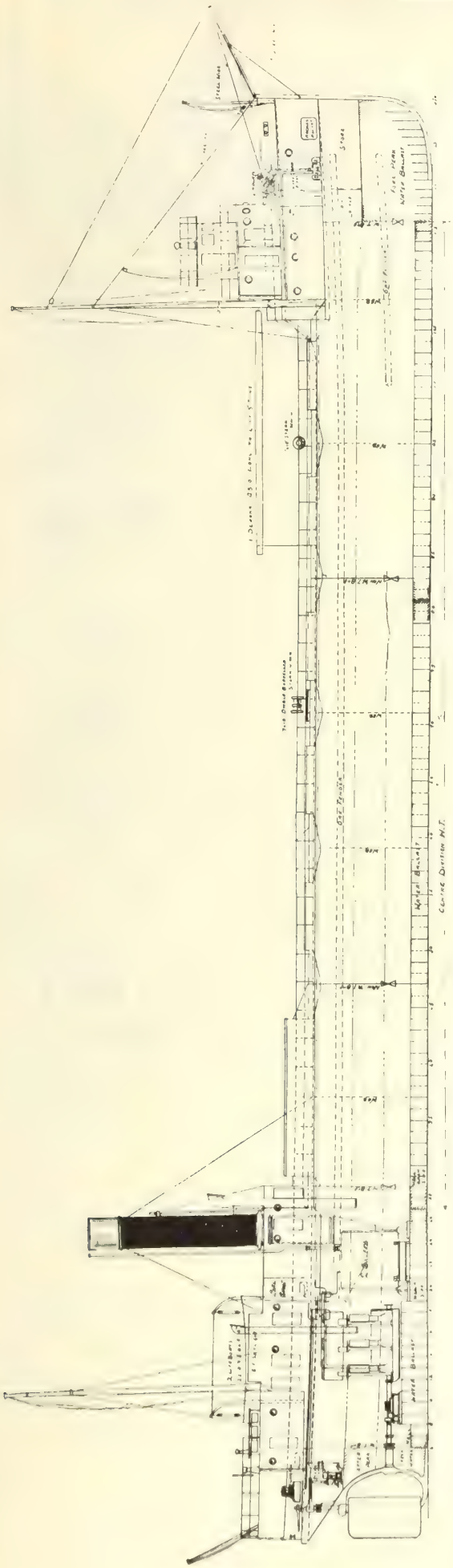
The Preference Stock Dividend will be paid on Friday, April 1 next, to Shareholders of record at the closing of the books at the Company's London Office, No. 62, Charing Cross, London, S.W.

The Common Stock Transfer Books will close in Montreal, New York and London at 3 p.m. on Tuesday, March 1st. The Preference Stock Books will also close at 3 p.m. on Tuesday, March 1st.

All books will be re-opened on Saturday, April 2nd next.

By order of the Board.

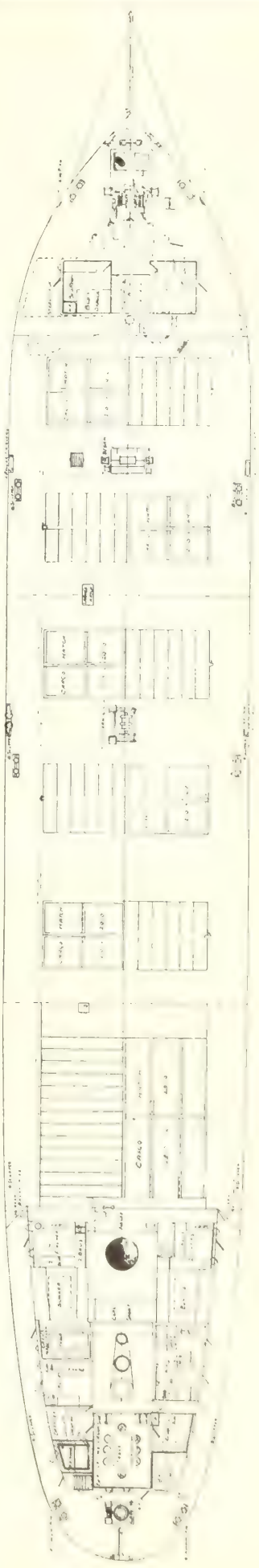
W. R. BAKER, Secretary.
Montreal, 14th February, 1910.



The Steamship Port Colborne.

Forwarders, Limited, Kingston, Ont., have purchased through R. A. Carter, Montreal, the steamship, Port Colborne, recently built in England, and on her arrival in Canada, she was taken possession of by her new owners, proceeding from Montreal to Buffalo, N.Y., from which port she carried a cargo of 2,500 tons of coal to Port Arthur, Ont. As a return cargo she loaded 89,000 bush. of wheat at Fort William for Kingston. At this latter port the company has a grain elevator with a storage capacity of 500,000 bush. Through this elevator wheat can be elevated and spouted into barges at the rate of about 15,000 bush. an hour. It is not intended, however, to use this house as a storage elevator, but as a working transfer house, elevating the grain out of the vessels which bring it to Kingston from the head of the lakes, into barges to be towed to Montreal. The company expects to be in complete operation in the spring, equipped with suitable lake steamers, and barges and the necessary tugs.

The Port Colborne is a steel screw freighter, of Welland canal size, being 250 ft. long over all, 42½ ft. wide and 20 feet deep. She is constructed with cellular double bottom, for water ballast, and fore and aft peak water tanks. The capacity of these tanks is 548 tons of fresh water in the double bottom, and 95 tons in the peaks. The boilers and engines are placed astern with coal bunkers, having a total capacity of 143 tons, on either side. On the main deck, at the stern are quarters for the chief and assistant engineers, cook, cook's galley, mess-rooms for officers and crew, and rooms for the firemen and oilers. Forward, below the main deck is the chain locker and store room, and on the main deck are quarters for the mates, wheelmen, seamen and watchmen, as well as a suite of apartments, consisting of sitting-room, bedroom and bathroom for the owner. Overthis are the captain's quarters, surmounted by a flying bridge and wheelhouse. The midships portion of the vessel is entirely given over for cargo storage, entrance being obtained by six hatchways, one 28 by 29 ft., and five each 12 by 29 ft., each. For handling the cargo there are provided one 7 by 10 in. steam winch, one 7 by 10 in. double-barrelled steam winch, and a steam derrick 43 ft. long, with a lifting capacity of five tons, attached to its foremast. A windlass engine is fixed on the main deck forward. Two lifeboats, each 20 ft. by 6 ft. 9 in., by 3 ft. 6 in. are provided. In addition to the usual hand steering gear for emergencies, steam steering gear is fitted for regular use. Light, the vessel has a draught of 4 ft. 6⅝ in. in fresh water, and with a dead weight cargo of 2,430 tons, has a draught of 14 ft. 4½ in. in fresh water. A profile and deck plan are given on this page.



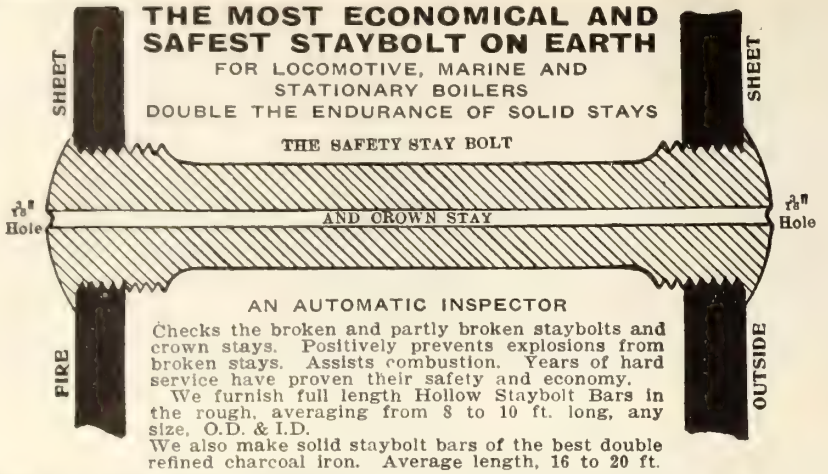
Notices to Mariners.

The Department of Marine has issued the following:—

124. Dec. 24. 323.—Ontario, Georgian Bay, Penetanguishene harbor, range lights established. 324.—Ontario, Georgian Bay, Midland bay, Tiffin, new harbor established. 325.—United States of America, Lake Erie, Conneaut harbor range front light station, fog bell established.

125. Dec. 28. 326.—Quebec, Ottawa River, Grenville canal, upper entrance, range lights established.

126. Dec. 29. 327.—Nova Scotia, Annapolis basin, Port Wade, lighthouse established. 328.—Nova Scotia, south coast, East Ironbound island, hand fog horn at light station. 329.—Nova Scotia, south coast, Ship harbor approach, Nichol island, Wolf point, hand fog horn



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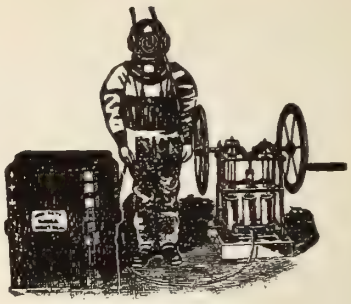

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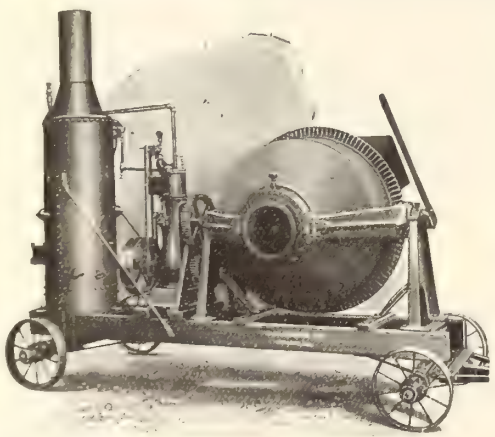

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at light station. 330.—Nova Scotia, south coast, Torbay, Berry head, hand fog horn at light station.

1. Jan. 7, 1.—Nova Scotia, Bay of Fundy, Chignecto channel, Eatonville, position of lighthouse, correction. 2.—Nova Scotia, south coast, Rugged island harbor, off Lockeport, Laurier rock, bell buoy established.

4. Jan. 19. 6.—Nova Scotia, Bay of Fundy, Minas Basin, Kingsport, hand fog horn at light station. 7.—Canadian list of lights, abolition of duplicate names of light stations.

5. Jan. 21. 8.—Ontario, Lake Ontario, Weller Bay, light discontinued. 9.—Ontario, Georgian Bay, Owen Sound, Presqu'ile, light discontinued. 10.—Ontario, Canadian list of lights, abolition of duplicate names of light stations.

12. Feb. 11. 25.—Ontario, Georgian Bay, Midland Bay, Tiffin, dredging not completed, caution. 26.—Ontario, River St. Mary, Sault Ste. Marie Canadian canal, back range lighthouse at lower entrance rebuilt. 27.—Ontario, River St. Mary, Sault Ste. Marie Canadian canal, new back range lighthouse at upper entrance.

13. Feb. 12. 28.—British Columbia, Burrard Inlet, Vancouver harbor, Brockton point, light improved. 29.—Pacific Ocean, Juan de Fuca Strait approach, Swiftsure bank, submarine fog bell established at lightship.

14. Feb. 18. 30.—Nova Scotia, southeast coast, Cranberry island, lighthouse, lower light to be discontinued. 31.—United States of America, St. Croix River, Whitlock Mill light station, intensity of light increased, light established in new structure.

Government Quarantine Steamship.

A contract has been awarded to a firm in Dartmouth, Eng., for the construction of a quarantine steamship for service at Halifax, N.S., at a cost of $22,600. The vessel will be of steel throughout, with five water tight bulkheads, and with provision for about five tons of water in the forepeak tank and 10 tons in the afterpeak. A steel deckhouse, 58 by 12 by 7 ft., will be built on the main deck, with lamp room, refrigerator and stairway to crew's quarters on the forward end, followed by galley and mess room, boiler and engine rooms, saloon, toilet and stairway to doctor's quarters, which are below the main deck aft. The captain's quarters will be placed on a texas abaft the wheel house on the upper deck. The hull will have a plate keel and be built of plates and bars in excess of Lloyds requirements for vessels of this size, and will be built under Lloyds special survey, class 100A. The dimensions will be:—length, extreme, 89 ft. 3 in.; length from forecastle of stem to afterside of stern post, 83 ft. 6 in.; beam, molded, 19 ft.; depth, 10 ft.; draft, with 15 tons of water and 30 tons of coal, to be 8 ft. at stern and 6 ft. at bow. The engine will be of the direct acting, inverted, compound surface condensing type, with cylinders 13 and 26 ins. diar. by 18 ins. stroke, making 150 revs. per minute, supplied with steam at 140 lbs. working pressure, by one marine boiler built to Lloyds survey, and to pass the requirements of the Canadian Steamboat Inspection Act, 10 ft. internal diar. by 9 ft. 6 ins. long, fitted with two Morrison's corrugated furnaces, 38 ins. diar. inside corrugations. Delivery is to be made at Halifax, N.S., within six months.

Tenders are being invited for another similar vessel of larger dimensions.

F. L. Corey, Dominion Atlantic Ry., Kentville, N.S., writes:—"During the year that has just past I gathered a great deal of valuable information from the Railway & Marine World, and think it invaluable to railway men."

Atlantic and Pacific Ocean Marine.

The Allan Line s.s. Numidian arrived at Halifax, N.S., with her bulkhead damaged and deck gear washed away. The damage, which was sustained during a storm off the Irish coast, was not serious.

The Allan Line is reported to have decided to equip all its passenger vessels with wireless telegraph apparatus, and to have placed a contract with the Marconi company. Several of the more important vessels have already been equipped.

H. A. Allan, of the Allan Line, is reported to have stated recently that the company would shortly call for for tenders for the construction of new vessels for its fleet. It is said that the boats will be of about 12,000 tons.

Major Moody, of the Mounted Police, on his recent return from Fort Churchill, is reported to have said that, with buoys and lights, Hudson Bay is good for navigation, but the trouble at present is with the many shoals and rocks, especially along the coast.

The steamships forming the Battle Line, managed by W. Thomson and Sons, St. John, N.B., each of which is owned by a separate company, are to be combined under one ownership, a company being in course of organization for that purpose.

The C.P.R. s.s. Empress of Ireland sailed from Liverpool, Eng., Feb. 11, for St. John, N.B., after having been overhauled after her accident in the St. Lawrence last fall. During the time she was under repair, the company operated one of the Allan Line steamships under charter.

The Allan Line s.s. Corinthian arrived at St. John, N.B., Feb. 3, inaugurating the St. John-London-Havre service under the new schedule, whereby Halifax has been eliminated as a port of call. Merchants at Halifax are taking the matter up with a view to the reinstatement of the port for this service.

Holt & Co., owners of the Blue Funnel Line, it is reported, will place the recently built s.s. Protesilaus in service between Liverpool, Eng., and Canadian Pacific ports, via the Suez Canal and Asiatic stations shortly. The vessel is 501 ft. long, with a deadweight capacity of 13,000 tons.

G. M. Bosworth, Fourth Vice President C.P.R., while in Austria recently in company with G. McL. Brown, European Manager, is reported to have said that if he were satisfied with the facilities at Trieste harbor, the scheme for a direct line between Canada and Austria would be immediately realized.

The Royal Commission appointed to enquire into the trade relations between Canada and the West Indies completed its work at Kingston, Jamaica, Feb. 2, and it is understood that the members were unanimously of the opinion that a subsidized fast weekly line of steamers between Canada and Jamaica would be of great benefit.

English rumor has again been busy with the statement that the C.P.R. was about to absorb the Allan Line, and that H. A. Allan would be placed in charge of the steamships, with the title of Fifth Vice President. Sir Thos. G. Shaughnessy, President C.P.R., who returned to Canada from Europe, Feb. 2, promptly denied the reports, and is credited with the statement that Mr. Allan had no connection with the C.P.R., and so far as he knew there was no prospect that he would have.

The Board of Railway Commissioners early in Feb. heard the application of the Elder Dempster Steamship Co. for an order directing the C.P.R. and G.T.R. to apply the established export rate on general merchandise shipped from Eastern Canada to Montreal, St. John and Halifax for shipment to British Columbia ports, by way of the Tehuantepec Isthmus. The Board's decision had not been announced at the time of going to press.

Press reports from various points state that the Canadian Northern Ry. has made arrangements for making Southampton its English port of call, and others state that application has been made to the authorities at Liverpool for berthing accommodation there. D. B. Hanna, Third Vice President, is at present in Europe for the purpose of making all necessary arrangements in connection with the inauguration of the C.N.R. Atlantic service, and until such arrangements have been completed, any such statements are, at least, premature.

An enquiry was held, Feb. 11, into the causes of the stranding of the Allan Line s.s. Corinthian at Halifax, N.S., in Dec. last. The commissioners found that the disaster was caused by an error of judgment on the part of the master in estimating his distance from a schooner showing no lights, and also from the shoal on the northwest point of George's Island, the error probably being due to the strong glare of the electric lights on the wharves. The master was held to have been fully justified in manœuvering the vessel as he did, and was exonerated from all blame for the stranding.

Maritime Provinces and Newfoundland.

The Newfoundland sealing fleet, which is due to leave St. John's about Mar. 10, will consist of 18 steamers. Last year, two of the steamers engaged were lost.

The Dartmouth ferry steamboat Halifax, which was recently considerably damaged by fire at Halifax, has been sold by tender for $850 to C. Brister and Sons, and will probably be broken up.

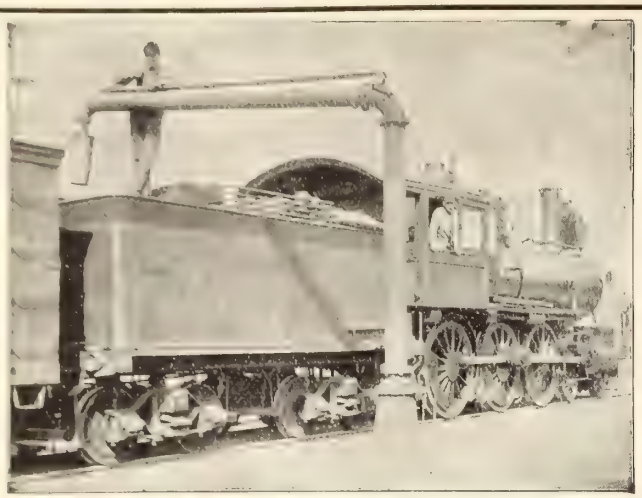
The Dominion Atlantic Ry. will, it is said, inauguarate a direct steamship service between Digby, N.S., and Boston, Mass., commencing July 1, leaving Digby every Wednesday and Saturday, and Boston every Tuesday and Friday.

The Nova Scotia bark Calcium while bound from French Guiana to Carteret, N.J., was destroyed by fire, Feb. 6, the crew being saved by the British s.s. Servian, and landed at Halifax, N.S., Feb. 8. The Calcium was built at Parrsboro, N.S., in 1896, her dimensions being:—length, 166.3 ft.; breadth, 35.9 ft.; depth, 18.7 ft.; tonnage, 687 register.

With a view to the abolition of duplicate names, the following changes have been made in the names of light stations, and the Marine Department has issued a notice that, in future, the new names only will be used:—Debert to Masstown, N.S.; Green Cove to Port Maitland, N.S.; Seal Island to Dog Island, N.S.; Marjories Isle and Gooseberry Island to Marjorie Island, N.S.; Grand Rustico to North Rustico, P.E.I.; Montee du Lac to Cap Brule, Que.

The Government has decided to introduce a bill into the House of Commons, providing for an increase in the aid which it may grant for the construction of dry docks in Canada, from a bonus of 3% for 20 years, on a maximum expenditure of $1,500,000, to 3% for 25 years. A recent proposal made to the Government in which several of the large transportation companies were said to be interested, included a bonus of 4% for 50 years on the cost of constructing dry docks at St. John, N.B., and Levis, Que.

The Summerville Tow Boat and Ferry Co. will probably build a steamboat for the forthcoming season to replace the Avon in the Avon River. The Avon, which has been on this route for nearly 20 years, has been condemned. At a meeting held at Windsor, N.S., recently, a committee was formed to sell sufficient



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A resolution adopted in the House of Commons, Feb. 7, called for the production of reports and surveys made of the Cape John harbor and Tatamagouche Bay, N.S., and recommended a change in the winter route between the mainland and Prince Edward Island, and also improved facilities between the two points, both summer and winter, and suggested that the P.E.I. winter port should be changed from Georgetown to Charlottetown, with a service to Tatamagouche Bay instead of Pictou.

Province of Quebec Marine.

The name of the car ferry, Henry R. James, no. 126,388, registered at Quebec, has been changed by order in council to John S. Thom.

The Department of Railways and Canals received tenders Feb. 22, for improving the approach to St. Gabriel locks on the Lachine canal.

Harbor improvements are being carried on at St. John's, concurrently with the widening of the channel of the Richelieu River. The channel will have a width of 300 ft., with a depth of 14 ft., but the work will not be completed for several years.

The longshoremen of Montreal have notified the steamship companies there that they desire the abolition of the bonus system, which has prevailed for many years. The rates at present in force are 27½c. an hour for day work and 32½c. for night work, with a bonus of 2½c. an hour, payable at the end of the season, to those who complete the season. They are asking for flat rates of 30 and 35c. an hour.

Ontario and the Great Lakes.

Capt. H. Boult, of the steamboat Turret Chief, died at Collingwood, Feb. 6, aged 39.

The name of the steamboat Camilla, no. 100,024, registered at Toronto, has been changed by order in council to Russell Roque.

The Michigan Central Rd., is reported to be planning the erection of a bridge across the Welland canal, to be operated by electricity for the passage of vessels.

The Reid Wrecking Co.'s steam tug, City of Sarnia, which it has recently constructed to replace the tug Ottawa, destroyed by fire last fall, was given a trial run, Feb. 4.

The London city council will place in the estimates for the current year, $1,000 for dredging the River Thames, and will also ask for tenders for building a dredge for the purpose.

The Argyle Steamship Co. has purchased a steamboat for service on Lake Ontario, in conjunction with its present vessel, the Argyle. Capt. Moller recently went to England for this purpose.

The Toronto Ferry Co. has ordered from the Polson Iron Works, Toronto, a ferry steamboat, 185 ft. long, 44 ft. beam, capable of carrying 2,200 passengers. The contract price is stated to be $80,000.

The Richelieu and Ontario Navigation Co., will probably utilize the steamboat Rapids King as a freighter between Montreal, Toronto and Hamilton during the forthcoming season.

Capt. E. A. Booth of the Richelieu and Ontario Navigation Co.'s steamboat Toronto, will, at the opening of navigation, be transferred to the steamboat Kingston, and Capt. Redfern of the Belleville, will take his place on the Toronto.

The Richelieu and Ontario Navigation Co. intends, during next year, to improve its Saguenay division, and will either build new boats, or lengthen and rebuild the steamboats Murray Bay and Tadousac.

The Richelieu and Ontario Navigation Co. has leased the premises at 48 Yonge St., Toronto, previously occupied by the Royal Bank, for offices, which it will share with the Chicago and North Western Ry.

The steamboat Wissachickon which was driven ashore on the Outer Duck Island on the north shore of Georgian Bay in December last, was released Feb. 7, and taken to a safe anchorage between the islands. It is reported that she has not suffered much damage.

The Porcupine Transportation and Trading Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $40,000 and office at Cobalt, to own and operate steam and other vessels, and to carry on a general business of carriers of passengers and freight.

The Huntsville, Lake of Bays and Lake Simcoe Navigation Co.'s annual meeting was held at Toronto, Feb. 9, when the report for 1909 was adopted. The amount in hand at the end of the year was transferred to profit and loss, no dividend being declared. The officers and directors were re-elected for the current year.

The Richelieu and Ontario Navigation Co. is rebuilding its steamboat Three Rivers at Sorel. The company's new Rapids steamboat, which is under construction at Toronto, is expected to be ready for service by July 1, and its steamboat, Rochester, under construction at Detroit, Mich., early in June.

The Niagara Navigation Co. has appointed the following officers to its vessels for the coming season:—Cayuga, captain, J. McGiffin; engineer, G. Arnold; Chippewa, captain, G. J. Smith; engineer, H. Parker. Corona, captain, W. Malcolm; engineer, A. J. Woodward. Chicora, captain, H. King; engineer, J. Finlay.

The Welland Board of Trade passed a resolution Feb. 2, a copy of which was forwarded to the Minister of Railways and Canals, asking the Department to record freight rates on all produce passing through the canals, by having the bills of lading state distinctly the rate the vessel was obtaining before the canal pass should issue.

The U.S. Lake Survey reports the levels of the Great Lakes, for Jan., in feet above tidewater, as follows:—Superior, 601.96; Michigan and Huron, 579.96; Erie, 571.26; Ontario, 244.94. As compared with the average stages for the past ten years, Superior was 0.41 ft. below; Michigan and Huron, 0.18 ft. below; Erie, 0.45 ft. below, and Ontario 0.41 ft. below.

The Canadian Association of Masters and Mates held its eighth annual meeting in Toronto, Feb. 8, and decided to dissolve the organization. Those in attendance then organized as the Shipmasters' Association of Canada, and elected the following officers for the current year:—Capt. J. H. McMaugh, Grand Master; Capt. J. McGiffin, Grand First Officer; Capt. H. O. Jackson, Grand Secretary-Treasurer.

The Montreal River Transportation Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $40,000 and office at Toronto, to own and operate steam and other vessels and other means of transportation, and to carry on the business of common carrier. The provisional directors are, W. M. Kervin, Callander, Ont.; W. H. Garvey, J. A. Rowland, A. Dwyer, J. N. Mulholland, Toronto.

The Mutual Steamship Co.'s annual meeting was held at Welland, Feb. 4. A dividend of 6% for the year 1909 has been declared. Following are the officers and directors for the current year:—President, D. McGillivray, Port Colborne; Vice President, W. E. Phin, Welland; Managing Director, J. W. Norcross, Toronto; other directors, W. M. German, Welland, and R. M. Wolvin, Duluth, Minn.

The Farrar Transportation Co.'s annual meeting was held at Collingwood, Jan. 25. Following are the officers and directors for the current year:—President, D. D. Lewis, Philadelphia, Pa.; Vice President, T. I. Thompson, Owen Sound; Managing Director and Secretary-Treasurer, G. E. Fair, Collingwood; other directors, E. Stubbs, G. P. Pearsall, M. Snetsinger, E. R. Wayland, W. E. Allen, A. W. Howe, and J. G. Ferris.

With a view to the abolition of duplicate names, the following changes have been made, and the Marine Department has issued a notice that, in future, the new names only will be used:—Stonehouse point to Glengarry point; Brown's point to Knapp point; Gage point to Ninemile point; Indian point to Point Pleasant; Egg Island to Scotch Bonnet; Gull island to Peter Rock; North Foreland to Long point; Big Otter creek to Port Burwell.

The Kingston civic finance committee has recommended to the city council, that a by-law be submitted to the taxpayers as soon as possible, granting exemption from taxation to the Kingston

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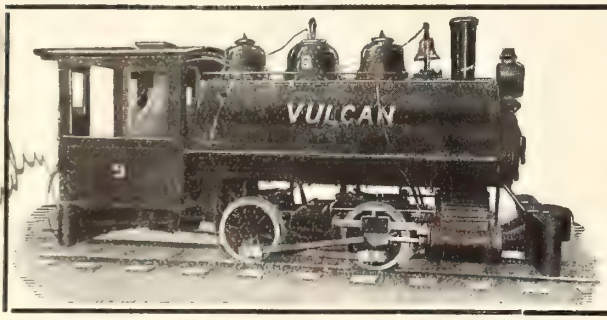

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J. W. Norcross, of the Mutual Steamship Co., Toronto, and R. M. Wolvin, of Duluth, Minn., are having a vessel built at Port Glasgow, Scotland, of which the following are the chief details:—length between perpendiculars, 250 ft.; breadth, 42 ft. 8 ins.; depth to awning deck, 20 ft. 6 ins.; draft, 14 ft.; deadweight capacity, 2,451 tons; hold capacity, 136,539 cubic ft.; 'tween deck capacity, 8,043 cubic ft. The engines have cylinders 17, 28 and 46 ins., diar., by 33 ins. stroke, supplied with steam at 185 lbs. pressure by two boilers, each 12 ft. by 11 ft. The vessel is built for a speed of 9½ knots an hour when loaded.

The Steamers Agency, Ltd., Montreal, is having a vessel built at Port Glasgow, Scotland, for the lake trade, of which the following are the chief particulars:—length, between perpendiculars, 249 ft.; breadth, 43 ft.; depth to awning deck, 26 ft. 6 ins.; draft, 14 ft.; deadweight capacity, 2,338 tons; capacity of hold, 102,059 cubic ft.; capacity 'tween decks, 73,101 cubic ft. The engines have cylinders 18, 30 and 50 ins. diar., by 36 ins. stroke, supplied with steam by two boilers, each 13 ft. by 10 ft. 6 ins., at 180 lbs. pressure. The vessel is built for a speed of 9½ knots an hour when loaded. The Steamers Agency is controlled by Munderloh & Co., Montreal. It is said the vessel will be largely used in the Wallaceburg sugar trade.

At a recent meeting of the Lake Carriers Association and the Great Lakes Protective Association, at Detroit, Mich., A. A. Wright, President Dominion Marine Association, said insurance rates could only be brought down by the united action of vessel owners. The present rate to Lake Ontario is 6%, and to Montreal 7%, and he added that two-thirds of the premiums paid on the insurance of these ships has remained in the pockets of the underwriters. He also mentioned that the valves of the Canadian lock at the Sault canal are too large, thus causing the too sudden flooding of the locks, masters having frequent difficulty in controlling their vessels. President Livingstone spoke on the necessity of additional lockage facilities at the Sault, and urged the Canadian members to begin at once an agitation for the construction of a second lock on the Canadian side of the St. Marys River.

Manitoba, Saskatchewan and Alberta.

The Arctic Ice Co., Winnipeg, has awarded a contract for the construction of a twin screw steam tug for operation on the Red River. She will be 70 ft. long over all, 16 ft. 6 ins. beam, and 4 ft. 6 ins. draft, and will be of steel throughout.

H. Sutherland, Executive Agent Canadian Northern Ry., Winnipeg, is having built a twin screw steamboat for operation on Lake Winnipeg, in the stone trade. She will be built of steel, and will be 175 ft. long, by 40 ft. beam.

J. H. Hyland, of the Hyland Navigation and Trading Co., has called the attention of the Winnipeg board of control to the fact that the navigable channel of the Red River has been made very crooked, and in some places dangerous, owing to the number and style of bridges which have been erected across it from time to time. He opposed the proposed erection of a bridge at the foot of Lombard St., Winnipeg, and stated that, probably, there would be 25 boats running on the river this year.

The question of the development of western waterways was brought up in the Senate Feb. 11, when Senator Davis asked for surveys and reports on proposals to improve the navigation of the Saskatchewan River, in order to facilitate passenger and freight traffic from the Rockies to Winnipeg. He said that with a little improvement a waterway could be opened from Edmonton to Winnipeg, by way of the North Saskatchewan and Saskatchewan Rivers and Lake Winnipeg, and by the South Saskatchewan River between Medicine Hat and Winnipeg. By the North Saskatchewan, Edmonton was about 500 miles to the Forks, and from Medicine Hat to the Forks, by the South Saskatchewan, it was 370 miles. Very little dredging would have to be done, but there would have to be some cutting to bring Lakes Manitoba, Winnipeg and Winnipegosis into the system.

B.C. and Pacific Coast Marine.

The vessel which the Boscowitz Steamship Co. is having built on the Clyde, Scotland, will be 180 ft. long, 32 ft. wide, and 19 ft. deep, with 500 tons deadweight capacity, and accommodation for 56 first class passengers, in adidtion to a large third class capacity.

The C.P.R. is adding a vessel to its B.C. Lake and River Service, which is to be ready for next year's trade. The hull is to be of steel throughout, and engines of the tandem compound type. The contract price is stated to be about $120,000. She will operate on the Arrow Lake and adjacent waters, and it is reported that another vessel will probably be ordered in the near future for operation on Kootenay Lake.

Press reports from the Pacific coast state that the Union Steamship Co., Vancouver, B.C., has ordered a steamboat for the coast trade between Vancouver and Prince Rupert. The hull, it is stated, is under construction at Dublin, Ireland, which after launching, will be taken to Belfast for the installation of machinery.

Capt. T. H. Worsnop, of the Canadian-Mexican Line, left Victoria recently for England, where he will arrange for the acquirement of two, and possibly three vessels for this service. The company is at present operating the steamships Georgia and Lonsdale under charter, between Victoria and Vancouver and Salina Cruz, and this charter expires in June, when they are to be returned to England. The new vessels, it is reported, will arrive on the coast in May and June.

The Dominion Government Hydrographic steamer Cartier, which was launched recently at Newcastle, Eng., was designed for the Pacific Coast hydrographic service. There are a large number of watertight compartments ensuring her safety when she is in uncharted waters. Her equipment includes two gasolene launches, fitted with drawing boards, for use on shore soundings, and in the chart room, which is especially large, a special drawing table has been fixed. The vessel is steam heated throughout, and fitted with improved ventilation to provide for extremes of temperature. Full particulars of this vessel were given in our Oct., 1909, issue.

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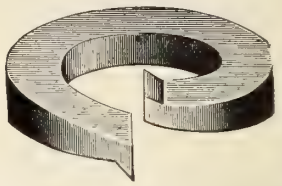

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MISSOURI LAMP & MFG. CO.

116 Elm St., St. Louis, Mo.

J. A. MILLER & CO., - Winnipeg

Agents for Western Canada.

Standard Paint & Varnish Co. Limited

Makers of High Grade Varnishes, Japans, Paints, Colors & Enamels.

Windsor Ont.

Bridges
Canadian Bridge Co..... Walkerville, Ont.
Dominion Bridge Co..... Montreal.

Bronze
American Vanadium Co.....Pittsburg, Pa.

Buckets, Coal, Ore and Concrete
M. Beatty & Sons, Ltd. .....Welland, Ont.
Brown Hoisting Machinery Co. Cleveland.

Buildings, Steel
Canadian Bridge Co..... Walkerville, Ont.
Dominion Bridge Co..... Montreal.

Bumping Posts
Dominion Equip't & Supply Co., Winnipeg.
The Holden Co., Ltd..... .....Montreal.
McCord & Co. .....Chicago, Ill.

Buoy Lighting
Safety Car Heat. & Light. Co..New York.

Buoys
International Marine Signal Co....Ottawa.

Cables Electric and Feeder
Chapman & Walker, Ltd.....Toronto.
E. F. Phillips Electrical Works....Montreal.
The Wire and Cable Co.....Montreal.

Caps, Uniform
W. H. Coddington .....Hamilton, Ont.

Car Loaders, Box
Mussens, Ltd. .....Montreal.

Car Movers
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.

Cars
R. M. Burns & Co.....Chicago, Ill.
Canada Car Co., Ltd.....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Dominion Car and Foundry Co....Montreal.
J. T. Gardner.....Chicago, Ill.
Hart-Otis Car Co., Ltd.....Montreal.
Hicks Locomotive and Car Works. Chicago.
Ottawa Car Co. Ltd.....Ottawa.
Preston Car and Coach Co., Ltd..Preston.
Russel Wheel & Fdry. Co....Detroit, Mich.
Silliker Car Co., Ltd.....Halifax, N.S.

Cars, Logging
Russel Wheel & Fdry. Co....Detroit, Mich.

Castings
American Vanadium Co.....Pittsburg, Pa.
Crossen Car Mfg. Co.....Cobourg, Ont.
I. Matheson & Co. .....New Glasgow, N.S.
Russel Wheel & Fdry. Co....Detroit, Mich.
Standard Steel Works Co..Philadelphia, Pa.

Castings, Brass
Canadian Bronze Co.....Montreal.
Canada Iron Corporation, Ltd....Montreal.
Kerr Engine Co.....Walkerville, Ont.
I. Matheson & Co. .....New Glasgow, N.S.
Tallman Brass & Metal Co., Ltd.Hamilton.

Castings, Car
American Brake Shoe & Fdry Co.Mahwah.
Canada Iron Corporation, Ltd....Montreal.
Russel Wheel & Fdry. Co....Detroit, Mich.

Castings, Iron
Allis-Chalmers-Bullock Ltd.....Montreal.
Canada Car Co., Ltd.....Montreal.
Canada Iron Corporation, Ltd....Montreal.
Kerr Engine Co.....Walkerville, Ont.
Russel Wheel & Fdry. Co....Detroit, Mich.

Castings, Iron and Steel
American Brake Shoe & F'dry Co.Mahwah.

Castings, Malleable
Galt Malleable Iron Co.....Galt, Ont.
Taylor & Arnold.....Montreal.

Castings, Manganese Steel
Montreal Steel Works, Ltd.....Montreal.

Castings, Steel
American Vanadium Co.....Pittsburg, Pa.
Canada Iron Corporation, Ltd....Montreal.
Montreal Steel Works.....Montreal.

Chains
B. J. Coghlin & Co.....Montreal.

Closets, Car
Duner Co.....Chicago, Ill.

Coal
Nova Scotia S. & C. Co., New Glasgow, N.S.

Compressors, Air
Allis-Chalmers-Bullock Ltd.....Montreal.
Canadian Rand Co.....Montreal.
Vandeleur & Nichols.....Toronto.

Concrete Mixers and Rock Crushers
F. H. Hopkins & Co. .....Montreal.
Mussens Limited.....Montreal.
Toronto Pressed Steel Co. .....Toronto.

Contractors' Supplies
F. H. Hopkins & Co.....Montreal
Rice Lewis & Son.....Toronto.
Russel Wheel & Fdry. Co....Detroit, Mich.
Toronto Pressed Steel Co.....Toronto.

Conveyors, Coal and Ash
Babcock & Wilcox, Ltd.....Montreal.

Copying Presses
James Smart Mfg. Co.....Brockville, Ont.

Couplers, Car and Locomotive
Dominion Car and Foundry Co..Montreal.
McConway & Torley Co....Pittsburgh, Pa.
Montreal Steel Works, Limited..Montreal.
Taylor & Arnold.....Montreal.

Cranes
Brown Hoisting Machinery Co..Cleveland.
Northern Engineering Works, Detroit, Mich.

Cranes, Electric
Babcock & Wilcox.....Montreal.
Dominion Bridge Co.....Montreal.
Mussens Limited.....Montreal.

Cranes, Locomotive
American Hoist and Derrick Co..St. Paul.

Cranes, Wrecking
Mussens Limited.....Montreal.

Crowbars
B. J. Coghlin & Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.

Curtains and Fixtures, Car
The Holden Co., Ltd.....Montreal.
Preston Car & Coach Co...Preston, Ont.

Cuts
Acton Burrows, Limited.....Toronto.

Cylinders
American Vanadium Co.....Pittsburg, Pa.

Derailing Devices
General Railway Signal Co., Rochester, N.Y.

Derricks
American Hoist and Derrick Co..St. Paul.
M. Beatty & Sons.....Welland, Ont.
Mussens Limited.....Montreal.

Dies
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Ditchers
M. Beatty & Sons.....Welland, Ont.

Diving Outfits
John Date.....Montreal.
Mussens Limited.....Montreal.

Doors, Steel Rolling
Mussens Limited.....Montreal.

Door Signs
Acton Burrows Limited.....Toronto.

Draft Gear
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Standard Coupler Co.....New York City.
T. H. Symington & Co.....Baltimore, Md.
Union Draft Gear Co. .....Chicago, Ill.
Waugh Draft Gear Co.....Chicago, Ill.

Draughtsmen's Supplies
John A. Hart & Co.....Winnipeg.

Dredges
M. Beatty & Sons.....Welland, Ont.
Polson Iron Works, Ltd. .....Toronto.

Drills, Air
Canadian Rand Co.....Montreal.

Dry Goods
The Hudson's Bay Co.....

Dump Cars (Contractors')
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montre l.

Dynamos
Vandeleur & Nichols.....Toronto.

Dynamo and Electric Castings
American Brake Shoe & F'dry Co.Mahwah.

Economizers
Babcock & Wilcox (Ltd.).....Montreal.

Electric Apparatus
Allis-Chalmers-Bullock Ltd.....Montreal.
Chapman & Walker, Ltd.....Toronto.
Vandeleur and Nichols.....Toronto.

Electric Car Route Signs
Acton Burrows Limited.....Toronto.
Preston Car & Coach Co...Preston, Ont.

Electric Light Plant
Allis-Chalmers-Bullock Ltd.....Montreal.

Elevators, Grain
John S. Metcalf Co.....Chicago, Ill.

Enameled Iron Signs
Acton Burrows Limited.....Toronto.

Engines, Automatic
Robb Engineering Co., Ltd..Amherst, N.S.
Polson Iron Works, Ltd. .....Toronto.
Russel Wheel & Fdry. Co....Detroit, Mich.

Engines, Corliss
Allis-Chalmers-Bullock Ltd.....Montreal.
Robb Engineering Co., Ltd..Amherst, N.S.

Engines, Gas
Allis-Chalmers-Bullock Ltd.....Montreal.
Vandeleur & Nichols.....Toronto.

Engines, Gasolene
Canadian Fairbanks Co., Ltd.....Montreal.
Ontario Wind Engine & Pump Co.Toronto.
Vandeleur & Nichols.....Toronto.

Engines, Hoisting
Allis-Chalmers-Bullock Ltd.....Montreal.
American Hoist and Derrick Co..St. Paul.
M. Beatty & Sons.....Welland, Ont.
Dominion Equip't & Supply Co., Winnipeg.
I. Matheson & Co. .....New Glasgow, N.S.
Polson Iron Works, Ltd. .....Toronto.
Russel Wheel & Fdry. Co....Detroit, Mich.

Engines, Stationary and Marine
I. Matheson & Co. .....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Engines, Steam
Allis-Chalmers-Bullock Ltd. ....Montreal.
Vandeleur & Nichols.....Toronto.

Explosives
Standard Explosives Limited ...Montreal.

Express Office Signs
Acton Burrows Limited.....Toronto.

Fencing
New Brunswick Wire Fence Co., Moncton.
Owen Sound Wire Fence Co., Owen Sound.

Ferro-vanadium
American Vanadium Co.....Pittsburg, Pa.

Fire Appliances
Miller Chemical Engine Co., Chicago, Ill.

Fire Brick
Mussens Limited .....Montreal.

Flags
The Hudson's Bay Co. .....

Flour
The Hudson's Bay Co. .....

Forgings
American Vanadium Co.....Pittsburg, Pa.
Canada Car Co., Limited .....Montreal.
Cleveland City Forge & Iron Co., Cleveland.
Crossen Car Mfg. Co. .....Cobourg, Ont.
Hamilton Steel & Iron Co., Ltd., Hamilton.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Standard Steel Works Co., Philadelphia, Pa.

Foundry Appliances
Goldschmidt Thermit Co. .....Toronto.
Ont. Wind Eng. & Pump Co., Ltd., Toronto.

Frogs
Canadian Ramapo Iron Wks., Niagara Falls.

Furnaces, Corrugated
Continental Iron Works.....Brooklyn, N.Y.

Fuse Batteries
Standard Explosives Limited....Montreal.

Fuse Detonators
Standard Explosives Limited....Montreal.

Fuses, Electric
Standard Explosives Limited....Montreal.

Gaskets
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.

Gates
New Brunswick Wire Fence Co., Moncton.
Owen Sound Wire Fence Co..Owen Sound.

Gates, Crossing
General Railway Signal Co. Rochester, N.Y.
The N. L. Piper Ry. Supply Co..Toronto.

Gauges, Locomotive
Taylor & Arnold.....Montreal.

Gears
American Vanadium Co.....Pittsburg, Pa.

Grates, Shaking
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.
Vandeleur & Nichols.....Toronto.

Groceries
The Hudson's Bay Company.....

Guides and Outfitters
Otto Bros. ..... Field, B.C.

Hammers, Cast Steel
American Brake Shoe & F'dry Co.Mahwah.
James Smart Mfg. Co....Brockville, Ont.

Handcars
Canadian Fairbanks Co., Ltd.....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Rice Lewis & Son.....Toronto.

Hardware
The Hudson's Bay Co.....
Rice Lewis & Son..'.....Toronto.

Hats
W. H. Coddington .....Hamilton, Ont.

Headlights
Commercial Acetylene Co. ..... Toronto.
The N. L. Piper Ry. Supply Co..Toronto.
Pyle National Elec. Headlight Co..Chicago.

Headlinings
Crossen Car Mfg. Co.....Cobourg, Ont.

Heaters, Feedwater
Robb Engineering Co., Ltd..Amherst, N.S.

Heating, Car
Canadian Gold Car H'g & L'g Co.Montreal.
Safety Car Heating & L'ting Co.New York.

Hoists, Electric
American Hoist & Derrick Co....St. Paul.
Northern Engineering Works, Detroit, Mich.

Hoists (Pneumatic)
Taylor & Arnold.....Montreal.

Hollow Staybolt Iron and Steel Bars
Falls Hollow Staybolt Co.Cuyahoga Falls.

Hoppers, Car (Wet or Dry)
Duner Co.....Chicago, Ill.

Hydrants
Canadian Fairbanks Co., Ltd.....Montreal.
Kerr Engine Co.....Walkerville, Ont.

Illustrations
Acton Burrows Limited.....Toronto.

Injectors
T. McAvity & Sons .....St. John, N.B.

Inspections
R. W. Hunt & Co. .....Montreal

Insurance, Accident
Can. Casualty & Boiler Ins. Co., Toronto.
Canadian Ry. Accident Ins. Co....Ottawa.

Insurance, Boiler
Canadian Casualty & Boil. Ins. Co.Toronto

Interlocking Plant and Signals
General Railway Signal Co. Rochester, N.Y.
Montreal Steel Works.....Montreal.
Saxby and Farmer, Ltd.....Montreal.

Iron and Steel Bars
Hamilton Steel & Iron Co., Ltd..Hamilton.

Iron, Pig
Hamilton Steel & Iron Co., Ltd..Hamilton.
Nova Scotia S. & C. Co., New Glasgow, N.S.

Iron Signs
Acton Burrows Limited.....Toronto.

Iron Staybolt Bars
Falls Hollow Staybolt Co..Cuyahoga Falls.

Jacks
Canadian Fairbanks Co., Ltd.....Montreal.
Dominion Equip't & Supply Co., Winnipeg.
H and E Lifting Jack Co..Waterville, Que.
F. H. Hopkins & Co, Ltd.....Montreal.
Montreal Steel Works, Ltd.....Montreal.
Mussens Limited.....Montreal.
A. O. Norton.....Coaticook, Que.
James Smart Mfg. Co.....Brockville, Ont.
A. R. Williams Mchy. Co., Ltd....Toronto.

Japans
The Dougal Varnish Co. Ltd....Montreal.
Journal Bearings
Canadian Bronze Co.....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Kerr Engine Co.....Walkerville, Ont.
Jas. W. Pyke & Co.....Montreal.
Journal Boxes
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Journal Jacks
A. R. Williams Mchy. Co., Ltd....Toronto.
Lager Beer, &c.
E. L. Drewry.....Winnipeg.
Lagging and Covering, Locomotive
Taylor & Arnold.....Montreal.
Lamps, Incandescent
Canadian Westinghouse Co..Hamilton, Ont.
Lamps and Lanterns
The Hudson's Bay Company.....
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Lamps, Switch
The N. L. Piper Ry. Supply Co..Toronto.
Lathes
John Bertram & Sons Co.....Dundas, Ont.
Laths
J. Harrison & Sons Co..Owen Sound, Ont.
Lighting, Car
Canadian Gold Car H'g & L'g Co.Montreal
Safety Car H't'g & L't'g Co..New York.
Lights, Contractors' and Wrecking
F. H. Hopkins & Co.....Montreal.
International Marine Signal Co. ..Ottawa.
Mussens Limited.....Montreal.
Locomotives (Compressed Air)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co...Kingston, Ont.
Montreal Locomotive W'ks (Ltd.).Montreal.
Locomotives (Electric)
Baldwin Locomotive Works..Philadelphia.
Montreal Locomotive W'ks (Ltd.).Montreal.
Locomotives (Logging)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co....Kingston, Ont.
Locomotives (Rack)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co....Kingston, Ont.
Montreal Locomotive Works.....Montreal.
Locomotives (Steam)
American Car & Equip. Co....Chicago, Ill.
Baldwin Locomotive Works..Philadelphia.
R. M. Burns & Co.....Chicago, Ill.
Canadian Fairbanks Co., Ltd.....Montreal.
Canadian Locomotive Co....Kingston, Ont.
Dominion Equip't & Supply Co., Winnipeg.
J. T. Gardner.....Chicago, Ill.
Hicks Locomotive & Car Works..Chicago.
Montreal Locomotive W'ks. .....Montreal.
Vulcan Iron Works.....Wilkesbarre, Pa.
Lorries, Tracklaying
Crossen Car Mfg. Co.....Cobourg, Ont.
F. H. Hopkins & Co.....Montreal.
Lubricators
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Taylor & Arnold.....Montreal.
Lumber
Parry Sound Lumber Co.....Toronto.
J. Harrison & Sons Co., Owen Sound, Ont.
Machinery, Cement
Jas. W. Pyke & Co.....Montreal.
Machinery and Plant, Contractors'
American Hoist & Derrick Co....St. Paul.
M. Beatty & Sons..... Welland, Ont.
R. M. Burns & Co.....Chicago, Ill.
Canadian Fairbanks Co., Ltd.....Montreal.
J. T. Gardner.....Chicago, Ill.
General Railway Signal Co., Rochester, N.Y.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Toronto Pressed Steel Co.....Toronto.
Machinery, Hoisting
American Hoist & Derrick Co....St. Paul.
Brown Hoisting Machinery Co..Cleveland.
Machinery, Tracklaying
F. H. Hopkins & Co.....Montreal.
Machinery, Logging
Russel Wheel & Fdry. Co....Detroit, Mich.
Machinery, Wood and Iron Working
Canadian Fairbanks Co., Ltd.....Montreal.
Machines, Boring and Turning
John Bertram & Sons Co.....Dundas, Ont.
Machines, Drilling
John Bertram & Sons Co.....Dundas, Ont.
Machines, Milling
John Bertram & Sons Co.....Dundas, Ont.
Machines, Planing and Shaping
John Bertram & Sons Co.....Dundas, Ont.
Machines, Radial Drilling
John Bertram & Sons Co.....Dundas, Ont.
Machines, Shaping
John Bertram & Sons Co.....Dundas, Ont.
Machines, Slotting
John Bertram & Sons Co.....Dundas, Ont.
Machine Tools
John Bertram & Sons Co.....Dundas, Ont.
Pratt & Whitney Co. .....Dundas, Ont.
Manhole Frames and Covers
American Brake Shoe & F'dry Co.Mahwah.
Canada Iron Corporation, Ltd....Montreal.
Marine Repairs
Goldschmidt Thermit Co.....Toronto.
Marine Supplies
Rice Lewis & Son.....Toronto.
Metal, Anti-friction
W. Abbott.....Montreal.
Metal, Babbit
Tallman Brass & Metal Mfg. Co. Hamilton.
Metals
Goldschmidt Thermit Co.....Toronto.
Metal Work, Structural
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Montreal Locomotive W'ks (Ltd.).Montreal.
Jas. W. Pyke & Co.....Montreal.
Milepost Numbers
Acton Burrows Limited.....Toronto.
Motors
Canadian Fairbanks Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Motors, Electric
Allis-Chalmers-Bullock Ltd.....Montreal.
Canadian Crocker Wheeler Co., Montreal.
Chapman & Walker, Ltd.....Toronto.
Vandeleur and Nichols.....Toronto.
Motor Generator Sets
Allis-Chalmers-Bullock Ltd.....Montreal.
Chapman & Walker, Ltd.....Toronto.
Vandeleur and Nichols.....Toronto.
Motors, Turntable
Taylor & Arnold.....Montreal.
Nickel
The Orford Copper Co.....New York
Nickel for Nickel Steel
The Orford Copper Co.....New York.
Numbers
Acton Burrows Limited.....Toronto
Nut Locks
Positive Lock Washer Co....Newark, N.J.
Nuts, Clevis
Cleveland City Forge & Iron Co., Cleveland.
Nuts, Square and Hexagon
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto
Oakum
The Hudson's Bay Company.....
Office Fittings
Can. Office & Sch'l Furniture Co..Preston
Office Signs
Acton Burrows Limited.....Toronto
Oils
Galena Signal Oil Co..Franklin & Toronto
Packing
The N. L. Piper Ry. Supply Co..Toronto
Paints
Standard Paint & Var. Co., Windsor, Ont.
Patterns
Hamilton Pattern Works....Hamilton, Ont.
Pile Drivers, Railway
F. H. Hopkins & Co.....Montreal.
Mussens Limited. .....Montreal.
Pinch Bars
The N. L. Piper Ry. Supply Co..Toronto.
Pipe, Culvert (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.
Pipe, Gas (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.
Pipe, Sewer (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.
Pipe Stocks
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.
Pipe, Water (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.
Planers
John Bertram & Sons Co.....Dundas, Ont.
Platforms, Steel
Standard Coupler Co.....New York City.
Ploughs, Contractors'
Mussens Limited.....Montreal.
Poles
J. Harrison & Sons Co., Owen Sound, Ont.
Porter
E. L. Drewry.....Winnipeg.
Posts
J. Harrison & Sons Co., Owen Sound, Ont
Powder, Blasting
Standard Explosives Limited.....Montreal
Printing
Southam Press.....Toronto
Pumps
Canadian Fairbanks Co., Ltd.....Montreal
S. F. Bowser & Co., Limited.....Toronto
Ontario Wind Engine & Pump Co..Toronto
James Smart Mfg. Co.....Brockville, Ont
Vandeleur and Nichols.....Toronto.
Pumps (Centrifugal)
M. Beatty & Sons .....Welland, Ont.
Rail Benders, Roller
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works.....Montreal.
Rail Drilling Machines
A. B. Jardine & Co.....Hespeler, Ont.
Rails (new)
Dominion Iron & Steel Co....Sydney, N.S.
Drummond, McCall & Co. .....Montreal.
J. T. Gardner.....Chicago, Ill.
J. J. Gartshore.....Toronto.
F. H. Hopkins & Co.....Montreal.

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Patent Water-Tube Boilers
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The Purchasing Agents' Guide—Continued.

Rails (for relaying)
F. H. Hopkins & Co...'.....Montreal.
J. J. Gartshore.....Toronto.
Mussens Limited.....Montreal.
Jas. W. Pyke & Co.....Montreal.

Rail Joints
Goldschmidt Thermit Co.....Toronto.
The Rail Joint Co. of Canada....Montreal.

Railway Supplies
Canadian Fairbanks Co., Ltd.....Montreal.
T. McAvity & Sons .....St. John, N.B.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Rice Lewis & Son.....Toronto.
Burton W. Mudge & Co.....Chicago, Ill.
Russel Wheel & Fdry. Co....Detroit, Mich.

Reamers
Butterfield & Co.. .....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Replacers, Car and Locomotive
Alexander Car Replacer Mfg. Co..Scranton.
Dominion Equip't & Supply Co., Winnipeg.
The Holden Co., Ltd .....Montreal.
F. H. Hopkins & Co.....Montreal.

Rivets, Boiler, Bridge and Structural
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.

Rock Crushers
Allis-Chalmers-Bullock Ltd.....Montreal.
Willis Shaw Machinery Co...Chicago, Ill.

Roofing, Car
Drake & Wiers Co.....Cleveland, O.

Rope
F. H. Hopkins & Co.....Montreal.
The Hudson's Bay Company.....

Ropes, Coal Haulage
The B. Greening Wire Co..Hamilton, Ont.

Ropes, Derrick
Dominion Wire Rope Co.....Montreal.
The B. Greening Wire Co..Hamilton, Ont.

Ropes, Switch
The B. Greening Wire Co..Hamilton, Ont.
F. H. Hopkins & Co.....Montreal.

Scales
Canadian Fairbanks Co., Ltd.....Montreal.

Scows, Dump and Deck
M. Beatty & Sons.....Welland, Ont.

Scrapers, Wheel and Drag
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.

Screw Plates
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Screws, Coach and Lag
Montreal Rolling Mills Co.....Montreal
Toronto Bolt and Forging Co.....Toronto.

Seats, Station
James Smart Mfg. Co....Brockville, Ont.

Semaphore Arms
Acton Burrows Limited.....Toronto.

Semaphores
General Railway Signal Co., Rochester, N.Y.
The N. L. Piper Ry. Supply Co..Toronto.
Saxby & Farmer, Ltd. .....Montreal.

Shafting, Hollow
Falls Hollow Staybolt Co..Cuyahoga Falls.

Shingles
J. Harrison & Sons Co..Owen Sound, Ont.

Ships
Polson Iron Works.....Toronto.

Shops
The Hudson's Bay Co.....

Signal House Numbers
Acton Burrows Limited.....Toronto.

Signals
General Railway Signal Co. Rochester, N.Y.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Saxby and Farmer, Limited.....Montreal.

Signals, Fog
International Marine Signal Co....Ottawa.

Signs
Acton Burrows Limited.....Toronto.

Skidders and Loaders
Russel Wheel & Fdry. Co....Detroit, Mich.

Slack Adjusters
Chicago Railway Equipment Co..Chicago.

Sledges
James Smart Mfg. Co.....Brockville, Ont.

Smoke Jacks
Paul Dickinson, Inc. ..... Chicago, Ill.

Snow Ploughs
Crossen Car Mfg. Co.....Cobourg, Ont.

Solder
Tallman Brass & Metal Mfg. Co. Hamilton.

Spikes, Railway, Ship or Pressed
Hamilton Steel & Iron Co., Ltd.Hamilton.
F. H. Hopkins & Co.....Montreal.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Toronto Bolt and Forging Co.....Toronto.

Spreader Cars
F. H. Hopkins & Co.....Montreal.

Spring Dampeners
McCord & Co.....Chicago, Ill.

Springs
American Vanadium Co.....Pittsburg, Pa.
B. J. Coghlin & Co.....Montreal.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works.....Montreal.
Standard Steel Works Co..Philadelphia, Pa.

Stand Pipes
T. McAvity & Sons .....St. John, N.B.

Sprinklers, Electric
Preston Car & Coach Co. .. Preston, Ont.

Station Name Signs
Acton Burrows Limited.....Toronto.

Staybolt Bars, Charcoal Iron
Falls Hollow Staybolt Co..Cuyahoga Falls.

Staybolt Iron
Taylor & Arnold.....Montreal.

Staybolt Iron or Steel Bars, Hollow
Falls Hollow Staybolt Co., Cuyahoga Falls.

Staybolts, Flexible
Flannery Bolt Co.....Pittsburg, Pa.

Staybolts, Locomotive
Falls Hollow Staybolt Co..Cuyahoga Falls.
Flannery Bolt Co.....Pittsburg, Pa.

Staybolt Taps
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Steam Couplers
Safety Car H't'g & L't'g Co....New York.

Steam Hammers
John Bertram & Sons Co.....Dundas, Ont.

Steam Shovels
M. Beatty & Son.....Welland, Ont.
R. M. Burns & Co.....Chicago, Ill.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Willis Shaw Machinery Co. .. Chicago, Ill.

Steamship Signs
Acton Burrows Limited.....Toronto.

Steel
W. Abbott...'.....Montreal.
Hermann Boker & Co. .....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Wm. Jessop & Sons.....Sheffield, Eng.

Steel, Fire Box
Taylor & Arnold.....Montreal.

Steel for Axes
Montreal Steel Works.....Montreal.

Steel for Saws
Montreal Steel Works.....Montreal.

Steel for Springs
James Hutton & Co.....Montreal.

Steel Shafting
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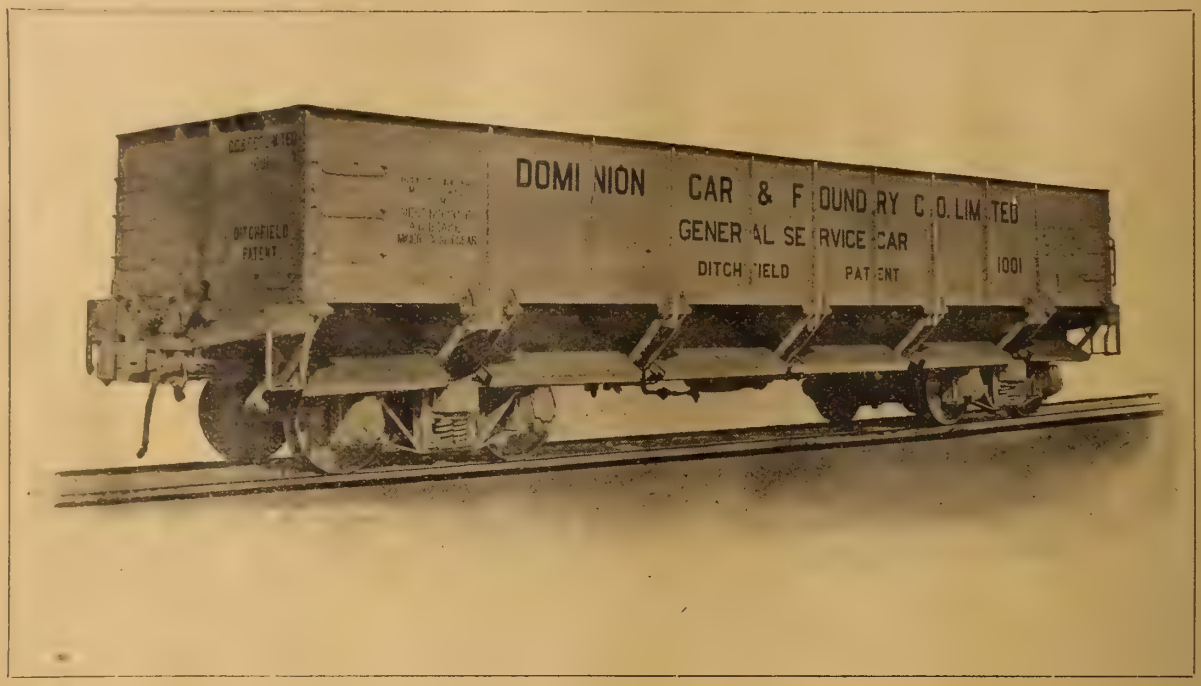

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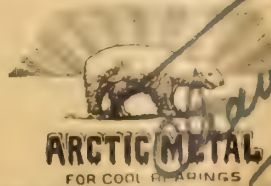

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TORONTO, CANADA, APRIL, 1910.

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An Experimental Mallet Articulated Locomotive.

By G. I. Evans, Chief Draughtsman, Locomotive Department, C.P.R., Montreal.

A Mallet articulated locomotive was designed and constructed by the C.P.R. during 1909, and embodied some original features which, in addition to its being the first of its kind on this road, made it an experimental locomotive. The object of this paper is to describe briefly some of its details, tests made on it, and finally what it is doing in regular service. For the benefit of those who have not had a very close acquaintance with the Mallet articulated, it may be said that a Frenchman named Mallet was the first to successfully design and construct a jointed or articulated locomotive, that is, one which is so arranged as to permit of part of the wheel base moving sideways independently of the remainder, thus enabling a locomotive with a long wheel base to better adapt itself to sharp curves. As the locomotive was to be used in pushing service in the Rocky Mountains, it was necessary that it should traverse curves of at least 15 degrees and have comparatively high tractive power. The following table gives the general dimensions:

Type	0-6-6-0
Gauge	4' 8½"
Service	Pusher
Fuel	Bituminous Coal
Tractive power	57,400
Weight on drivers, working order	262,000
Weight, total in working order	262,000
Weight of engine and tender, working order	391,000
Wheel base, front engine	10' 4"
Wheel base, rear engine	10' 4"
Wheel base, total engine	35' 2"
Wheel base, engine and tender	60' 7"
Weight on drivers ÷ tractive effort	4.57
Tractive effort × dia. drivers ÷ equivalent heating surface	975
Equivalent heating surface ÷ grate area	59
Weight on drivers ÷ equivalent heating surface	77
Cylinders, dia. and stroke h.p.	23¼" x 26"
Cylinders, dia. and stroke l.p.	34" x 26"
Valves, dia. and kind h.p.	11" Piston
Valves, dia. and kind l.p.	12" Piston
ving wheels, dia	58"
Driving axles, size	Main 9½x12, others 9x12
Boiler, kind	Radial stayed, wagon top
Pressure	200 lbs.
Firebox, length and width	120" x 69⅞"
Firebox, thickness of sheets	5-16", ⅜", ½", 7-16"
Firebox, water spaces	Sides, 4½"; throat, 5"; back, 3½"
Tubes, number and dia. in front section	281, 2" O.D., and 12, 2¼" O.D.
Tubes, length in front section	96"
Tubes, number and diameter in rear section	289, 2" O.D.
Tubes, length in rear section	109"
Heating surface, tubes	2,605 sq. ft.
Heating surface, firebox	180 sq. ft.
Heating surface, total	2,785 sq. ft.
Superheating surface	420 sq. ft.
Equivalent heating surface*	3,415 sq. ft.
Grate area	58 sq.ft.
Tender tank, kind	Semi-water bottom
Tender frame sills	Centre, 13"; sides, 10"
Tender trucks, kind	Equalizer
Tender wheels, size	34" dia.
Tender axles	5½" x 10"
Water capacity	5,000 Imp. Gals.
Coal	12 tons

*Equals total heating surface + superheating surface × 1.5.

CONSTRUCTION, GENERAL.—The outline of the locomotive is shown by the line drawing, fig. 1, and the half-tone engraving, and reference to these shows that there is considerable difference between this design and other locomotives recently put into service on American railways. For convenience of comparison, a line drawing of a Mallet locomotive, designed and built by the Baldwin Locomotive Works, is reproduced in fig. 2. The most striking difference between the two designs is in the arrangement of the cylinders, the shortness of the front bumper or footplate, and the position of the superheater. The absence of front and back guiding trucks is also noticed, but these are not in general use, being advocated by practically only the Baldwin Locomotive Works. This arrangement of cylinders, whereby the two pairs are brought together near the centre of the locomotive, permits of an extremely simple pipe arrangement, cutting out a number of packed expansion joints, everyone of which is a continual source of trouble through leakage. The removal of the cylinders from the front also permits of shortening the overall length of the locomotive, and, as locomotives of this type are very long, every foot possible must be saved to permit of their being taken into existing roundhouses. Provision has been made for changing piston packing rings by simply removing the front cylinder heads, disconnecting the main rod from the crosshead, and pushing the piston out into the space between the two cylinders. The piston valves have also been taken care of in a similar manner, so there can be no objection to this arrangement on account of inaccessibility.

GEORGE McL. BROWN
European Manager, Canadian Pacific Railway.

BOILER AND SUPERHEATER.—This is of the wagon top type, as shown by fig. 3, is radially stayed, and has an unusually small front ring and smokebox. There are three separate compartments in the barrel, the front of which is practically a feed-water heater, and, owing to its small diameter, is full of water all the time. The injectors discharge into this compartment, which is connected to the boiler proper by two equalizing pipes 4" in diameter, one of which is located on the side centre line and the other on the top.

The second or middle compartment is for the superheater, which consists of double loops of 1¼" seamless steel tubing dropped down into the path of the hot gases from the firebox. There are 69 of these superheater elements. One end of each connects to the saturated header, which takes steam from the boiler, and the other connects to and discharges into the superheated header, which is connected direct to the h.p. cylinders. When the locomotive was first turned out the superheater was connected to the l.p. cylinders, but, from tests made subsequently, it was changed as described. The reasons for this are explained further on. Two ¾" blower pipes having nozzles are so located as to blow jets of steam diagonally across the superheater compartment, through the tubes, to bring down any soot which may collect.

There is no steam in the superheater pipes when the throttle is closed, but no cases of burning out have developed after about four months' service, nor is any trouble anticipated, as this condition applies, although to a lesser degree, to other types of superheaters which are giving good service. The superheater pipes are secured to the headers by union nuts, and are readily removable for repairs, one element at a time, through the opening at the top of the boiler, which is closed by a flanged steel door. If necessary, the complete superheater, header, and tubes may be lifted out bodily.

The back compartment is the boiler proper or steam generating section, and the construction is similar to ordinary boilers, except that the radii on the cor-

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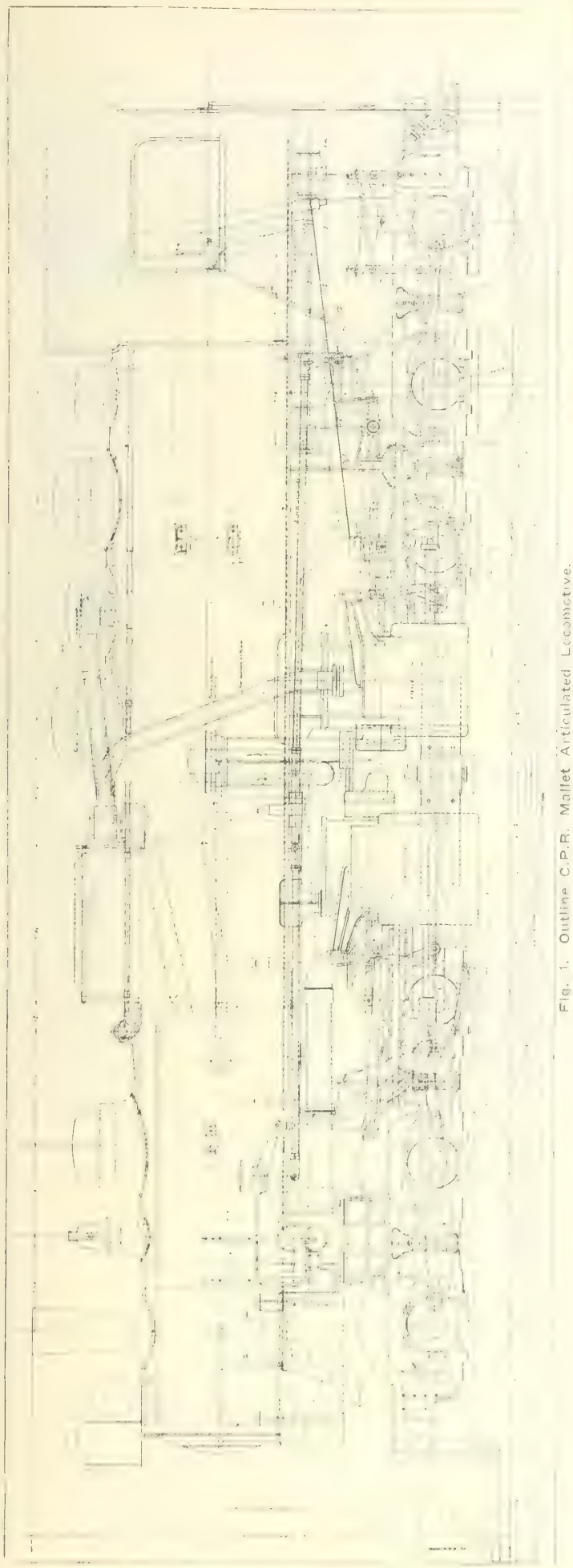

Fig. 1. Outline C.P.R. Mallet Articulated Locomotive.

ners of the firebox, both inside and outside, are larger than usual. This has been done to increase the rigidity of the sheets, which, it is believed, is largely responsible for staybolt breakage on the end rows.

There are four flue sheets in the boiler and two sets of flues. The front set is 96" long and the back 109", with a 63" superheater compartment between, and although cleaning holes have been applied underneath, it is seldom found necessary to use them, all cinders being carried through by the action of the draft.

As already stated, the front section of the boiler is really a feed-water heater, and has 281 tubes 2" O.D. and 12 tubes 2¼" O.D., giving 1,230 sq. ft. of heating surface, leaving 1,555 sq. ft. in the steam generating section (tubes and firebox).

The measure of steaming capacity of this locomotive, as expressed by the formula $\frac{\text{T. P. (max.)}}{\text{H. S. (Total)}} \times$ dia. drivers, is shown in comparison with others of a similar type in the following table, and, as the C.P.R. locomotive has a superheater, the equivalent heating surface has been used:

Road	Builder	$\frac{\text{T.P.(max.)}}{\text{H.S.(Total)}} \times$ dia. drivers
C.P.R.	C.P.R.	975
B. & O.	A. L. Co.	714
Gr. Nor.(road)	B. L. Co.	813
Gr. Nor.(pusher)	B. L. Co.	690
Erie	A. L. Co.	915
D. S. W. & P.	A. L. Co.	915
Cen. Brazil	A. L. Co.	915

In using this factor in comparisons, it must be borne in mind that the lower its value the greater will be the capacity of the boiler as a steam generator, and from the above table it might seem that the C.P.R. locomotive would not steam satisfactorily. This, however, is not the case, as an inspection of the boiler pressures in figs. 10 and 12 will show.

The injector check valve is located on the top centre line of the boiler, and consists of a cast-iron body, with connections for the right and left-hand injectors, and a third connection suitable for a pipe or hose coupling, which is used for filling or blowing off the boiler.

Throttle, Steam and Exhaust Pipes.—The throttle valve is located on the top of the boiler outside, and consists of an iron casting, having two 5" steam-pipe connections, one on either side. The joint to the boiler is made by a brass ball ring, having an opening 12¾" in diameter. The throttle casting extends down through this, and connects to a cast-iron dry pipe, which takes steam from a dome set further forward on the same course. The arrangement of this is shown clearly on the boiler drawing, fig. 3.

Outside steam pipes lead from the throttle to the saturated header of the superheater, and steam, after passing through it, goes directly to the h.p. cylinders, also through outside pipes, which are heavily lagged to prevent condensation, as are also the pipes from the throttle. This portion of the piping is of course all high pressure, but no special importance attaches to it, as there is no movement in the pipes, the h.p. engine being attached rigidly to the boiler. There is therefore no chance of leakage if the joints are properly made.

The steam exhausts from both h.p. cylinders into a common header or receiver bolted over the ends of the steam chests, and this header connects by a 7" pipe to a similar one on the l.p. cylinders, which connection, however, must be flexible, as the movement of the front truck begins to affect the piping at this point, and, to minimize its effect, the connection has been placed directly over the pivot point of the front truck. The receiver pipe between the two headers extends upward about 6 ft., which was done to give sufficient volume; and this pipe, down to the point where it enters the l.p. header, is braced solidly to the boiler, and the connection which bolts to the l.p. steam chest rotates about it, due to the movement of the front engine. This rotation is about 5 degrees on a 20 degree curve, which is the greatest the locomotive will be called on to traverse. The joint is packed with alternate cast-iron and babbitt packing rings, and is the only one in the pipe system in which packing is used.

The exhaust pipe connects to the cylinder and under side of the smokebox by ball joints, and both ends have a small rotary movement, but as the angular movement is only 2° 34' on a 20 degree curve, the extension between the connections is only ⅜", which is taken up by the sliding of the pipe flanges on the flat faces of the ball rings. The flanges are held to their seats on the ball rings by 10 springs of 200 lbs. capacity each, or a total of 2,000 lbs. The extension due to the truck movement being provided for in this way, the use of the packed expansion joint is unnecessary. The arrangement of this portion of the piping, which may be called the low pressure system, is shown by fig. 4. The dotted line shows the movements of the pipes on a 20 degree curve, and the diagram [illegible] as they would have been if the l.p. cylinders were at the front of the [illegible] shows that, with the cylinders at the front, the angular movement of the exhaust pipes would be 15 deg. 19' and its

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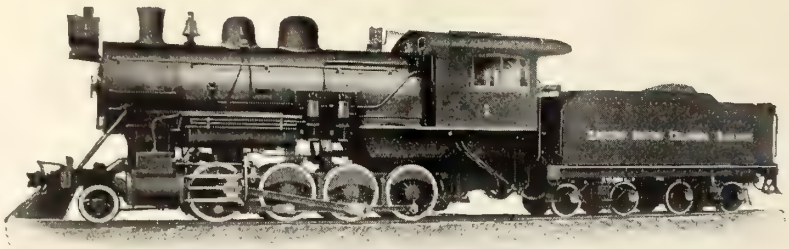

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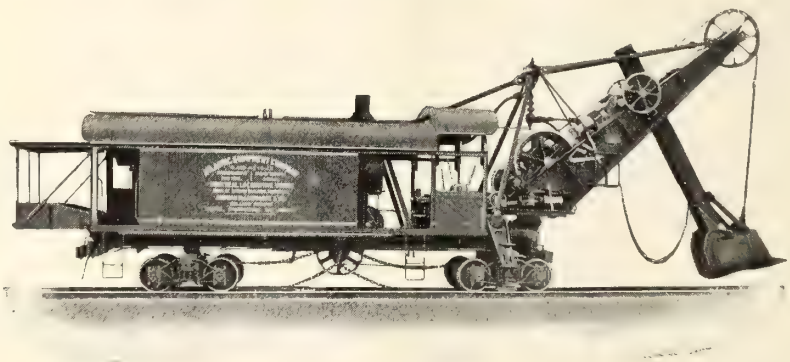

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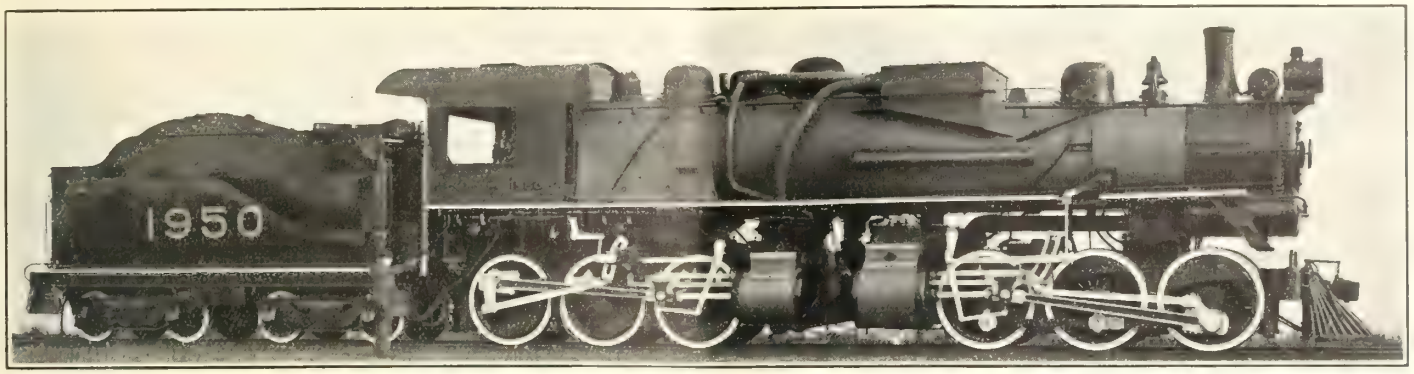

Canadian Pacific Railway Mallet Articulated Locomotive.

extension 1¾", which would necessitate the use of two universal ball joints with packing and a packed expansion joint instead of two simple ball rings, which are sufficient to take up both the rotary movement and extension. The receiver pipe movement would be the same, provided the connection to the h.p. cylinders was directly over or close to the frame connection pin. This pipe is usually given flexibility by a packed universal ball joint and a packed expansion joint.

From the above it will be seen that, with the l.p. cylinders at the front, and following the usual pipe construction, five packed joints would have been used, but with the arrangement adopted there is only one packed joint and two ball rings.

Cylinders, Valves and Valve Motion. —The cylinders are of the piston valve type, with inside admission on the h.p. and outside on the l.p., which permits of the most satisfactory arrangement of steam pipes. The diameters are: h.p., 23¼" x 26" stroke; l.p., 34" x 26" stroke. All four are cast separately, without saddles, and are bolted together by vertical flanges in the usual manner. The h.p. have a cast-steel saddle which is common to both cylinders, and which bolts rigidly to them and to the boiler. This connection to the boiler is a very important one, the barrel being under pressure at this point, and the saddle is secured with 1¼" bolts, having a taper of 1-16" in 12", driven into holes reamed from the pressure side. The l.p. cylinders have no saddle, as there is a movement between the boiler and truck at this point. A small steadying casting has, however, been applied, which slides across the flat surface on the top of the cylinders, but no weight is transmitted to the truck by it. The main frames are slabbed to a section 15" deep x 3" wide at the cylinder fits, and are braced laterally by the frame connection castings which join the two engines together. The arrangement of the cylinders and their fastening is shown by fig. 5.

Walschaert's valve motion is used. The design varies but slightly from that used on other C.P.R. locomotives, except in the radius bar lifting link on the l.p. engine, which, of course, must have flexible connections to permit of movement between the boiler, to which the reversing arm is attached, and the truck. It must also be made as long as possible, as, when the locomotive is rounding a sharp curve, the boiler will swing about 9" off the centre line of the truck at this point, and the angle taken by the lifting link causes the radius bar to raise in the radius link, thus shortening the travel of the valve when the engine is in forward gear and lengthening it when in backward, the radius bar being down for forward and up for backward gear. This applies to all Mallet locomotives having the radius bar suspension arranged in this manner, but is comparatively unimportant if sufficient clearance is allowed between the radius link and block at the top.

Provision has also been made for varying the cut-off in the l.p. cylinders independently of the h.p. That is, the l.p. cut-off may be lengthened without affecting the h.p.

Reference to fig. 1 shows that the h.p. reverse shaft has two arms on the right-hand side. One of these is 11½" long, and is connected to the power reverse cylinder, the stroke of which is 12", and as the h.p. radius bar lifting arm is forged to the same shaft, the lift or fall of the radius bar is always proportional to the travel of the power cylinder piston. The arm on this shaft, to which the l.p. reach rod connects, has a slotted upper end with a sliding block, to which the reach rod pin connects. This block is held in any desired position by means of a screw adjustment. The shortest length of the arm is 12½", and with the longest power piston travel of 12", the movement of the reach rod is $\frac{12''}{11.5}$x12.5", or 13" nearly. If, by means of the screw, the reach rod block is moved up to 14" from the shaft, the movement of the reach rod becomes $\frac{12''}{11.5''}$ x 14", or 14.6", with a consequent increase in the rise or fall of the l.p. radius bar, which will increase the travel of the valve.

A simple form of power reverse gear is used, consisting of a 6" steam cylinder, with its piston rod connected to the reach rod shaft as described above. Rapid movement is prevented by an oil dash pot, the piston of which is connect-

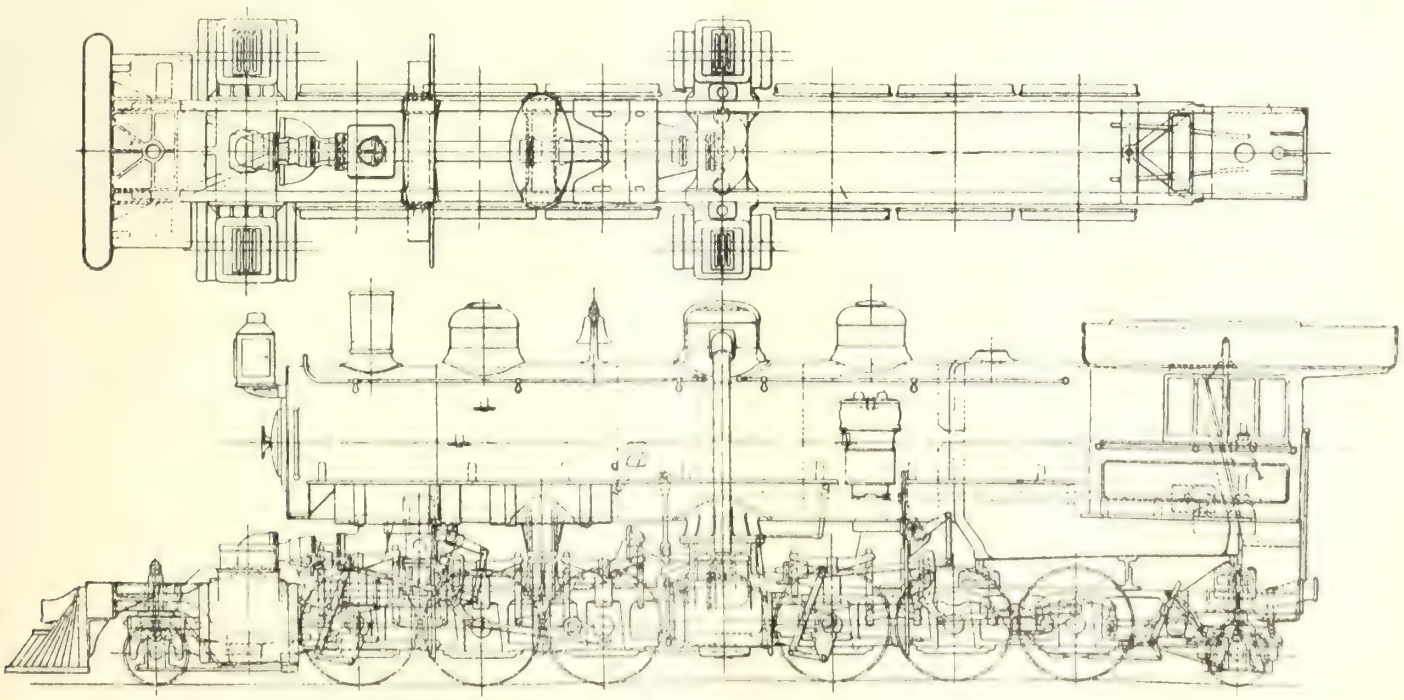

Fig. 2. Side Elevation C.P.R. Mallet Articulated Locomotive.

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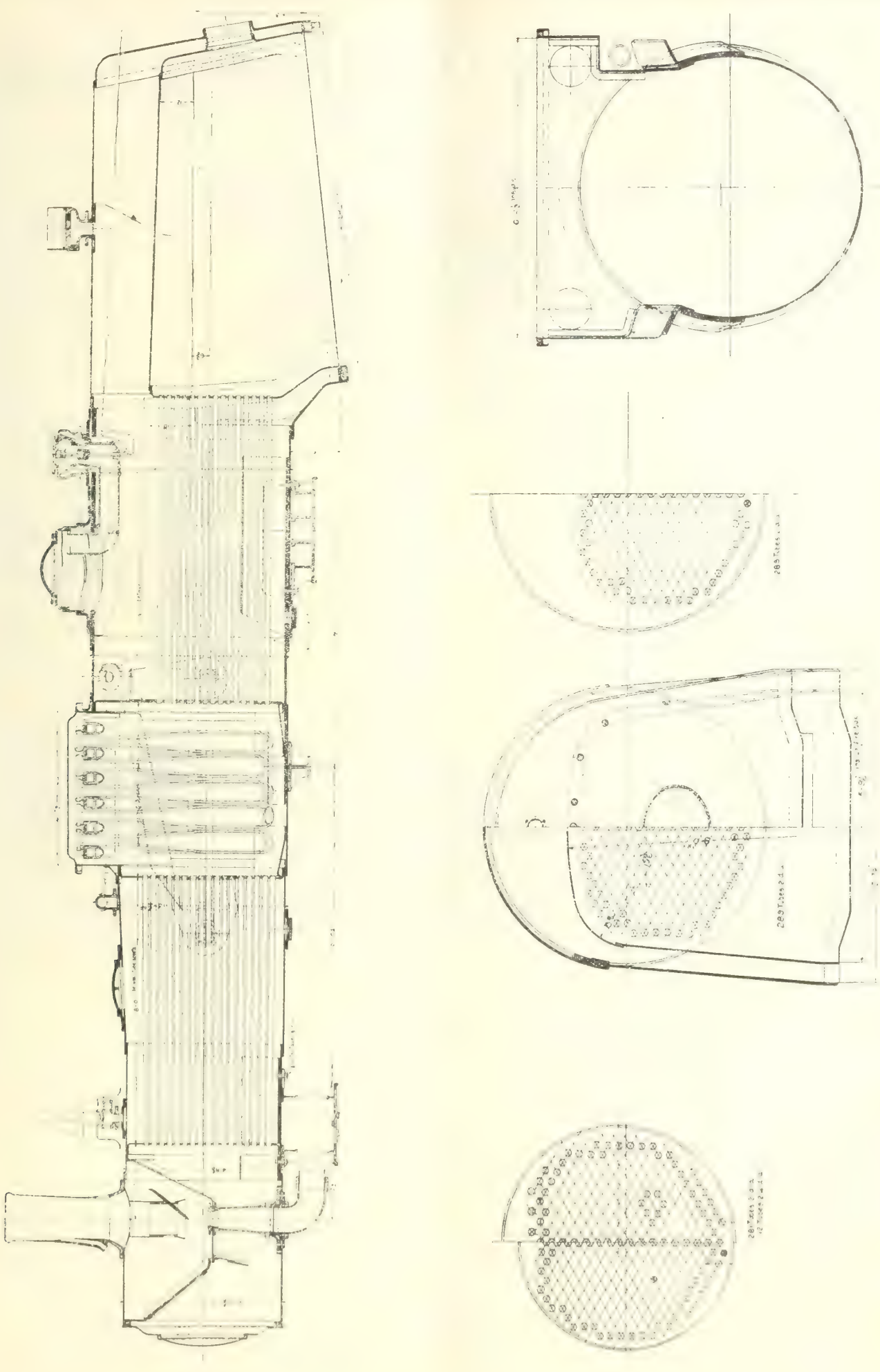

Fig. 3. Boiler Attachment and Superheater, C.P.R. Mallet Articulated Locomotive.

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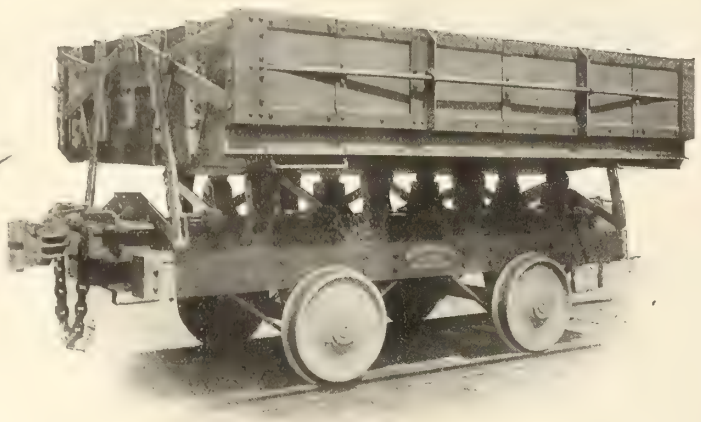

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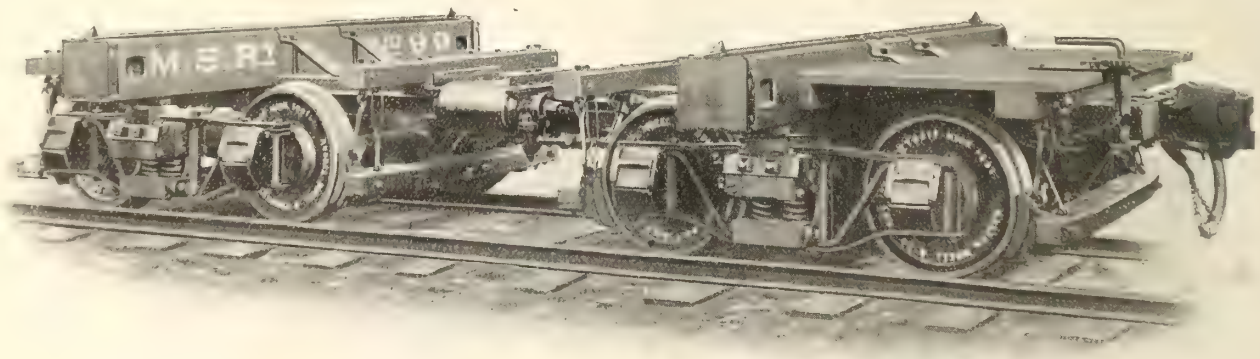

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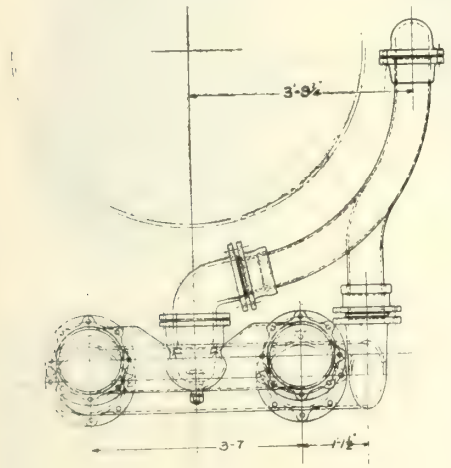
ed to the same rod as the piston of the power cylinder.

Frames, Spring Rigging, and Weight Distribution.—The frames on each engine are in one piece, and are slabbed for the cylinder fits and for the front bumper and back footplate, which makes a very simple arrangement, there being no frame splices to break or get loose, and at the same time gives a stronger cylinder fastening. The sections of top and bottom rails of these frames are $4\frac{1}{2}$" wide x $4\frac{1}{2}$" deep, top, and $4\frac{1}{2}$" wide by 3" deep, bottom, on both frames, and owing to the rather unusual condition of weight distribution, the design was gone into very carefully and the sections not only checked against the piston thrust, which is usually all that is considered, but against the weights carried by the frames. The bending moment and shearing forces for the front engine are shown by fig. 6. These have been worked out considering the frame as a beam supported at four points (where it rests on the springs), the reaction being equal to the sum of the loads supported by the springs.



Reference to fig. 6 shows that the proportion of the boiler weight carried by the front engine is concentrated midway between the first and second wheels, or 31" ahead of the middle wheel, and as this is the only point on the front truck at which the boiler is supported, the weight must be such that its moment about the centre of the truck will equal the moment of the weight of the front truck itself acting at the distance. Its centre of gravity is located in rear of the centre of the truck. On most Mallet locomotives now in service the above is not the case. The actual point of support of the boiler on the frames is set forward (considering a truck with the cylinders at the front) of the virtual point sufficiently far to make the moment of the truck weight considerably greater. This is done to prevent rocking in a longitudinal direction, and, of course, tends to allow the truck to drop at the front, to correct which a suspension bolt working on ball seats connects the lower rail of each back engine frame to the upper rails of the front engine, and any tension put on them by screwing up on the adjusting nuts pulls down on the rear end of the front engine frame, correcting the effect of the centre of gravity of the front system falling ahead of the centre of the truck. On the C.P.R. Mallet this rocking effect is checked by the frame connection castings, which have jaws that interlock in such a manner as to make longitudinal rocking impossible. The arrangement of these castings and their pin connection is clearly shown by fig. 5. The construction at the joint is very substantial. A turned pin 4" dia. is used, and with this arrangement of interlocking jaws the pin is put in triple shear when pulling, but for buffing shocks, which are more severe, it is entirely relieved, and the shock is taken up by the socket joint formed by the metal around the pin on the front casting fitting into a machined pocket on the back casting. As the extension of the exhaust pipe, due to the truck movement, must be taken up by the sliding of the pipe flanges on the ball rings, and as only a rotary movement has been provided for on the receiver pipe, the importance of having a solid connection for the frames of the two engines is seen.

The spring rigging is of an ordinary type. The front engine is equalized from back to front, and has a cross equalizer at the front. The rear engine is also equalized through its whole length, but has no cross equalizers. The weights carried by the front and back engines are not equal, but are so distributed that approximately 9,000 lbs. more weight is carried by the front than by the back. As the effect of pushing or pulling a train is to reduce the weight on the front truck, and the service for which the locomotive was built calls for continued maximum tractive effort for considerable distances, it is important that the ratio of adhesive weight to tractive power be sufficiently high to ensure the engine holding the rail. As this ratio is 4.57, which is about as low

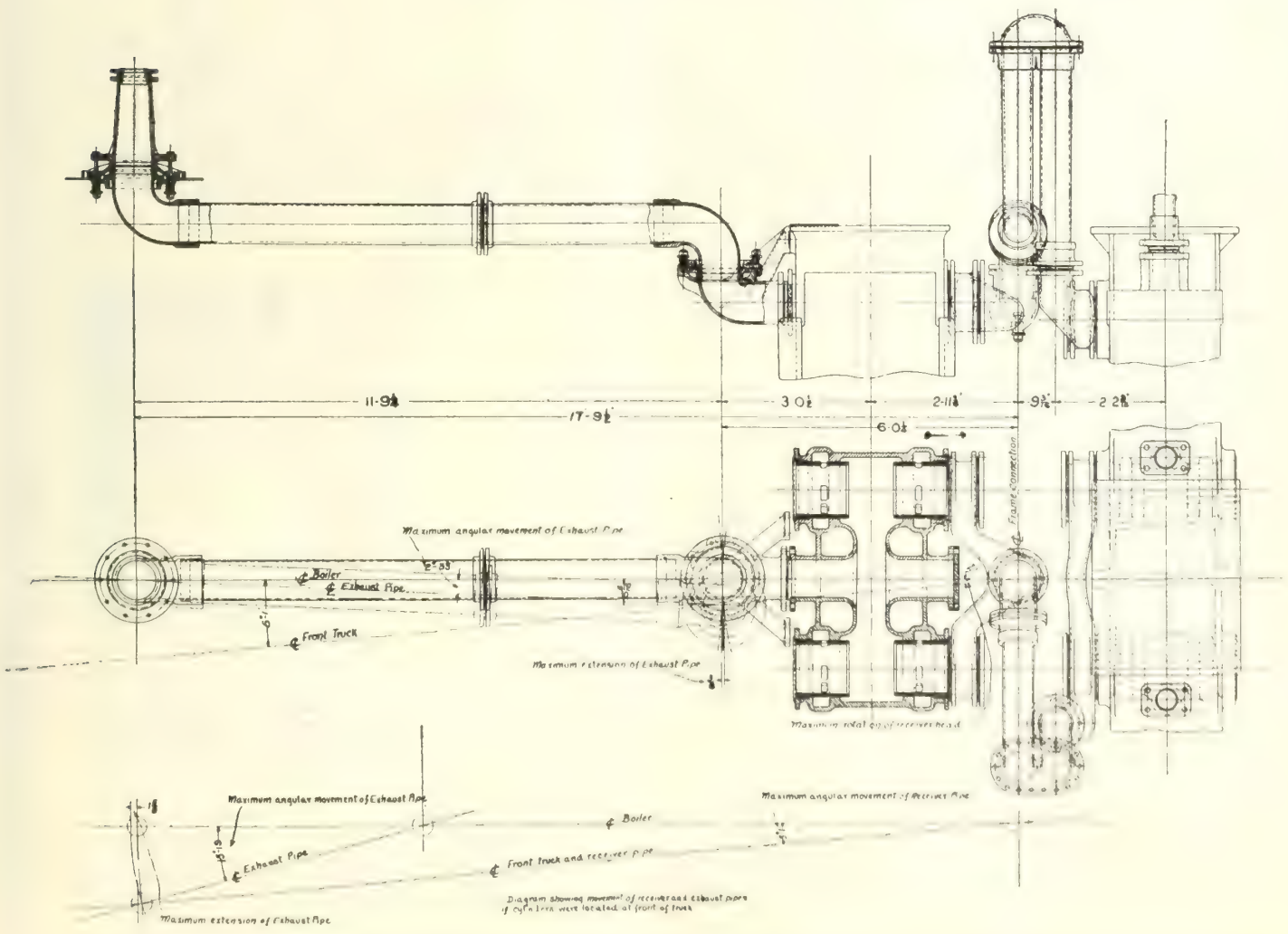


Fig. 4. Steam Exhaust and Receiver Pipes, C.P.R. Mallet Articulated Locomotive. (Dotted lines show position on 20 deg. curve.)

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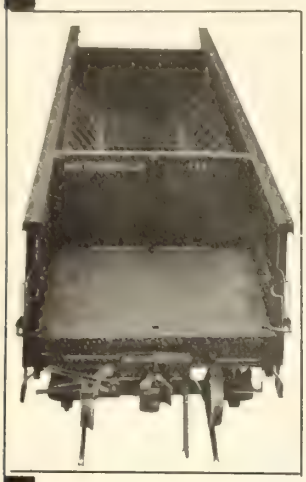

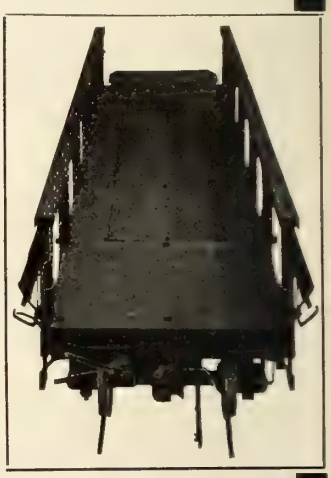

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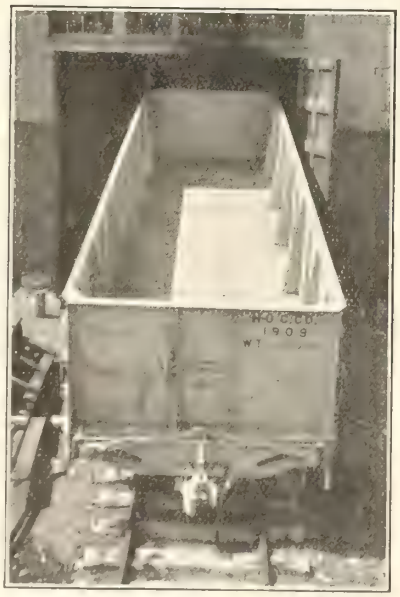

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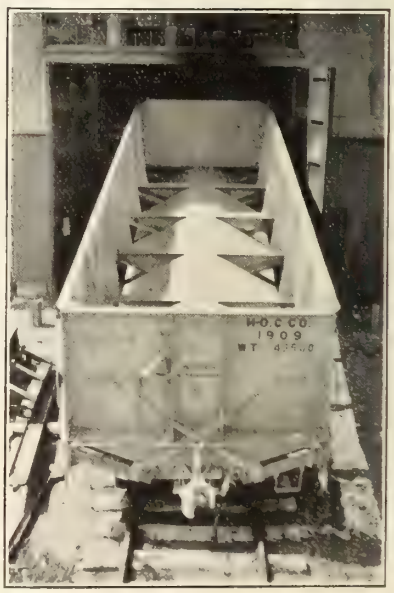

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as is desirable, it will be seen that any transfer of weight from the front truck would further reduce the adhesion factor and tend to make the front engine slip.

Guiding Power of the Front Engine. —Mallet articulated locomotives are built both without and with guiding trucks, and in most cases, where leading trucks are used, a truck is also placed at the rear end, back of the last pair of drivers. The theory advanced for admitting these trucks is that, in going ahead, the front engine is in itself a truck, and the front drivers are able to enter a curve against the resistance of the boiler without causing undue flange pressure or danger of derailing. On the other hand, those who advocate the use of trucks do not believe as safe an engine can be obtained without as with them. In any case, more advantages and better arguments can be advanced for eliminating the truck, such as the decrease in the total length of the engine, saving in weight, etc., and it can also be shown that the flange pressure is sufficiently low to ensure perfect safety.

On the C.P.R. locomotive trucks are not used, and the weight of the boiler, which offers the principal resistance to curving, as the truck must swing laterally underneath it, is supported partly by friction plates and partly by a spring suspended roller. The arrangement of this device is shown by fig. 7, and its construction and action is as follows. There are two main castings, one of which is mounted on the frames, and the other bolted solidly to the boiler moved with it, across the frame casting. The weight of the boiler and attachments resting on the front truck at this point is 40,000 lbs., and one-half of this, or 20,000 lbs., is carried on friction plates, four of which are set on each casting, forming two approximately radial paths, with an 8¾" space between The total area of these plates is 834 sq. in., and provision has been made for lubrication, each plate having oil grooves connecting with an oil box on the top casting. Under these conditions the coefficient of friction may be taken as .08, which gives 1,600 lbs. at starting as the resistance due to friction. This resistance decreases slightly, as will be explained later. In the 8¾" space between the two friction paths on the upper casting is the roller path, which consists of two wedge-shaped blocks, having an incline of ¾" in 12. These are set with their thin ends at the centre line between the frames, and these ends have also been made flat for a distance of 2" on each side of the centre. The roller on which the inclined blocks travel is carried by two equalizers supported on springs, which in turn are carried by the bottom castings, and any movement of the truck sideways, as when entering a curve, causes the inclined blocks to force the roller downward against the resistance of its supporting springs, which produces a force to pull the boiler around the curve with the truck and relieve the leading flanges of the back engine from the excessive pressure which would otherwise result. The greater the movement of the truck sideways, the greater will be the deflection of the springs, and there will be a constantly increasing rolling resistance, as shown by the truck-guiding power

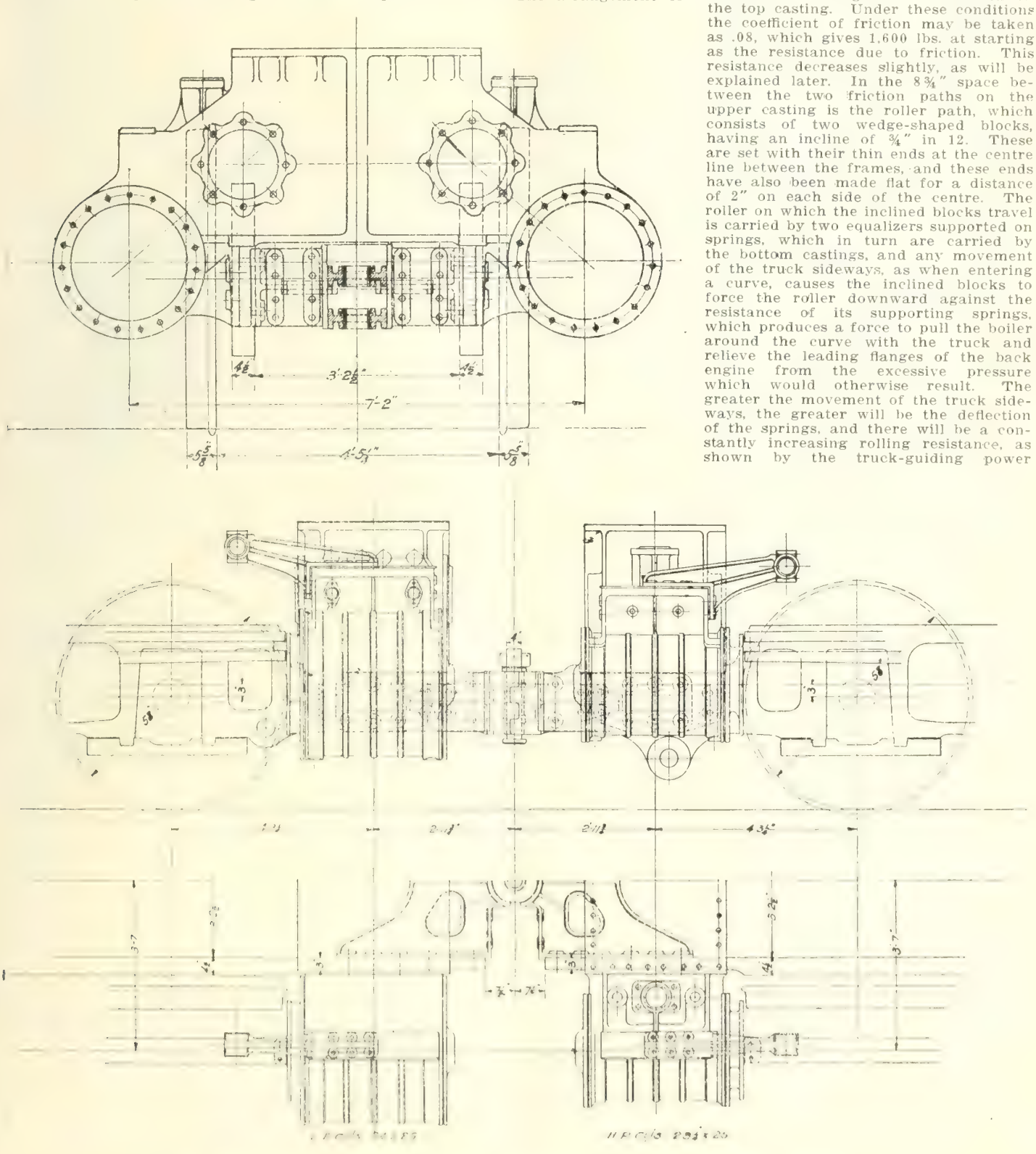

Fig. 5. Arrangement of Cylinders and Frame Connections, C.P.R. Mallet Articulated Locomotive.

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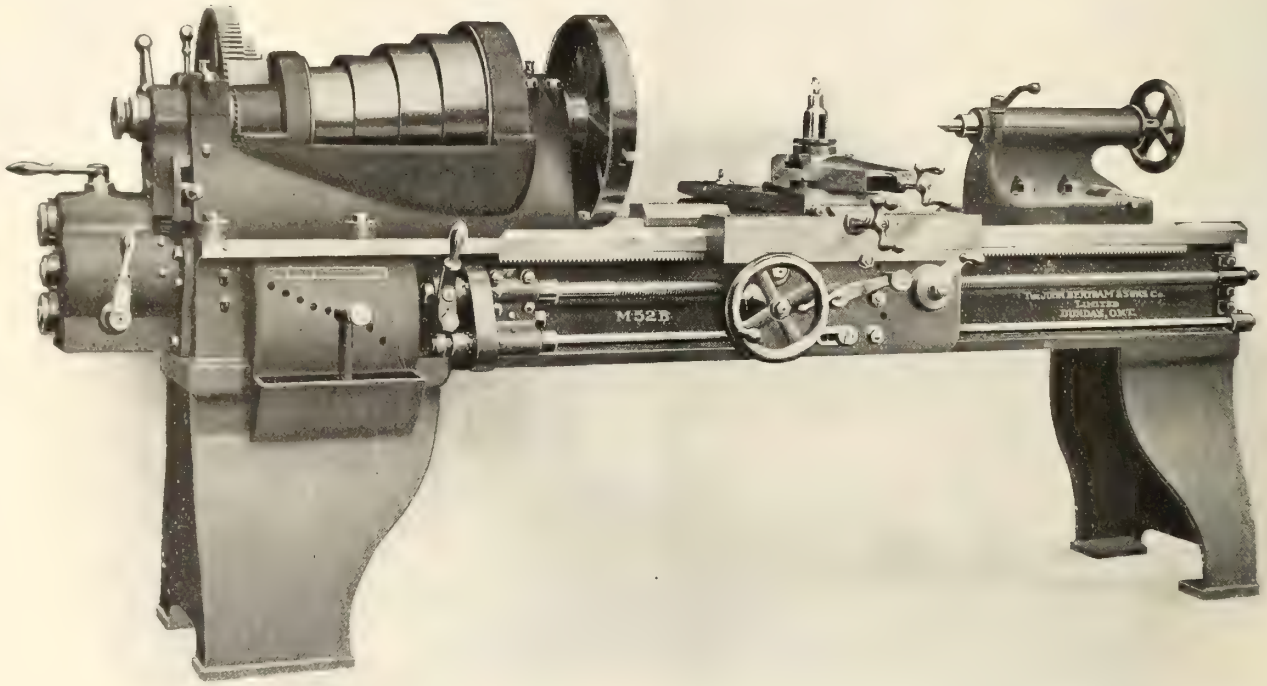

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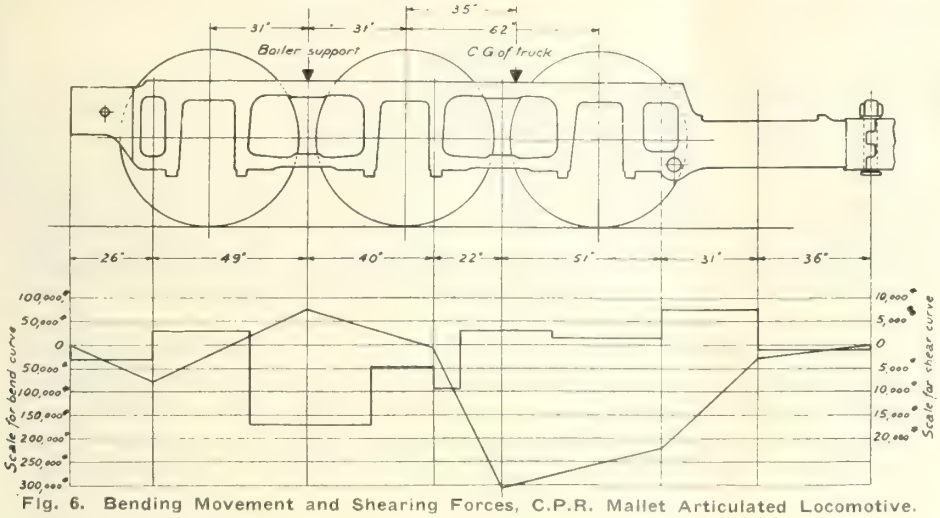

Fig. 6. Bending Movement and Shearing Forces, C.P.R. Mallet Articulated Locomotive.

chart, fig. 8, reference to which shows the curve marked "rolling resistance" as starting at a point which corresponds with the beginning of the incline, or 2" from the centre. The resistance at this point rises immediately to 1,250 lbs. and increases to 1,965 lbs. at 15¾", or the maximum movement sideways.

As mentioned above, the frictional resistance decreases slightly. This is due to the reduction of weight on the friction paths as the truck moves sideways, caused by the additional weight carried by the springs and, consequently, by the roller also. The decreasing frictional resistance is shown by the drop in the curve marked "frictional resistance," and begins 2" from the centre or the point where the roller picks up weight. The total resistance offered by the boiler to the truck moving sideways is shown by the curve marked "combined resistance." When the locomotive is entering a curve, for the first 2" truck movement to either side the resistance is only that due to friction, or 1,600 lbs. When straightening out, as on leaving a curve, the inclined surfaces tend to slide the boiler back to its normal position on the centre of the truck against the increasing frictional resistance, thus relieving the pressure on the flanges. The resistance may be entirely altered by changing the inclination of the wedges, or the amount of rolling or frictional resistance may be varied at will by screwing up or slacking off on the roller supporting spring nuts, which has the effect of increasing the weight on the roller and decreasing the weight on the friction plates or vice versa. The total resistance, however, would not be materially altered, unless the incline of the wedges were changed, which may easily be done by raising the boiler at the front, as the wedges are not cast solid with the top casting, but are held in pockets in it.

Tests.—As stated at the beginning of this paper, the locomotive was of an experimental nature, and a number of tests were made to determine if the desired results were being obtained. These tests were not directed towards the amount of coal and water consumed or the economy of the machine as compared with other heavy road locomotives, but were more as a check on the design in general, to show what changes would be desirable in locomotives of the same type constructed in futre. Special attention was therefore directed towards the following:

1. The receiver and exhaust pipes and their connections.
2. The boiler and machinery; whether the boiler was of sufficient capacity to supply steam to the cylinders, and what improvements could be made in the details of the latter.
3. The ability of the locomotive to curve freely, that is, traverse curves having a radius as short as any on which it would have to operate, and to do this at ordinary speeds, both heading and backing on, without danger of derailing or excessive flange wear.
4. The ability of the locomotive to develop her calculated tractive power.
5. The most satisfactory size of cylinders and arrangement of reheater or superheater, that is, what diameter of cylinder within the limits of 22" to 23¼" on the H.P. and 32½" to 34" on the L.P. would give the best results, using either reheated steam in the L.P. or superheated in the H.P.

Of these, 1, 2, and 3 could be settled by observation of the locomotive when pulling the test trains and on a 20° curve, as well as in the regular service later, while 4 and 5 necessitated the use of the dynamometer car and indicators. The locomotive was particularly adaptable to experiment as to the size of cylinders and arrangement of reheater or superheater. The cylinders and bushings which would permit of varying their diameter and the outside arrangement of steam pipes made possible the use of a reheater for the h.p. exhaust or a superheater in direct communication with the boiler at small cost.

It was apparent from the first that the receiver and exhaust pipes would do what was expected of them, and during the period of about 10 days when the locomotive was under test and 3 weeks' observation subsequently during regular service, no leakage of steam developed, nor was it even necessary to tighten up the packing gland on the receiver pipe or the bearing plates of the sliding ball rings on the exhaust pipe. Owing to its length, the exhaust pipe has considerable capacity as a receiver, and the exhaust is very mild, but this may be considered as an advantage, as no difficulty is experienced in maintaining full steam pressure. Some leakage developed around the taper bolts which hold the h.p. cylinder saddle to the boiler, and on future locomotives other systems of fastenings will be considered.

All curves were traversed freely, both heading and backing on, and from observations made on a Y on which the rails were light and the curvature about 18° at one point, it was proved conclusively that the articulated locomotive did less damage and curved easier than an ordinary 2-8-0 locomotive, weighing 185,000 lbs., with a rigid wheel base of 15' 10" and a total wheel base of 24' 4½", the pony truck having 5" × 8" three point hangers.

The amount of flange wear after about 4,000 miles was 3-64" at the point of contact between the rail head and flange on the leading wheels, and 1-32" on other wheels, which is satisfactory service, considering the crookedness of the track on which the locomotive is operating, there being a large number of 10° curves. This amount of wear also compares very favorably with that on other locomotives in the same service.

The size of the cylinders on the locomotive, as first turned out, were 22" and 32½" × 26", or a ratio of 2.18, and the exhaust from the h.p. pair passed through the reheater before entering the low pressure steam chest. Three other combinations of cylinders and position of reheater or superheater were tried, and altogether six tests were made before the final size of cylinders was determined.

A large number of indicator cards were taken, and those shown by fig. 9 are fairly representative of each test. In the Summary of Indicator Cards the measure of steam at cut-off is expressed in terms of the following: "Steam at cut-off = (T.P. per lb. m.e.p. × cut-off + t.p. per lb. m.e.p. × clearance %) × pressure at cut-off + 14.7."

Fig. 10 shows the dynamometer car record, indicated and dynamometer horse powers, speed, boiler pressures, etc., for tests 4 and 5. In tests 1, 2, and 3, which were made under similar conditions, it was found that there was practically equal amounts of steam in each pair of cylinders, and that the l.p. cylinders were developing considerably greater power than the h.p. This condition can best be accounted for by the increased volume of steam in the receiver, due to its being reheated and consequently expanded, causing excessive back pressure on the h.p. pistons, as indicated by the drop in pressure between the back pressure line on the h.p. cards and the admission line on the l.p. To more nearly

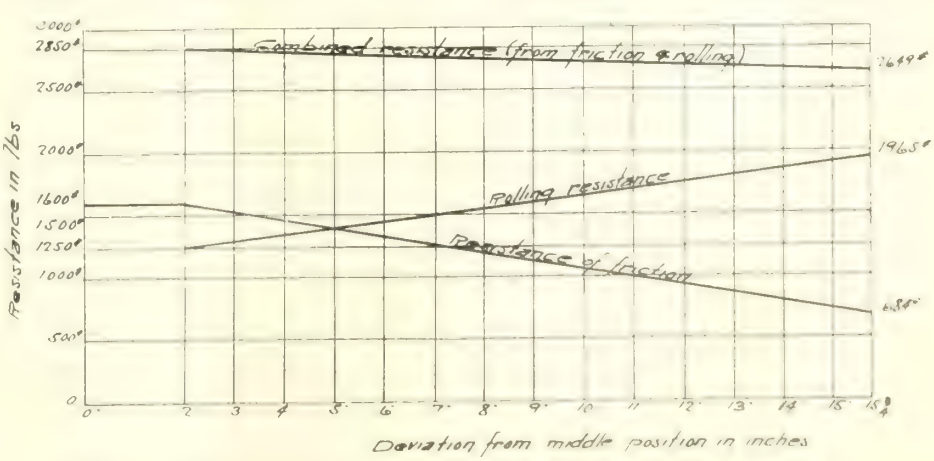

Fig. 8. Guiding Power of Front Truck, C.P.R. Mallet Articulated Locomotive.

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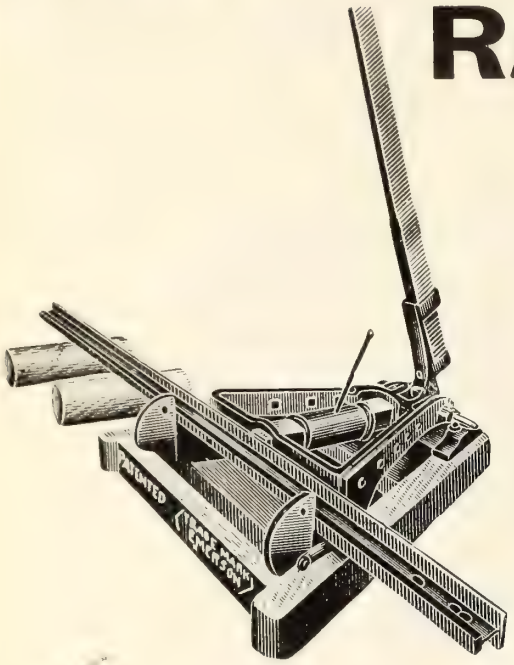

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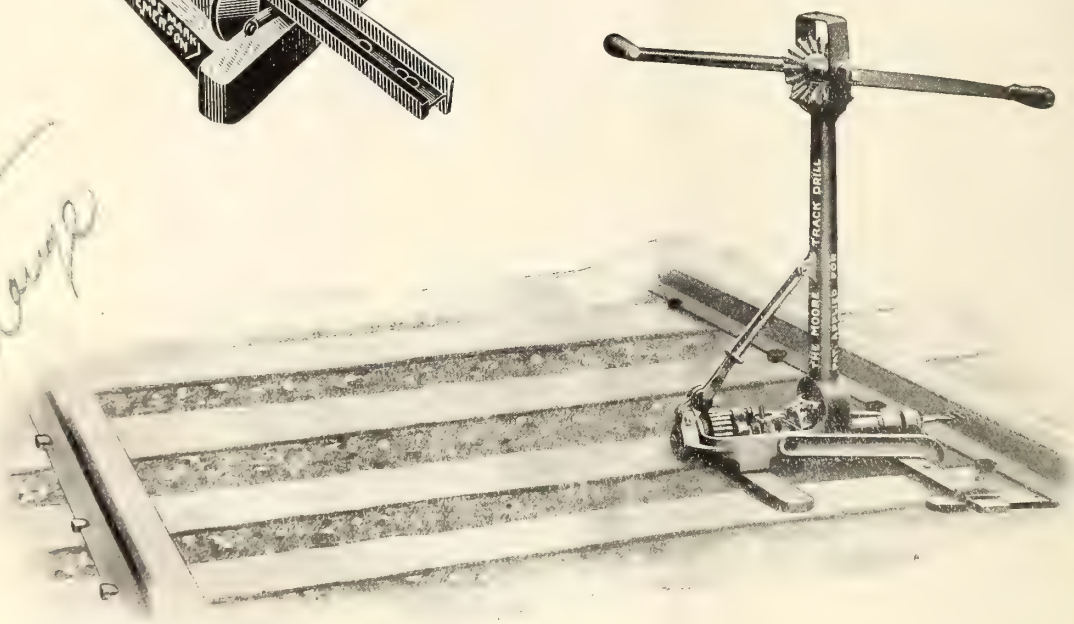

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equalize the power, it was decided to increase the diameter of the l.p. cylinders to 34", or a ratio of 2.38, which would have the effect of emptying the receiver more rapidly, with a consequent decrease in the back pressure and rise in m.e.p. on the h.p. pistons without materially changing the amount of work done by the l.p. The reheater was left connected to the receiver, the lack of condensation at the cylinder cocks being very noticeable, which was a desirable feature. The maximum temperature obtained in the l.p. steam chest, using reheated steam, was 440°, which with a pressure of 75 lbs., would give 120° superheat. The result of this arrangement is shown by test 4, and made considerable improvement in the distribution of power, although the equalization could still be improved.

At the conclusion of this test the reheater pipes were changed to connect to the h.p. steam chest and the receiver pipe, as shown in fig. 4. Superheated steam would thus be used in the h.p. cylinders and the exhaust would pass direct to the l.p. steam chest. The amount of steam shown by the l.p. indicator cards in test 5 now averaged about 87% of that shown by the h.p. cards, and the total amount of power as calculated from the series of indicator cards was approximately equal between the two engines.

It was next decided to try and increase the total power of the locomotive, which could still be done, as the factor of adhesion could be reduced without going below safe limits. The most satisfactory ratio, as indicated by the previous tests, would have been 2.38, as shown by test 5, but as the bushing had been removed from the l.p. cylinder its diameter could not be further increased, and the h.p. only was changed, its diameter being increased to 23¼", or a ratio of 2.14. Although the l.p. cylinder diameter could not be increased, its cut-off could be lengthened by means of the adjusting arm, previously described, without changing the cut-off in the h.p., which would have a similar effect in reducing the back pressure on the h.p. pistons. The results obtained with this arrangement are shown by test 6, and everything considered, it was the most satisfactory which had been tried. The power had been increased, and the amounts developed by each engine were reasonably well balanced. The decrease in the measure of steam in the l.p. cylinders, due to the position of the superheater, is well illustrated in this test by comparing it with no. 1, in which the amounts were very nearly equal. As the tests just described indicated that the best results would be obtained with cylinders 23¼" × 26" on the high pressure engine and 34" × 26" on the low, and with the high pressure cylinders taking steam from the superheater, the locomotive was therefore put into regular service in the Rocky Mountains, pushing on the grade eastward from Field to Stephen. The profile of this section is shown by fig. 11. The maximum grade is 2.2% and there are two spiral tunnels of 2,890 ft. and 3,200 ft. long, having a radius of 573' 0". The regular locomotives working on this and similar grades in the Rocky Mountains have general dimensions as follows:

Type	2-8-0
Class [illegible]	M 4
Cylinders	21" x 28"
Driving wheels, diameter	58"
Boiler pressure	200 lbs.
Weight on drivers	168,000 lbs.
Weight, total	[illegible] lbs.
Tractive power	[illegible] lbs.
Factor of adhesion	[illegible]

Their full rating in summer is [illegible] tons, and on the same basis the Mallet locomotive should handle 660 tons, which it does without trouble, and has also taken up 700 tons, which may be considered the maximum tonnage for this grade.

Dominion coal was used in the tests made at Montreal. This is a friable, rather fine coal, and an average of the analysis of 25 samples gives the fixed carbon as 55.71%, and the heat value 13729 b.t.u.'s. That used in regular service is Canmore coal, mined in the Rocky Mountains. It is much finer than the Dominion coal and very dusty, and must be thoroughly wet down before firing, otherwise a considerable percentage goes up the stack in the form of cinders. It is rather higher in fixed carbon than the former, but the heat value is about the same. The locomotive steamed as successfully with the Canmore coal as it did with Dominion, although adjustments were necessary in the smokebox diaphragm and draft pipes, the diameter of the exhaust nozzle with both coals being 4¾".

Fig. 12 is the log of what may be considered a representative trip of the locomotive in regular service on the Field hill, and is chiefly interesting as proving that the boiler is of ample capacity to supply steam to the cylinders. This [illegible] sures in the high and low pressure steam [illegible]

Summary of Indicator Cards.

Test No.	Card No.	M.E.P.	H. P.	Indicated Tractive Power	Steam at Cut-off Measure	Steam at Cut-off %	W[illegible] in Cylinders	Tractive Power Total	Horse Power Total
1	5 H.P.	90	164	19500	37700		41		
	5 L.P.	60	238	28500	37600	[illegible]	59	48000	804
	6 H.P.	[illegible]	157	18650	33800		43		
	6 L.P.	52	207	24700	[illegible]	96	[illegible]	[illegible]	728
4	44 H.P.	[illegible]	117	21300	41000		[illegible]		
	44 L.P.	50	142	26000	38750	[illegible]	[illegible]	47300	518
	46 H.P.	[illegible]	109	19800	40950		44		
	46 L.P.	48.5	139	25200	[illegible]	94	[illegible]	[illegible]	496
5	2 H.P.	111.5	124	[illegible]	42500		[illegible]		
	2 L.P.	50.5	134	26300	37300	87½	52	[illegible]	[illegible]
	3 H.P.	117.5	[illegible]	[illegible]	44250		[illegible]		
	3 L.P.	[illegible]	128	28200	[illegible]	88	[illegible]	53750	[illegible]
6	9 H.P.	100	194	24300	48000		[illegible]		
	9 L.P.	[illegible]	229	28600	40100	[illegible]	[illegible]	[illegible]	[illegible]
	10 H.P.	[illegible]	193	[illegible]	47400		[illegible]		
	10 L.P.	[illegible]	236	[illegible]	40750	[illegible]	55	53750	[illegible]

[illegible]

Test No. 1	Cylrs. [illegible] & [illegible] × [illegible]	Ratio 2.18,	Reheater connected to L. P.
" " 2	" 22 & [illegible] × [illegible]	" 2.18,	[illegible]
" " 3	" [illegible] & [illegible] × 26"	" 2.18,	[illegible]
" " 4	" 22" & 34 × 26"	" 2.38,	[illegible]
" " 5	" [illegible] & 34" × [illegible]	" 2.38,	Superheated [illegible] H.P.
" " 6	" 23¼" & 34 × 26"	" 2.14,	[illegible]

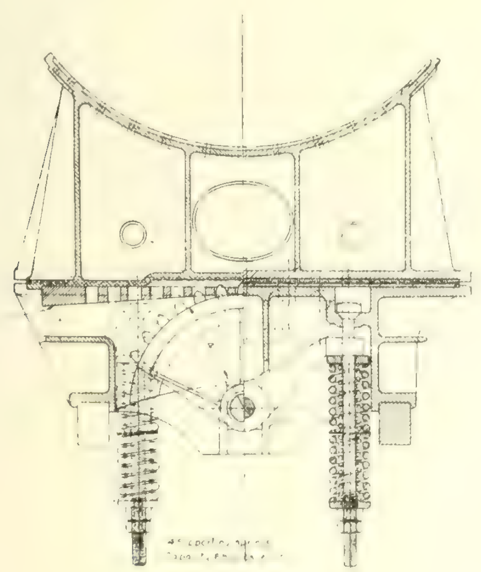
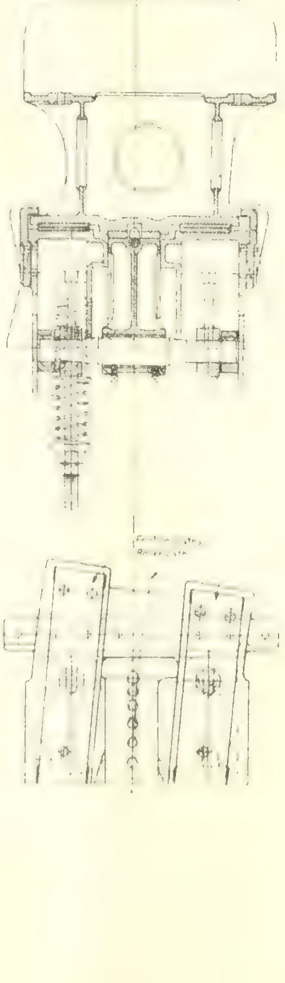


Fig. 7. Boiler Bearing and Guiding Attachment, C.P.R. Mallet Articulated Locomotive.



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GUARANTEE COST per thousand miles for from one to five years, when conditions warrant it.

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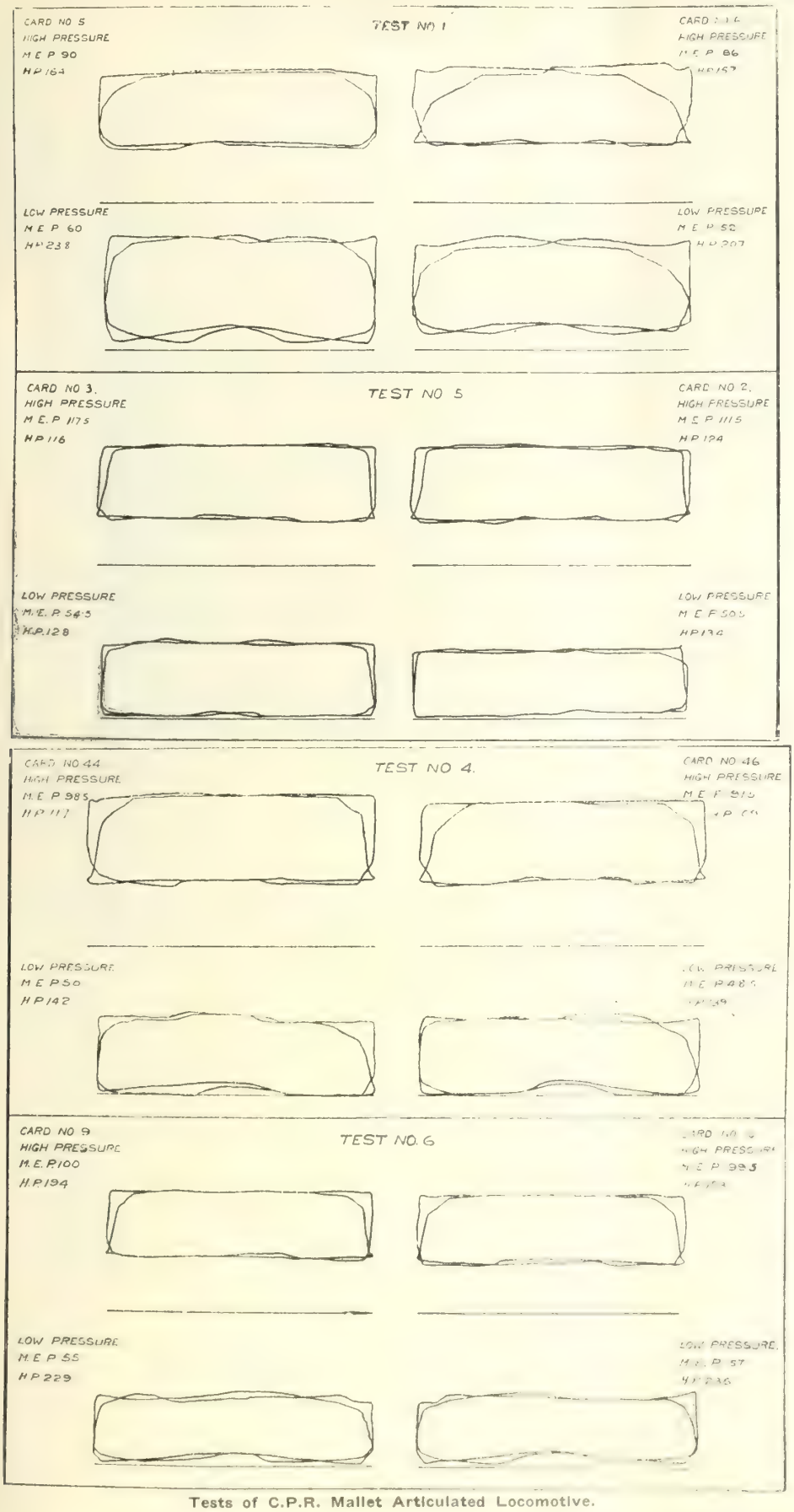
Made especially for use in Headlights, Cab, Classification and Tail-lights, and for Switch and Semaphore Lamps. Burns equally well with the long time as with the one day burner, with or without chimney, as the burner requires.

Is pure water white in color; high fire test; low cold test, and splendid gravity.

Please write to home office for further particulars.

CHARLES MILLER,

PRESIDENT



Tests of C.P.R. Mallet Articulated Locomotive.

shown in the h.p. steam chest was 540°, or 153° superheat. An average of a number of trips shows a temperature of 535°, or 148° of superheat, which is reached soon after a train is started, and remains practically constant, irrespective of boiler pressure, cut-off, throttle position, or speed. The maximum temperature shown in the receiver pipe was 350°, and the average was about 345°. As the pressures ranged from 60 lbs. to 75 lbs., this would give from 38° to 25° superheat in the receiver. The amount of condensation in the l.p. cylinders is very small, and the cylinder cocks are closed after a few revolutions, which, of course, tends to decrease the water consumption.

As the locomotive has not been in service sufficiently long, no figures are available as to cost of maintenance, but it is to be expected that, as there is practically double the amount of machinery, this will be somewhat higher than on the consolidation locomotives in the same service. The operating costs will be slightly higher when considered on a locomotive mile basis. The same crews do the work for the same wages, but more lubricant, waste, and sand must of necessity be used, and the cost of wiping and cleaning will also be higher. On a ton mile basis, which is the fairest comparison for operating cost, it will be lower, due to the greater tonnage hauled, which, it is considered, together with the saving in fuel, will show considerable economy in favor of the Mallet locomotive.

The foregoing was read before the Canadian Railway Club recently.

Per Diem Rates for Freight Cars.

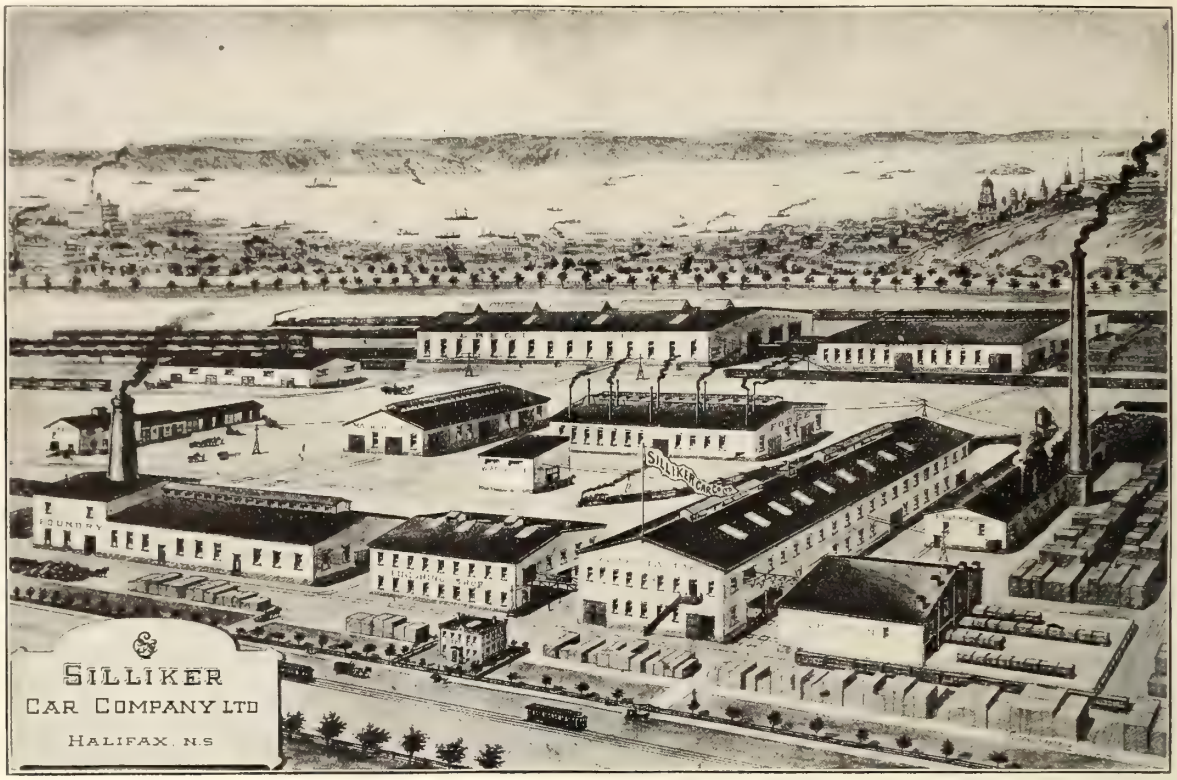
On Jan. 3, the American Railway Association submitted to its members throughout the United States and Canada a letter ballot on the question of the amendment of the code of per diem rules by the insertion in rule 1 of one of the three following rates:—40c. per car per day; 35c. per car per day, or 30c. per car per day, also as a recommended method for securing the return of equipment on demand the enforcement of Car Service Rules 1, 2, and 3 by the imposition of a penalty of $5 a car to be paid to the owner of the car by the road violating the rules. It was provided that a majority of the members, representing two-thirds of the freight cars owned or controlled by members of the Association should be required for the adoption of the proposition submitted. The results of the voting showed that a majority of the members as provided above were not in favor of any of the proposed per diem rates, and all the propositions were lost. The proposition for a penalty of $5 a car as mentioned above was defeated.

At a special meeting of the Association in New York, Jan. 27, it was decided to take a letter ballot on the question of the adoption of 30c. as the per diem rate on freight cars for the five months of Mar., April, May, June and July of each year, and 35c. for the remaining seven months: Jan., Feb., Aug., Sept., Oct., Nov. and Dec.; and that these rates be incorporated as an amendment in Per Diem Rule 1. It was decided to close the ballot on Feb. 19, and if the proposition was adopted by a majority of the members owning or controlling two-thirds of the cars owned or controlled by members, it was to go into effect on the first of the month following the amendments that it had been so carried. The voting resulted as follows: Yes — 224 memberships, representing 1,767,162 cars owned or controlled. No —87 memberships, representing 419,851 cars owned or controlled. Not voting—29 memberships, representing 62,994 cars owned or controlled. The total membership of the Association is 340, and the cars owned or controlled by the members 2,250,007. The majority requisite for approval is 171 memberships and 1,500,005 cars. The amendment therefore went into effect on Mar. 1, and the amended rule now reads as follows:—

[illegible]

SILLIKER CAR COMPANY, LIMITED, HALIFAX, N. S., CANADA

STREET RAILWAY CARS



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RAILWAY, FREIGHT AND PASSENGER CARS OF ALL KINDS

CROSSEN CAR MFG. COMPANY

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MODERN HIGH-CLASS

ROLLING STOCK

Passenger, Freight and Electric Railway

Ruggles' Rotary Snow Plows

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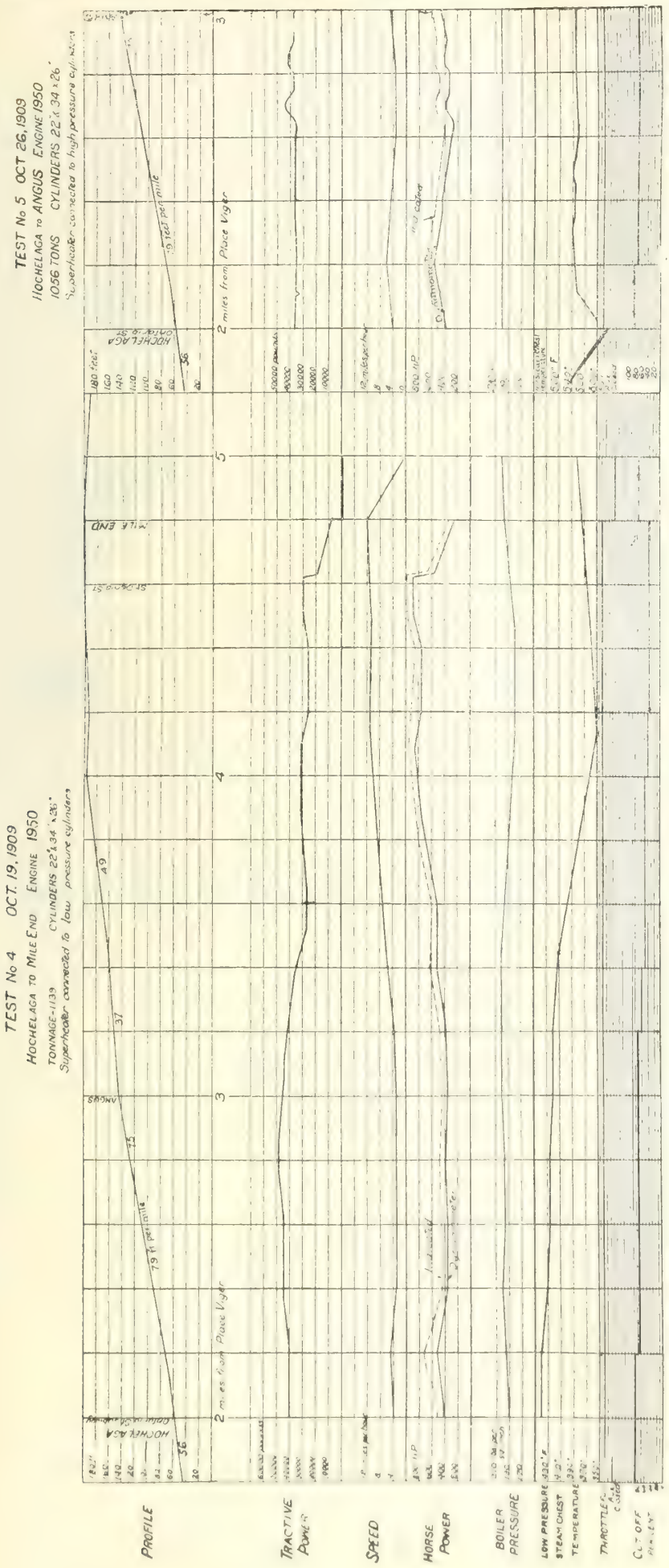


Fig. 10. Dynamometer Car Record, etc., C.P.R. Mallet Articulated Locomotive.

April Birthdays.

Many happy returns of the day to—

F. J. Anderson, Car Service Agent, C.P.R. Western Lines, Calgary, Alta., born at Lambeth, Ont., April 1, 1878.

J. A. Armstrong, Chief Train Dispatcher C.P.R., Ottawa, born at South Durham, Que., April 6, 1863.

F. J. Balch, General Freight Agent Ottawa and New York Ry., Ottawa, born at Massena, N.Y., April 15, 1870.

C. G. Bowker, Assistant Superintendent G.T.R. Middle Division, London, Ont., born at Medford, N.J., Apr. 21, 1871.

A. E. Edmonds, District Passenger Agent C.P.R., Detroit, Mich., born at Woodstock, Ont., April 8, 1866.

J. H. Flock, K.C., Honorary Counsel Canadian Ticket Agents' Association, London, Ont., born at Toronto, April 6, 1834.

B. W. Folger, Manager Niagara Navigation Co., Toronto, born at Kingston, Ont., April 8, 1872.

W. E. Fowler, ex-Master Car Builder C.P.R., born at Weymouth, Dorsetshire, Eng., April 27, 1856.

F. A. Gascoigne, Superintendent Car Service, C.P.R. Eastern Lines, Montreal, born at Gosport, Hants, England, April, 1866.

B. C. Gesner, formerly Air Brake Inspector I.C.R., now travelling representative Galena Signal Oil Co., born at Cornwallis, N.S., April 23, 1859.

J. Murray Gibbon, Advertising Agent C.P.R., London, Eng., born at Udewella, Ceylon, April 12, 1875.

V. A. Harshaw, Acting Superintendent, District 1, Ontario Division C.P.R., Toronto, born at Mono, Ont., April 26, 1865.

J. M. Horn, District Freight Agent Canadian Northern Ry., Edmonton, Alta., born at Allanton Mills, Lanarkshire, Scotland, April 12, 1880.

B. S. Jenkins, General Superintendent C.P.R. Telegraphs, Winnipeg, born April 8, 1859.

J. Kyle, Assistant Master Mechanic Canadian Northern Ry., Edmonton, Alta., born at Toronto, April 11, 1877.

J. B. Lambkin, Assistant General Passenger Agent Intercolonial Ry., Halifax, N.S., born at Quebec City, April 5, 1858.

D. McNicoll, Vice President C.P.R., Montreal, born at Arbroath, Scotland, April 7, 1852.

P. Mooney, General Freight and Passenger Agent Halifax and Southwestern Ry., Halifax, N.S., born at St. Catherines, Que., April 19, 1871.

R. S. Richardson, Assistant Superintendent C.N.Q.R., Montreal, born at Napanee, Ont., April 9, 1865.

W. A. Ritchie, District Superintendent Pullman Co., Montreal, born at Edinburgh, Scotland, April 13, 1854.

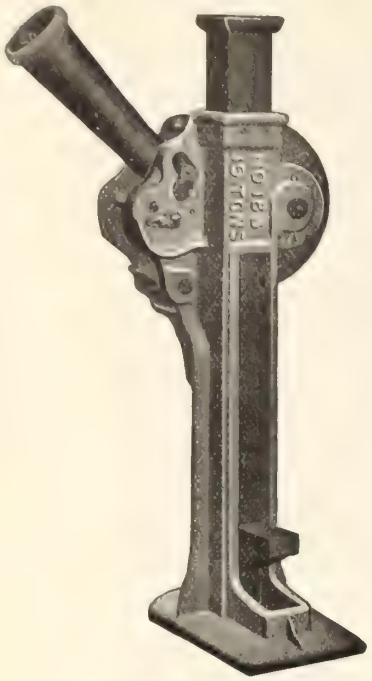
E. W. Smith, Superintendent Dining and Parlor Car Service G.T.R., Toronto, born at North Bridge, Mass., April 21, 1869.

W. S. Tilston, Chief of Montreal Board of Trade Transportation Bureau, born at Manchester, Eng., April 14, 1877.

W. Wainwright, Second Vice President G.T.R., Montreal, born at Manchester, Eng., April 30, 1840.

W. Woollatt, ex-General Superintendent Buffalo Division Pere Marquette Rd., Walkerville, Ont., born at Weedon, Hertfordshire, Eng., April 2, 1855.

Alberta Railway Commissioners.—A bill was laid before the Alberta Legislature Mar. 8, providing for the appointment of a Board of Railway Commissioners for the province, such board to have the same powers as the Lieut.-Governor-in-Council under the Railway Act. The bill provided that the board shall consist of the Hon. A. Rutherford, the Premier; J. Stocks, Deputy Minister of Public Works; and R. W. Jones, the Provincial Engineer. Mr. Stocks has declined to act as a member of the Board, and another name is to be substituted.



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Joyce Crydland Track Jacks

GEARED LEVER TRACK JACK No. 183, with automatic lowering device; has four times the lifting capacity of the Plain Lever Jack. Specially adapted for wrecking work.

TOGGLE TRIP TRACK JACKS, Nos. 38 and 39, for line work and yard duty. The superior construction of these Jacks increases the grip and friction 40 per cent. or more above others of similar type.

FULL AUTOMATIC JACK, strong and reliable, combines highest efficiency with simplicity of mechanism.

Write for Bulletins giving full description of working parts of Joyce Crydland Jacks.

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Full Automatic

A. R. WILLIAMS MACHINERY CO., LIMITED

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PIG IRON

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FORGINGS
In Rough, Rough Turned or Smooth Finished

BAR IRON **BAR STEEL**
Plain, Cold Twisted or Deformed

STEEL BARS
For
CONCRETE REINFORCEMENT

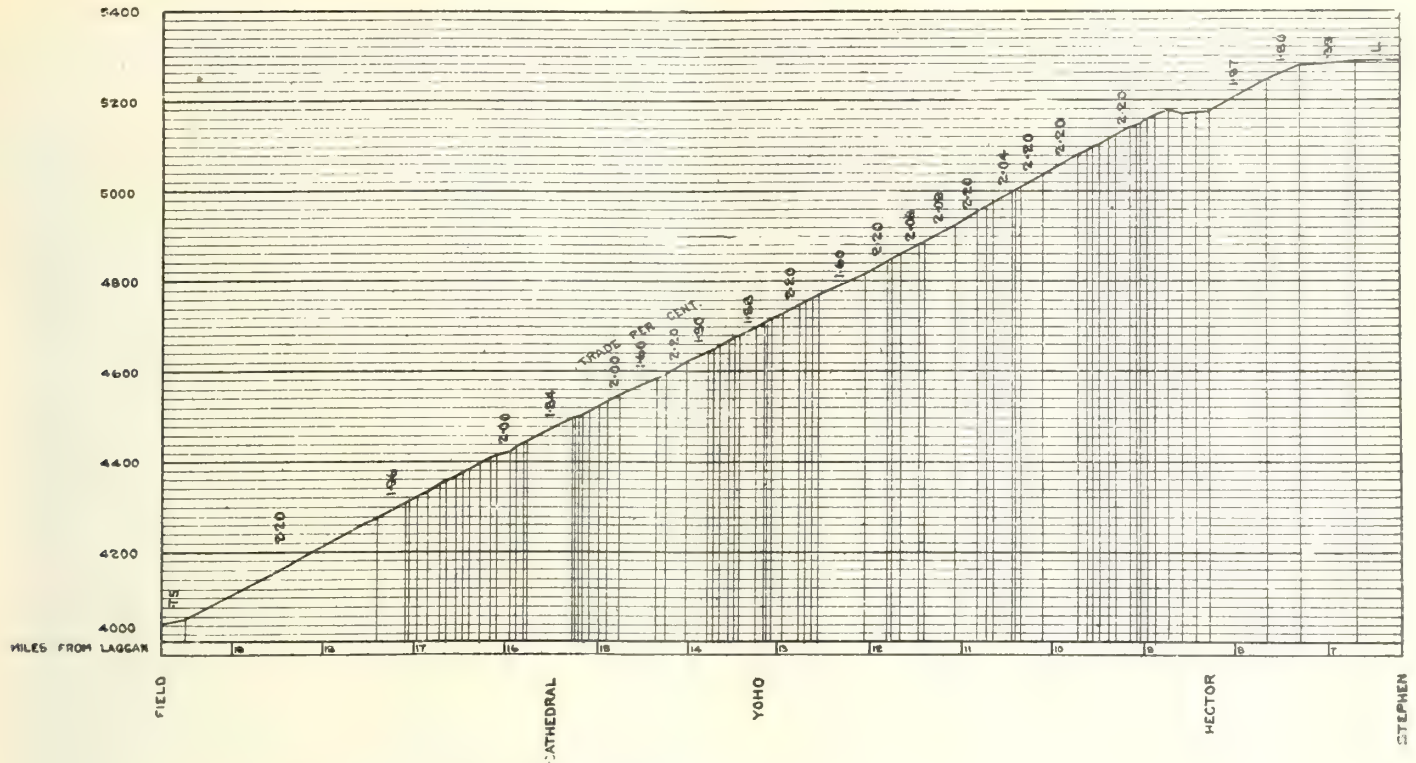


Fig. 11. Profile, Field to Stephen, B.C., Canadian Pacific Ry.

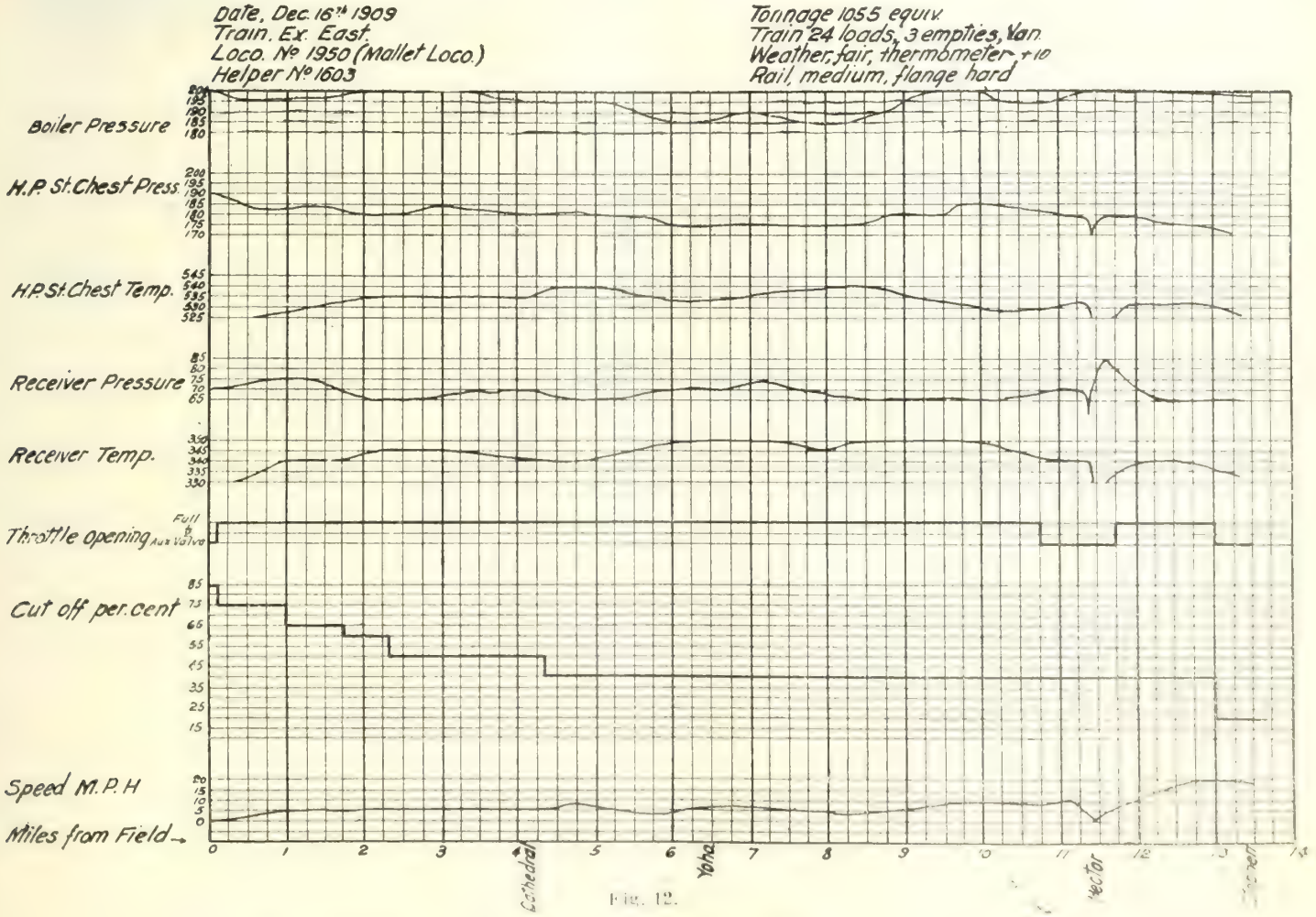


Fig. 12.

Log of Representative Trip, C.P.R. Mallet Articulated Locomotive on the Field Hill.

THE ELECTRIC HEADLIGHT

The following letter was received under date of May 8, 1908, from Mr. J. W. Cleary, Travelling Engineer Pyle-National Electric Headlight Co.:

"I learn from_____the Master Mechanic here, that an engineer running between_____ and_____discovered a broken rail with the Pyle-National Electric Headlight and made the stop without ditching his train. One or two pairs of wheels got off, but that was a small affair to what it would have been where a foot of the rail was broken off. Also an engineer running east of here found some cars shoved out on the main line. He saw them with the 'Electric' and made the stop without hitting them."

PYLE-NATIONAL ELECTRIC HEADLIGHT CO.

MONADNOCK, CHICAGO

"AMERICAN"

Railroad Derricks and Engines

are reducing handling costs for numerous careful Railroad buyers.

WHY?

WE WILL BE GLAD TO TELL YOU ON RECEIPT OF YOUR ENQUIRY.

Steel Railroad Stiff Leg Derrick Installed for the C. R. I. & P. Ry., St. Louis, Mo.

Our Catalog is interesting. Ask for it.

AMERICAN HOIST & DERRICK CO.

ST. PAUL, U.S.A.

CHICAGO NEW YORK PITTSBURG NEW ORLEANS

RAILWAY DEVELOPMENT.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta and Bow Island Ry. Lines.—Application has been made to the Alberta Legislature for the incorporation of a company with this title to build the following lines:—from near Coutts, on the International boundary to near Bow Island, thence northeasterly to tp. 15, range 10, west 4th meridian; from near Bow Island northeasterly to Calgary, with a branch line to tp. 12, range 29, west 4th meridan; from points on the previously mentioned lines to Lethbridge, and from Lethbridge southwesterly to tp. 1, range 24 and 26, west 4th meridian. Short, Biggar, Cowan and Collisson, Edmonton, Alta., are solicitors for applicants.

Alberta and British Columbia Ry.—Application is being made to the Dominion Parliament for an extension of time within which the company may build its authorized railway. (July, 1909, pg. 473.)

Alberta and Saskatchewan Central Ry. Lines.—Application has been made to the Alberta Legislature for the incorporation of a company with this title to build the following lines:—from tp. 30, range 1, west of the 4th meridian, northwesterly to tp. 45, ranges 26 or 27, thence northerly and easterly to Edmonton; from tp. 45, ranges 26 or 27, to the junction of the Saskatchewan and Brazeau Rivers, Alta. Short, Biggar, Cowan and Collison, Edmonton, Alta., are solicitors for applicants.

Alberta, Peace River and Eastern Ry.—Application is being made to the Dominion Parliament to incorporate a company with this title to build a railway from the Alberta Ry. and Irrigation Co.'s Ry. in tp. 3, range 16, west of 4th meridian, westerly to Cardston, thence northerly to Pincher Creek, thence to Cochrane, on the C.P.R., thence to Peace River Landing, thence easterly to Fort Churchill, Hudson Bay, with a branch line to Edmonton, Alta. Culbert and Carrs, Ottawa, are solicitors for applicants.

Atlantic, Quebec and Western Ry.—The House of Commons has voted $50,000 towards the construction of a deep water wharf at Gaspe, Que., at the Atlantic, Quebec and Western Ry.'s terminal. The wharf will be 1,000 ft. long, 95 feet wide at the top, and will run out to 45 or 50 ft. of water. It will be of ordinary cribwork faced, and will cost about $300,000. The railway will have three tracks on the wharf, which it is said will be used in connection with a proposed line of trans-Atlantic steamers. (Feb., pg. 109.)

Bow River Collieries Co.—Application has been made to the Alberta Legislature for an act authorizing the company to construct an extension of its projected line from the present proposed terminus to Taber, and southerly to the International boundary at Coutts, Alta. An extension of time for the construction of the previously authorized line is also asked. Simmons and Shepherd, Lethbridge, Alta., are solicitors for the company. (May, 1908, pg. 329.)

Bruce Mines and Algoma Ry.—The Minister of Railways said in the House of Commons recently that $53,920 had been paid the company in respect of the construction 16.85 miles of line. Other subsidies voted had expired. An application to revive them was made in April, 1909.

The Ontario Legislature has extended the time within which the company may complete the construction of its authorized lines, and declared the company's act still in full force notwithstanding defaults in certain directions. (Mar., pg. 185.)

Buctouche Ry. and Transportation Co.—Application is being made to the Dominion Parliament to incorporate a company with this title to build a railway between Buctouche and Richibucto, N.B., and from West Point to Colman, P.E.I., on the Prince Edward Island Ry. main line, with power to construct wharves and docks at terminal points in New Brunswick and P.E.I., and to operate vessels and car ferries between Richibucto and West Point. Barnhill, Ewing and Sandford, Buctouche, N.B., are solicitors for applicants.

Central Ontario Ry.—We are advised that work has been restarted on the extension of the line from Maynooth to Whitney, Ont., on which a start was made last year. A gang is engaged clearing the right of way. The company is doing the work itself. It is expected to construct 10 miles this year. (Feb., pg. 109.)

Chicago, Milwaukee and Puget Sound Ry.—A Winnipeg press report dated Mar. 14, states that the company has secured right of way for a railway through North Dakota, to Neche, on the International boundary line, and that agents are working through Southern Manitoba, securing options on right of way from the boundary into Winnipeg. The points at which the agents are operating, the dispatch states, show a route from the boundary to Gretna, northwesterly to Sperling, thence westerly into Winnipeg between Canadian Northern Ry.'s Brandon line and the C.P.R. Glenboro branch. (Dec., 1909, pg. 881.)

Dominion Atlantic Ry.—A press report states that the company is arranging for the immediate starting of construction on the proposed North Mountain branch. The report states that it is the company's intention to complete three miles this year and the whole line in three years. Starting from Centreville, N.S., the branch will run north and west, passing through Billtown, Lakeville, Woodville and Grafton, and rejoin the main line at a point not yet decided upon. (Mar., pg. 185.)

Elkhorn Northern Ry.—Application is being made to the Manitoba Legislature to incorporate a company with this title to construct a railway northerly from Elkhorn, Man. J. F. Miller is one of the incorporators.

Great Northern Mining Co.—At the annual meeting of shareholders at Eastern Harbor, N.S., recently, a resolution was considered to authorize the directors to make application to the Legislature to permit the company to construct a railway from its mill to Eastern Harbor. M. V. Grandin is Secretary of the company.

Hardy Bay to Quatsino Sound.—Application has been made to the British Columbia Legislature for the incorporation of a company to build a railway from Hardy Bay or Port McNeil, or some other point between them to the east coast of Vancouver Island to Coal Harbor on the west arm of Quatsino Sound, or Rupert Arm, or to some other convenient point on Quatsino Sound, B.C. Barnard and Robertson, Victoria, are solicitors for applicants. (See Hardy Bay and Quatsino Sound Ry., Aug., 1909, pg. 573.)

Iron Range Ry.—An extension of time has been granted by the Ontario Legislature for the construction of this projected line. (Feb., pg. 109.)

Kettle Valley Lines.—The bill containing provisions ratifying the agreement between the B.C. Government and the Kettle River Valley Ry., for the construction of certain lines, was laid before the Legislature, Mar. 2. It grants a bonus of $5,000 a mile for the construction of a railway from Penticton to Merrit, 150 miles, in return for which bonus the company agrees to begin construction within four months after the ratification of the agreement, and to complete the line within four years; to construct a line from Grand Forks up the north fork of the Kettle River, and a line from Midway to Penticton; such lines to be completed also within four years.

The Dominion Parliament has authorized the K.R.V. Ry. Co. to build the extension to Penticton and to Merrit, mentioned in the agreement with the B.C. Government, and has granted an extension of time for the construction of its other other uncompleted lines. (Mar., pg. 185.)

Lac Seul, Rat Portage and Keewatin Ry.—An extension of two years has been granted by the Ontario Legislature for the comencement of this projected line. (Feb., pg. 111.)

London and Port Stanley Ry.—It has been decided to construct a switch at St. Thomas, Ont., for the Hydro-Electric Power Commission. Further consideration of the plan to electrify the line to Port Stanley has been postponed pending receipt of additional information. It has been decided to sell the freight house at Port Stanley. (Feb., pg. 111.)

Michigan Central Rd.—We are advised that there is no truth in recent press reports that the company is about to construct a third track between Buffalo, N.Y., and Windsor, Ont.

The new roundhouse at St. Thomas, Ont., will contain 40 stalls. It will have an outside diameter of 428 ft., there will be 95 ft. between the walls, except at the drop pits where the distance will be increased to 113½ ft., and there will be an 85 ft. turn-table. The building will be heated by steam, and a modern washout system will be installed. Brick and concrete will be used with wooden posts and timber roof. (Mar., pg. 187.)

Montreal Underground and Elevated Ry.—See under Electric Railway Projects, etc.

Morrissey, Fernie and Michel Ry.—The Crow's Nest Pass Coal Co.'s accounts for the year, 1909, show that during the year there was expended in improvements on the railway, which is operated as a subsidiary of the Coal Co., $14,451.55.

The Nickel Range Ry. Co. has been incorporated by the Ontario Legislature to construct the lines mentioned in our issue of Dec., 1909. (Mar., pg. 187).

Northern New Brunswick and Seaboard Ry.—The Lieut.-Governor's speech at the opening of the New Brunswick Legislature, stated that as a result of legislation passed last session the company entered upon the construction of a railway from the iron mines near the Grand Falls of the Nipisiquit River to the I.C.R., and in spite of the very wet weather last summer and autumn, has made very substantial progress with the work. It is expected, he added, that the line will be completed not later than July, and that thereafter the provincial revenues will be increased to a considerable amount by the royalties on the output of the iron mines which will be shipped over the railway. (Jan., pg. 21).

The Northern Quebec Colonization Ry.'s Co.'s application for incorporation by the Dominion Parliament has been passed. (Mar., pg. 211).

Pacific and Atlantic Ry.—An act has been passed by the Dominion Parliament granting the company an extension of time within which it may commence to build its projected railway. (Dec., 1909, pg. 885.)

Penticton to Osoyoos Lake.—Application has been made to the British Columbia Legislature for the incorporation of a company to build a railway from Penticton to the International boundary in the vicinity of Osoyoos Lake, B.C. A. H. McNeill, Victoria, is solicitor for applicants.

Prince Albert and Hudson Bay Ry.—By the first section of the amendment to the Dominion act incorporating the com-

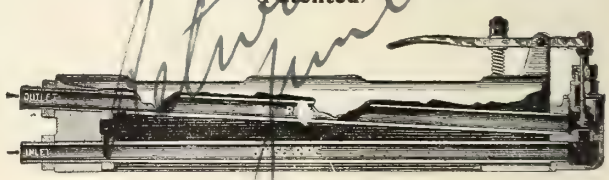
GEIPEL EXPANSION TRAP

The
GEIPEL
Expansion Trap

is a simple, practical trap, with few working parts to get out of order. It works equally well with either high or low pressure steam. Its simplicity and few working parts will commend this trap to every engineer. Send for Catalogue.

The Canadian Fairbanks Co.,
Limited
Fairbanks Scales, Fairbanks-Morse Gas Engines
Montreal, Toronto, St. John, Winnipeg, Vancouver, Calgary

GEIPEL EXPANSION STEAM TRAP
(Patented)



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MANUFACTURERS OF

Railway and Electric Car Axles, Angle Bars and Tie Plates, Railway Spikes

Tee Rails 12, 18, and 28 lb. per yard

ALL SIZES BAR STEEL FOR CAR-BUILDERS' USE. Spring, Machinery, Tire, Angles, and Merchant Bar Steel. Heavy Forgings of all Descriptions.

SCOTIA PIG IRON Also Miners and Shippers of the Famous Old Mines "SYDNEY" **COAL**

High in Carbon—Low in Ash. The best Steam Coal for Locomotive, Steamship, and Stationary Boilers.

Works at
NEW GLASGOW AND SYDNEY MINES, NOVA SCOTIA.

Collieries at
SYDNEY MINES

FOR PRICES AND OTHER PARTICULARS APPLY TO

Head Office: NEW GLASGOW, N. S.

pany, assented to May 17, the words, "thence crossing the Saskatchewan River and" are struck out of sec. 7, chap. 122 of the statutes of 1909. The company is authorized to construct an extension of its projected railway from its westerly terminus near Prince Albert, Sask., southerly and westerly to Calgary, Alta., and a branch southerly from its previously authorized line to Melfort, Sask. Its bonding powers are increased from $25,000 to $40,000 a mile, and it is given an extension of time for construction. (Mar., pg. 187).

Prince Edward Island Ry.—We are advised that work on the construction on the Harmony-Elmira branch will be resumed at an early date. When work was suspended at the end of the construction season of 1909 the contractors had completed the clearing of the right of way for its entire length, 9.9 miles, and had practically completed the culvert work. These culverts were all of concrete. Grading will be the first work taken in hand this spring. Whitehead Brothers, Grand Falls, N.B., are the contractors. (Feb., pg. 111).

Newfoundland Ry.—The Legislature has given a second reading to the branch railways bill, which confirms a contract with the company for the construction of a number of branch lines. The agreement provided for the immediate construction of the branch to Bonavista. This line commences at Shoal Harbor, on the main line, and extends to Bonavista, passing Goose Bay, Southern Bay, Trinity and Cortalina, providing railway accommodation for over 2,000 families. The construction of the branch was undertaken last year, at the solicitation of the Government, in order to provide work for the people of the district on account of the failure of the fisheries. It is expected that the branch will be completed this year. The contract provides for a payment of a cash bonus of $15,000 a mile, with a proviso that the laborers are to receive $1.50 a day. The other branch lines are to be completed within five years, the points between which they are to be constructed are:—Broad Cove to Heart's Content and Grete's Cove, 62 miles; Ransford Bridge to Trepassy, 70 miles; Country Channel to Fortune Bay, 48 miles; Bay of Islands to Bonne Bay, 42 miles. (Mar., pg. 187).

Rocky Mountain Collieries.—Application has been made to the Alberta Legislature for the incorporation of a company with this title, among other things, to build a railway from the coal fields within Rocky Mountain Park, Alta., northerly or northeasterly to the Canadian Northern Ry. or some of its branches, or southerly or easterly to the C.P.R. or some of its branches, or to connect with both lines. Short, Biggar, Cowan & Collisson, Edmonton, Alta., are solicitors for applicants.

Rural Ry. of Manitoba.—Application has been made to the Manitoba Legislature for the incorporation of a company with this title to build a railway to be operated by steam or electricity from St. Boniface, southerly, and on the east side of the Red River to the International boundary at Emerson; and from Winnipeg on the west side of the Red River to Emerson, and along the St. Boniface streets, with power to acquire running rights over existing lines. Power to operate steamboats on the Red River is also asked. The provisional directors are: A. Galliot, Notre Dame des Lourdes; P. Gevaert, J. E. Beaupre, N. Bernier, St. Boniface; F. Deniest, Winnipeg. (Feb., pg. 111).

St. John Valley Ry.—For many years past, said the Lieut.-Governor at the opening of the New Brunswick Legislature recently, there has existed a strong desire among the residents of the St. John River Valley for the construction of a railway which will, it is believed, add in a very great measure to their prosperity and be of general benefit to the province. All legislation heretofore passed for aiding such a work, has proved ineffective in accomplishing the purpose desired. A bill will be introduced at the present session, which, it is hoped, will result in the accomplishment of this long desired and desirable work at no far distant day.

F. B. Carvell, M.P., writing the Premier of N.B., Feb. 28, said he was satisfied that if the Legislature would give a guarantee of bonds to the extent of $25,000 a mile the Dominion Government would provide for the granting of a subsidy on the usual terms, towards the construction of this line. (Mar., pg. 211).

Temiskaming and Northern Ontario Ry.—The Ontario Legislature has amended the Commission's powers by authorizing it, subject to the approval of the Government, to construct an extension from the main line between mileage 205 and 228 westerly or south westerly to the Mettagami River in Mountjoy tp., a distance of about 40 miles. This extension would give an entrance into the Porcupine country in which there is a large mining population.

A contract has been let for the erection of several steel bridges over the Wabis River north of New Liskeard. (Mar., pg. 211).

The Toronto, Haliburton and Pembroke Ry. Co. has been incorporated by the Ontario Legislature to build a railway from Barry's Bay to Haliburton, Ont., or alternatively from the Canada Atlantic Ry. to Haliburton. (Mar., pg. 211).

Yellowhead Coal Co.—Application has been made to the Alberta Legislature for the incorporation of a company with this title, or to empower the joint stock company with the same title to construct a railway from Lacombe, on the C.P.R. Calgary-Edmonton line, to the Brazeau River, and along the river to its headquarters. Short, Biggar, Cowan and Collisson, Edmonton, Alta., are solicitors for applicants. A press report states that 50 miles of line will be built this year, and that M. J. O'Brien, Renfrew, Ont., is interested.

Telephone Dispatching on the C. P. R.

The following telephone dispatching circuits have already been installed on the C.P.R. as announced in the Railway and Marine World from time to time, and are in good working order:—

Montreal Que., to Newport, Vt.	111 miles
White River to Fort William, Ont.	251 "
Winnipeg to Brandon, Man.	133 "
Swift Current, Sask., to Medicine Hat, Alta.	117 "

The following additional circuits are to be installed immediately:—

Chalk River to Cartier, Ont.	232 miles
Sudbury to Muskoka, Ont.	129 "
Sudbury to Sault Ste. Marie, Ont.	183 "
Cartier to White River, Ont.	269 "
Brandon, Man., to Broadview, Sask.,	132 "
Broadview to Moose Jaw, Sask.	135 "
Moose Jaw to Swift Current, Sask.	111 "

The new circuits, with those already completed, will make a total of 1,836 miles which will be in operation in a few months. The additional circuits authorized will provide for complete equipment of the main line from Chalk River, Ont., to Medicine Hat, Alta., 1,829 miles, except between Fort William and Winnipeg, 419 miles, which is double track, besides the Muskoka, Sault Ste. Marie and Montreal—Newport branches.

The Grand Trunk, B.C., Coal Co., has been incorporated under the British Columbia Companies' Act, with a capital of $1,000,000 to carry on a general mining business.

Recent Dominion Legislation.

Among the first batch of acts to be assented to at the current session of the Dominion Parliament, Mar. 17, were the following affecting transportation interests:—

Calgary and Edmonton Ry.—Extending time for construction of branch lines, and authorizing extension of branch lines.

Campbellford, Lake Ontario and Western Ry.—Extending time for construction.

Canadian Pacific Ry.—Authorizing construction of additional lines, and extending time for construction.

Central Ontario Ry.—Authorizing making of agreements with certain other railways.

Columbia and Western Ry.—Extending time for construction.

Eastern Townships Ry.—Extending time for construction.

Edmonton and Slave Lake Ry.—Extending time for construction.

Edmonton, Dunvegan and British Columbia Ry.—Extending time for construction.

Esquimalt and Nanaimo Ry.—Extending time for construction.

Grand Trunk Pacific Branch Lines.—Authorizing construction of additional lines.

Kamloops and Yellowhead Pass Ry.—Extending time for construction.

Kettle River Valley Ry.—Authorizing construction of additional lines, and extending time for construction.

London and Lake Erie Ry. and Transportation Co.—Act of incorporation, and authorizing it to take over property and franchises of South Western Traction Co.

Manitoba and Northwestern Ry.—Extending time for construction.

Manitoulin and North Shore Ry.—Extending time for construction.

Montreal, Ottawa and Georgian Bay Canal Co.—Extending time for construction.

Nicola, Kamloops and Similkameen Coal and Ry. Co.—Extending time for construction.

Ottawa, Northern and Western Ry.—Extending time for construction.

Pacific and Atlantic Ry.—Extending time for construction.

St. Clair and Erie Ship Canal Co.—Extending time for construction.

St. Maurice Valley Ry.—Extending time for construction.

South Ontario Pacific Ry.—Extending time for construction.

Vancouver and Coast Kootenay Ry.—Act of incorporation.

Vancouver, Westminster and Yukon Ry.—Extending time for construction.

Walkerton and Lucknow Ry.—Granting extension of time for construction.

Western Canada Power Co.—Authorizing construction of a railway.

West Ontario Pacific Ry.—Extending time for construction.

Nova Scotia Steel and Coal Co., Ltd.

Following are statistics of the company's business last year:—

Coal shipped	[illegible]	gross tons
Ore shipped	460,387	"
Coke made	87,816	net tons
Limestone quarried	75,407	"
Pig iron made	58,676	"
Steel ingots made	64,240	
Steel billets rolled	53,921	
Bars and plate made	15,[illegible]	
Car axles made	27,703	pieces.
Freight carried by its Sydney Mines Ry.	1,629,1[illegible]	gross tons
Freight carried by steamers owned and chartered by the Co.	925,000	"

Freight paid to I.C.R. as follows:

Outward from New Glasgow	$153,000
Inward from New Glasgow	6[illegible]
Outward from Sydney Mines	51,774
Inward from Sydney Mines	32,257
	$301,231

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Canadian Northern Ry. Earnings, Etc.

Gross earnings, working expenses, net profits, increases or decreases from 1908-09, from July 1, 1909:

	Earnings.	Expenses.	Net Earnings.	Net Increase or Decrease.
July	$ 843,500	$613,900	$229,600	$26,700+
Aug.	807,100	602,700	204,400	18,300+
Sept.	1,076,800	765,300	311,500	60,400+
Oct.	1,384,200	903,500	480,700	60,600+
Nov.	1,517,600	970,100	547,500	134,000+
Dec.	1,160,300	825,900	334,400	49,300+
Jan.	792,200	689,700	122,500	22,200+
	$7,581,600	$5,351,100	$2,230,500	$372,300+
Inc.	$ 1,420,300	$1,048,000	$372,300	.....

Approximate earnings for Feb. $398,900, and for two weeks ended Mar. 14, $385,700, against $502,600 and and $289,100 for same periods 1909.

C.P.R. Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits, increases or decreases over 1908-9, from July 1, 1909:

	Earnings.	Expenses.	Net Profits.	Net Increase or Decrease
July	7,140,029.93	4,660,159.20	2,479,870.73	205,297.48+
Aug.	7,426,984.62	4,462,926.75	2,964,057.87	385,159.16+
Sept.	8,323,178.03	4,891,288.86	3,431,889.17	1,317,281.40+
Oct.	9,744,596.87	5,358,299.08	4,386,297.19	1,731,030.48+
Nov.	9,075,963.93	5,383,625.98	3,692,337.95	1,471,258.60+
Dec.	8,214,758.01	5,099,334.94	3,115,423.10	918,671.53+
Jan.	6,104,426.90	4,787,830.51	1,316,596.39	926,846.56+
	$56,029,938.32	$34,643.465.92	$21,386,472.40	$6,955,545.21+
Inc.	$10,556,420.68	$3,600,875.47	$6,955,545.21	.....

Approximate gross earnings for Feb., $5,813,000, and for two weeks ended Mar. 14, $3,212,000, against $4,819,000 and $2,841,000 for same periods 1909.

DULUTH, SOUTH SHORE AND ATLANTIC RY.—Operating revenue for Jan., $211,326.74; expenses, $165,778.20; net revenue, $45,548.54, against $196,966.91 operating revenue; $162,358.35 expenses, $34,608.56 net revenue for Jan., 1909. Aggregate operating revenue for seven months ended Jan. 31, $1,931,069.45; expenses, $1,314,960.87; net revenue, $616,108.58, against $1,580,825.03 aggregate operating revenue; $1,149,620.09 expenses; $431,204.94 net revenue for same period 1908-09. Approximate earnings for Feb., $219,473, and for two weeks ended March 14 ,$119,346 against $193,014 and $93,051 for same periods 1909.

MINERAL RANGE RD.—Operating revenue for Jan., $69,176.20; expenses, $61,767.71; net revenue, $7,408.49, against $62,666.03 operating revenue; $58,785.17 expenses; $3,880.86 net revenue for Jan., 1909. Aggregate operating revenue for seven months ended Jan. 31, $508,462.22; expenses, $428,419.96; net revenue, $80,042.26, against $490,512.66 aggregate operating revenue; $398,692.08 expenses; $91,820.58 net revenue for same period 1908-09. Approximate earnings for Feb., $64,148, and for two weeks ended March 14, $31,346 against $59,621 and $29,673 for same periods 1909.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RY.—Operating revenue for Jan., $1,213,323.38; expenses and taxes, $694,082.28; operating income, $519,241.10, against $762,640.67 operating revenue, $596,475.43 expenses and taxes; $166,165.24 operating revenue for Jan., 1909. Total operating revenue for seven months ended Jan. 31, $9,805,527.02; expenses and taxes, $5,254,995.49; operating income, $4,550,531.53, against $7,801,440.83 total operating revenue; $4,733,239.16 expenses and taxes; $3,068,201.67 operating income for same period 1908-09. Approximate earnings for Feb., $1,479,199, and for two weeks ended March 14, $804,577, against $1,302,252 and $700,015 for same periods 1909.

CHICAGO DIVISION.—Operating revenue for Jan., $723,049.14; expenses and taxes, $533,270.07; operating income, $189,79.07, against $555,631.79 operating revenue; $462,320.16 expenses and taxes; $93,311.63 operating income for Jan., 1909. Total operating revenue for seven months ended Jan. 31, $5,000,509.28; expenses and taxes, $3,527,314.50; operating income, $1,473,194.78, against $4,466,965.72 total operating revenue; $3,162,692.31 expenses and taxes; $1,304,273.41 operating income for same period 1908-09.

Grand Trunk Ry. Earnings, Expenses, Etc.

The following figures show the earnings of the G.T.R., C.A.R., G.T. Western Ry., and D.G.H. and M. Ry., separately, for Jan., as compared with Jan. 1909.

GRAND TRUNK RAILWAY.

	1910.	1909.
Earnings	$2,385,700	$1,999,200
Expenses	2,063,000	1,745,900
	$322,700	$244,300

CANADA ATLANTIC RAILWAY.

	1910.	1909.
Earnings	$142,900	$113,000
Expenses	129,900	123,400
	$13,000	*$10,400

GRAND TRUNK WESTERN RAILWAY.

	1910.	1909.
Earnings	$465,500	$416,400
Expenses	381,200	334,200
	$84,300	$82,200

DETROIT, GRAND HAVEN AND MILWAUKEE RAILWAY.

	1910.	1909.
Earnings	$158,700	$120,800
Expenses	134,600	101,700
	$24,100	$19,100

Deficit.

TRAFFIC RECEIPTS FOR THE SYSTEM.

Aggregate from Jan. 1 to Feb. 28:—

	1910	1909	Inc.
Grand Trunk	£952,123	£812,691	£139,432
Canada Atlantic.	53,253	45,150	8,103
G.T. Western	190,437	157,873	32,564
D.G.H. & M.	61,458	46,591	14,867
Totals	£1,257,271	£1,062,305	£194,966

Approximate gross earnings for Feb., $2,965,729, and for the two weeks ended Mar. 14, $1,601,797, against $2,529,471 and $1,334,192 for same periods 1909.

Great Northern Ry. Lines in Canada.

Winnipeg Entrance.—L. C. Gilman, Assistant to the President G.N.R., and T. Cooper, Assistant to the President Northern Pacific Rd., attended a joint meeting of the Board of Works and the Railway Committee of the Winnipeg City Council, Mar. 8, to discuss the plan, prepared by the companies, for the entry into the city. The plans produced showed a line coming into the city from the west and passing from McPhillips St., on a line between Ross and Pacific Avenues, west of Paulin St., together with numerous shunting tracks and a freight station. The plans include the closing of Ellen St. for the width of the yards and also the closing of Leonard St. It is proposed to make a subway at Nena, between Ross and Pacific, by lowering the street 5 ft. and raising the track 10 ft. Objections were made by citizens on the ground that the company's charter contemplated an entrance from the south-east, and not from the west, and it was urged that the proper route should have been between Henry and Higgins Sts., where the streets had blind ends. The meeting was adjourned to enable the companies' representatives to submit their proposals in writing.

As a result of the adjourned meeting of the committee held Mar. 18, it was unanimously decided not to accede to the request to construct freight and shunting yards in the block bounded by Ross and Pacific Avenues and Isabel and Nena Streets. The plan as outlined by L. C. Gilman provides for a subway at Nena Street sunk 6 ft. below the level of the street and an elevation of 10 ft. above the street level for the tracks, these tracks to stop at Isabel St. From Isabel to Paulin Street a spur track would be constructed. Shunting along this track would only be done at night over a level crossing at Isabel Street, where gates would probably be placed. The application to the committee was made in the name of the Midland Ry. of Manitoba.

Brandon, Saskatchewan and Hudson Bay Ry.—The Dominion Parliament is being asked to extend the time within which the company may construct its authorized lines.

Penticton Ry.—Application is being made to the British Columbia Legislature to incorporate a company with this title to construct a railway from Penticton, to the lower end of Okanagan Lake, and southerly from that lake to the International boundary, where connection will be made with a spur northerly from Oroville, Wash. The provisional directors are:—A. H. MacNeill, solicitor for the Great Northern Ry., Vancouver, B.C., and J. H. Kennedy, Chief Engineer, Vancouver, Victoria and Eastern Ry., Grand Forks, B.C. Oroville is a station at the International boundary between B.C. and Washington, on the V.V. and E. Ry.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—The House of Commons has granted the company an extension of time within which it may construct its authorized lines. A proviso is added that if the extensions west of Princeton, are not constructed wholly within British Columbia, the powers of construction conferred upon the company shall be wholly void.

Business Opportunities in the West.

F. W. Peters, Assistant to the Second Vice President C.P.R., has charge of the work of the Industrial Department, which is engaged in the locating of settlers, the development of enterprises and manufactories at all points along the Western lines. He has compiled a 93 page publication, in which is given descriptive particulars of 424 towns on the company's lines from Port Arthur, to the West Coast of Vancouver Island, whither a line is now under construction. The greater part of the statistical information given is brought down to Dec. 31, 1909, and where these figures were not available the figures are to Dec. 31, 1908. The important point about the information is that indications are given of the openings which exist for the investment of capital in starting flour mills, and many other industries, or for lawyers, doctors, dentists, storekeepers, blacksmiths, carpenters, etc. An index is given to the stations, and another to the "industrial requirements." In this latter is shown under the provincial headings a list of the "wants" of the different places classified under the various trades, occupations, etc. Great care has been taken in collecting the information, but, as Mr. Peters says, the conditions change so rapidly in the West, that many of the openings noted may be gone when an enquiry is made. Hence he recommends enquirers to keep in touch with the Department so that they may have accurate and up-to-date information. It is proposed to reissue the publication at the end of the year, revised and brought up-to-date.

News for G. T. R. Officials.

Our esteemed contemporary, Canada, "an illustrated weekly journal for all interested in the Dominion," published in London, Eng., had the following in a recent issue:—

"CHANGES IN GRAND TRUNK RAILWAY STAFF.

"Mr. H. E. Byram has been appointed assistant to the first vice-president of the Grand Trunk Railway, and will have jurisdiction over the operating departments. Mr. C. G. Burnham will continue to act as assistant to the first vice-president, and will have jurisdiction over the traffic departments. Mr. D. Miller, first vice-president, will, in addition to his present duties, assume charge of the operating departments. These changes have been brought about as a result of the appointment of Mr. D. Willard as president of the B. & O. R.R."

Comment is unnecessary, further than to remark that none of the persons mentioned are or have ever been in the G.T.R. service.

A Railway to Hudson Bay.

J. Armstrong, Chief Engineer of the Dominion surveys for the projected railway to Hudson Bay, returned to Winnipeg, Mar. 20, from Pas Mission, Sask., where he had a consultation with W. J. Clifford, who had been in charge of the surveys carried on during the winter. Mr. Armstrong states that the result of the winter's work shows that there will be no heavy construction upon the first portion of the projected line. The location work will be continued by Mr. Clifford during the summer, and in June, another party will be sent north for the purpose of making surveys along the Nelson River. (Mar., pg. 179)

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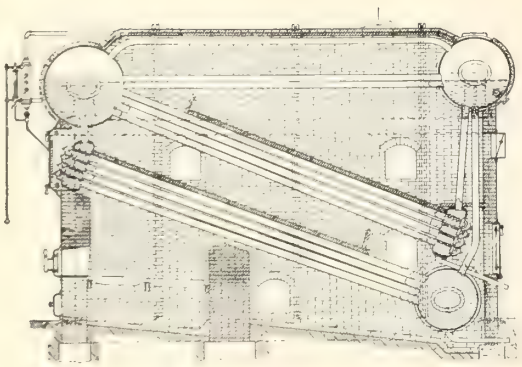

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Orders by the Railway Commissioners.

Beginning with June, 1904, we have published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed our paper have a continuous record of the Board's proceedings. No other paper has done this.

The dates given of orders, immediately following the numbers, are those on which the hearing took place and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the date assigned to them.

9595 to 9598. Feb. 16.—Authorizing Nipissing Power Co. to place wires across Bell Telephone Co.'s wires at four points in Ontario.

9599 to 9609, Feb. 17.—Authorizing Seymour Power and Electric Co., to place wires across North American Telegraph Co. s wires, at 11 points.

9610. Feb. 17.—Authorizing C.P.R. and Ottawa and New York Ry. to operate trains over crossing at Finch, Ont., without stopping.

9611. Feb. 17.—Authorizing C.N.O.R. to divert Kingston and side roads in Hamilton tp., and to cross same overhead.

9612. Feb. 17.—Amending order 8575, Oct. 27, 1909, which authorizes V.V. & E.R. to connect with B.C. Electric Ry. over Front and Columbia Sts., Vancouver, B.C., by striking out "B.C. Electric Ry. Co.," and substituting "Vancouver & Lulu Island Ry. Co."

9613. Feb. 7.—Adding Montreal Park & Island Ry., Town of St. Pierre, Lachine parish, and Turnpike Trust as parties to question of protection to be provided at G.T.R. crossing, Lachine Road, Rockfield, Que.

9614. Feb. 17.—Authorizing G.T.R. to build sidings to Northumberland Paper and Electric Co. and Northumberland Pulp Co.'s premises, Campbellford, Ont.

9615. Feb. 7.—Dismissing application of W. Duquette, Mile End, Que., alleging C.P.R. failure to remove snow from private sidings.

9616. Feb. 7.—Ordering that G.T.R. crossing at Eighteenth St., Lachine, Que., be protected by signal bell, 20% to be paid out of the Railway Grade Crossing Fund, and balance by the company.

9617. Feb. 7.—Refusing T. Laferriere's application for order directing C.P.R. to construct suitable farm crossing in St. Cuthbert parish, Que.

9618. Feb. 7.—On application of town of Maisonneuve, Que., prohibiting all unreasonable and unnecessary whistling by those in charge of any locomotive operating within the town, and providing that any person offending shall be liable to a penalty of $50.

9619. Feb. 7.—Authorizing Saraguay Electric and Water Co. to place cable under Montreal Terminal Co. at Rue St. Pierre, Tetreaultville, Que.

9620. Feb. 7.—Adding Montreal Terminal Ry. as a party to application of residents of Pointe Aux Trembles, Que., for order directing C.N.Q.R. to stop its trains at Pointe Aux Trembles for accommodation of public.

9621. Feb. 7.—Ordering C.N.Q.R. to raise tracks between First and Bennett Aves., Maisonneuve, to grade by June 1.

9622. Feb. 7.—Dismissing complaint of L. Lamontagne, of St. Malachie, Que., that National Transcontinental Ry. has taken 100 ft. of his land, and in order to cross same has made a cut at right angles instead of putting in a bridge, thereby allowing snow to accumulate causing damage to his land.

9623. Feb. 7.—Dismissing complaint of W. Ryan, Montreal, as to Bell Telephone rates for house telephone.

9624. Feb. 18.—Authorizing C.P.R. to use bridge 51.3 on its Montreal and Ottawa section.

9625. Feb. 18.—Authorizing C.N.O.R. to build across road between lots 30 and 31, con. 1, Hamilton tp.

9626. Feb. 17.—Extending until Apr. 1 time within which semaphores required under order 8850, Dec. 2, 1909, shall be installed, at G.T.R. and Galt, Preston & Hespeler St. Ry. crossings, Hespeler, Ont.

9627 to 9629. Feb. 18.—Authorizing Ontario Hydro-Electric Power Commission to place wires across C.P.R. at three points.

9630 to 9632. Feb. 18.—Authorizing Sidney Bell Telephone Association to place wires across G.T.R. at three points in Quebec province.

9633. Feb. 18.—Authorizing Walkerville Light and Power Co. to place wires across Pere Marquette Rd., at Walkerville, Ont.

9634, 9635. Feb. 18.—Authorizing town of Penetanguishene, Ont., to lay pipe under G.T.R. at Queen and Main Sts.

9636. Feb. 17.—Authorizing C.N.O.R. to place C.N.O.R. and C.P.R. joint tracks under Bell Telephone Co.'s wires at mileage 0.5, from junction with main line, Parry Sound, Ont.

9637. Feb. 19.—Authorizing Alberta Government to place wires across G.T.P.R. near Stony Plain.

9638 to 9643. Feb. 19.—Authorizing C.N.O.R. to build across six highways in Hope, Hamilton and Clarke tps.

9644. Feb. 7.—Declaring that T. J. O'Neill, Montreal, is entitled to be charged for Bell Telephone at private house, and not business rate.

9645. Feb. 17—Authorizing C.N.O.R. to take lands in Scarboro tp. for diverting two highways.

9646. Feb. 17.—Authorizing G.T.R. to install full interlocking plant where it crosses N. St. C. & T. Ry., between Clifton Jct. and Stamford, Ont.

9647. Feb. 21.—Authorizing C.P.R. to construct its Wetaskiwin east branch across highways in Alberta.

9648. Feb. 17.—Extending until May 15, time within which C.P.R. may complete work required by order 9067, Dec. 28, 1909.

9649. Feb. 21.—Recommending to Governor in council for sanction C.P.R. lease of Orford Mountain Ry. for 999 years.

9650. Feb. 7.—Ordering G.T.R. to install gates at King St. crossing, Sherbrooke, Que., and to reduce shunting across the street to a minimum.

9651. Feb. 16.—Approving Atlantic, Quebec and Western Ry. Standard Freight Mileage Tariff C.R.C. 1, and Standard Passenger Tariff 1, subject to certain conditions.

9652. Feb. 21.—Authorizing C.N.O.R. to build across public road between lots 2 and 3, con. 4, Clarke tp., Ont.

9653, 9654. Feb. 21.—Temporarily approving, pending final determination by Board, Bell Telephone Co.'s tariffs of tolls; as per agreements entered into by it with Laird tp., Dec. 13, and Mount Albert Telephone Co., Dec. 2, 1909, for interchange of messages.

9655. Feb. 21.—Authorizing Hamilton Cataract Power, Light and Traction Co. to place wires across T. H. & B. R. at lot 2, con. 4, Barton tp., Ont.,

9656, 9657. Feb. 21.—Authorizing Ontario Hydro-Electric Power Commission to place wires across T. H. and B. R. in Gainsboro and Ancaster tps.

9658. Feb. 21.—Authorizing Oak Bank Telephone Co. to place wires across C.P.R. between sec. 21 and 28, tp. 11, r. 5, e., Man.

9659, 9660. Feb. 22.—Authorizing Bell Telephone Co. to place wires across P.M. Rd. at Kingsville, Ont., and across St. Lawrence & Adirondack Ry. at Woodlands, Que.

9661 to 9673. Feb. 21, 22.—Authorizing C.N.O.R. to build across 13 highways in Clarke, Scarboro, Hope and Pickering tps.

9674. Feb. 21.—Authorizing G.T.R. to construct a branch between its main line east of Port Hope viaduct and its Northern Division at Port Hope, Ont., and directing that Jacob's Ladder, so-called, be placed underneath the tracks, to be at least 6 ft. wide and 7 ft. high; to be operated by and at the expense of the town.

9675. Feb. 21.—Ordering that, in connection with the protection of G.T.R. crossing at John St., Port Hope, Ont., the company have the option of installing an electric bell or limiting the speed of its trains to 10 miles an hour.

9676. Feb. 22.—Approving C.N.O.R. plan showing bridge over Goforth's Creek, on its Toronto-Ottawa Division.

9677 to 9679. Feb. 22.—Authorizing Manitoba Government Telephones to place wires over C.N.R. and C.P.R. at three points.

9680 to 9682. Feb. 22.—Authorizing W. Y. Cannon to erect telephone wires across Kingston & Pembroke Ry. at Clarendon, Oso and Sharbot Lake Jct., Ont.

9683, 9684. Feb. 22.—Authorizing Bell Telephone Co. to place wires across G.T.R. at two points in Richmond, Que.

9685. Feb. 22.—Authorizing People's Telephone Co. to place wires across G.T.R. in Plympton tp., Ont.

9686. Feb. 22.—Authorizing C.N.O.R. to build across road, at lot 21, con. 3, Darlington tp.

9687. Feb. 22.—Authorizing C.N.O.R. to build bridge over Gages Creek, Hamilton tp.

9688. Feb. 24.—Authorizing C.N.O.R. to build across public road between lots 5 and 6, con. 3, and lot 4, con. 3, East Whitby tp.

9689. Feb. 24.—Rescinding order 9591, Feb. 17, authorizing C.N.O.R. to build across public road between cons. 1 and A, Hamilton tp.

9690. Feb. 21.—Ordering G.T.R., pending hearing, to provide watchman at crossings just east of its station in Beachville, Ont., the watchman to be on duty between 7 a.m. and 8 p.m. daily.

9691. Feb. 23.—Amending order 9613, Feb. 7, re G.T.R. crossing at Lachine Road, Rockfield, Que.

9692. Feb. 23.—Authorizing C.P.R. to build spur for Hamilton Powder Co. near Barnett station, New Westminster District, B.C.

9693, 9694. Feb. 23. Authorizing C.N.O.R. to place its tracks and telegraph wires under G.N.W. Telegraph Co.'s wires at stations 2991÷67 and 2990÷17, west from Hawkesbury.

9695. Feb. 23.—Authorizing Bell Telephone Co. to place wires across G.T.R. telegraph wires at Main St., Richmond, Que.

9696. Feb. 23.—Authorizing Pipestone rural municipality to place wires across C.P.R. near Reston Station, Man.

9697. Feb. 23.—Authorizing Lincoln Electric Light and Power Co. to place wires across G.T.R. at Niagara St., St. Catharines, Ont.

9698. Feb. 23.—Authorizing Seymour Power and Electric Co. to place wires across G.T.R. at Madoc, Ont.

9699. Feb. 23.—Authorizing Consumers' Gas Co. to lay main under G.T.R. at Woodbine Ave., Toronto.

9700. Feb. 23.—Approving C.N.R. location through tps. 53-52 and r. 15, w. 5 m., and unsurveyed tps. 51-45, r. 15-18, w. 5 m., mileage 0 to 60.45, from junction with main line at mileage 124.48, Alta.

9701. Feb. 24.—Authorizing Canada Atlantic Ry. to build bridge over St. Lawrence River at Coteau, Que.

9702. Feb. 22.—Approving G.N.R. rules governing the operation of trains in Canada.

9703. Feb. 23.—Authorizing King Independent Telephone Co. to place wires across G.T.R. near King station, Ont.

9704. Feb. 24.—Authorizing C.N.O.R. to build across public road south of Hammer station, Capreol tp.

9705. Feb. 25.—Authorizing Alke Telephone Lines to place wires across G.T.R. in Phelpston village, Ont.

9706. Feb. 25.—Approving G.T.P.R. location, Prince Rupert, B.C., easterly, mileage 559 to 408.69.

9707. Feb. 24.—Authorizing C.N.O.R. to build across public road between lot 11, con. 2, and lot 11, con. 1, Capreol tp.

9708. Feb. 24.—Authorizing C.P.R. to build spur connection with Winnipeg Electric Ry.'s gas works spur, running northeasterly and crossing Sutherland ave., Winnipeg.

9709, 9710. Feb. 25.—Authorizing C.N.O.R. to build across public roads in Capreol and Hutton tps.

9711. Feb. 25.—Approving C.N.R. location through tps. 38 to 29, r. 19 to 21, w. 4 m., mileage 104.73 to 171.66, Alta.

9712. Feb. 25.—Interpreting order 9226, Jan. 8, in connection with Western Associated Press application, respecting telegraphic tolls. This order is given in full on another page.

9713 to 9715. Feb. 26.—Authorizing Pipestone municipality to place wires across C.N.R. at three points, in Manitoba.

9716 to 9718. Feb. 26.—Authorizing Sutton village, Que., to place wires across C.P.R. at three points.

9719. Feb. 22.—Ordering G.T.R. to keep view at first public crossing west of Longwood station, Ont., free from obstruction, and authorizing it, subject to this condition, to operate trains over the crossing without speed limitation.

9720. Feb. 24.—Authorizing V., V. & E. Ry. and Nav. Co. to construct spurs across B.C. Electric Ry. and certain streets and lanes in Vancouver, B.C.

9721. Feb. 25.—Approving plans of drain to be constructed by Raleigh tp. under G.T.R.

9722. Feb. 25.—Authorizing C.P.R. to build spur for Standard White Lime Co., Beachville, Ont.

9723. Feb. 26.—Approving C.N.R. location through tps. 45 to 39, r. 18 to 20 w. 4th m., mileage 56.17 to 104.17, Alta.

9724. Feb. 26.—Approving C.N.O.R. location through unsurveyed territory in Sudbury Mining Division, mileage 120 to 140 from Sudbury Jct.

9725. Feb. 24.—Ordering that, until further ordered, G.T.R. crossings at Trafalgar road and Hale st., in London tp., just east of London, Ont., be protected by electric bell to be installed within three months.

9726. Feb. 25.—Authorizing city of Brantford, Ont., to construct bridge on South Market st. over Western Counties Electric Co.'s canal and Toronto, Niagara & Western, Grand Trunk Rys., and Brantford & Hamilton Electric Ry.

9727. Feb. 28.—Approving G.T.P.R. location, Yorkton-Canora branch, from mileage 25 to 54.70, Sask.

9728. Feb. 28.—Approving Supplement 3 to C.N.R. Standard Freight Tariff C.R.C. 38, giving maximum freight tolls on Pas Mission branch between Hudson Bay Jct., Sask., and Pas Mission, Keewatin; also between stations on said branch and stations on C.N.R. lines west of and including Port Arthur, Ont., and on Qu'Appelle, Long Lake & Saskatchewan Rd. and Steamboat Co.'s lines.

9729. Feb. 28.—Approving C.P.R. standard plans for highway and farm crossings.

9730. Feb. 28.—Authorizing C.N.R. to open for traffic its line from Etoimami, Sask., to Pas Mission, Keewatin, and ordering it to provide a mixed train service once a week each way; speed not to exceed 18 miles an hour.

9731. Feb. 22.—Authorizing C.N.R. to open for traffic its line from Dalmeny to Laird, Sask.

9732, 9733. Feb. 25.—Ordering that M.C.R. crossings immediately west of Woodslee station and immediately west of Wyndham station, Ont., be protected by standard electric bells.

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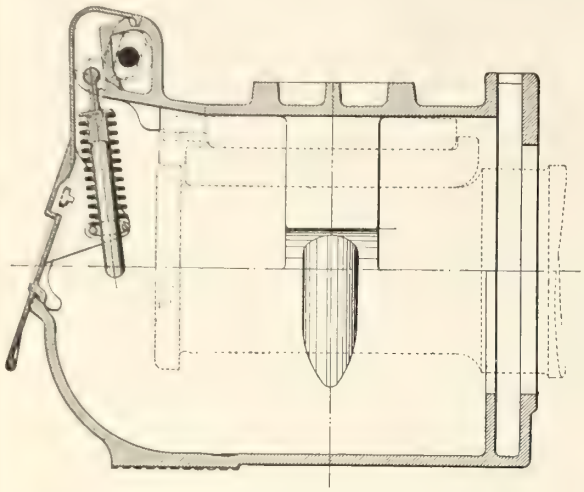

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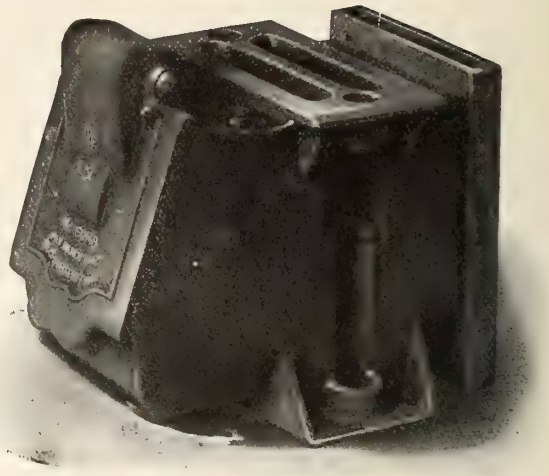

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9734. Feb. 28.—Approving Canada Atlantic Ry. plans of proposed station at Henrysburg, Que.

9735, 9736. Feb. 28.—Authorizing C.P.R. to build sidings into Canada Furniture Company's premises, Woodstock, Ont., and Colonial Wood Products Co.'s premises, Thorold, Ont.

9737. Feb. 28.—Authorizing Bell Telephone Co. to place wires across G.T.R. near Richmond, Que.

9738. Feb. 28.—Authorizing Manitoba Government Telephones to place wires across C.P.R. near Bradwardine.

9739. Feb. 28.—Authorizing Bell Telephone Co. to place wires across G.T.R. at Laprairie, Que.

9740. Feb. 28.—Authorizing Montreal & Southern Counties Ry. to place wires across G.T.R. on Common st. and at Three Diamond crossing, near Riverside st., Montreal.

9741. Feb. 28.—Authorizing city of Montreal to lay sewers under C.P.R. at Papineau ave.

9742. Mar. 2.—Authorizing G.T.R. to build spurs to Doolittle and Wilcox's premises, Dundas, Ont.

9743 to 9750. Mar. 1.—Ordering that G.T.R. be relieved, for the present, from providing further protection at crossing at first highway west of Kingscourt Jct., Ont.; and M.C. Rd. from providing further protection at crossings, one mile east of Taylor second crossing east of Attercliffe; first highway west of Buxton; second highway east of West Lorne; highway east of Charing Cross; four miles west of Ridgetown and highway west of Dufferin, Ont., it appearing from inspections made by the Board's Engineer and Operating Department that views from both directions are excellent, and crossing boards and whistling posts provided.

9751. Feb. 28.—Authorizing C.P.R. to carry party of McGill University mining students at special rate of $40 each from Montreal to Rossland, Phœnix and Greenwood, B.C., and return, or of $50 each from Montreal to Vancouver, B.C., and return, including side trips to Rossland, Phœnix, and Greenwood, B.C.

9752. Feb. 21.—Approving C.N.Q.R. plan of revised crossing of St. Michel road, mileage 5.05, and rescinding order 8746, Nov. 19, 1909, in so far as it approves of crossing as shown on plan on file with the Board.

9753. Feb. 21.—Ordering M.C.R. to construct track for interchange of traffic with P.M.R. at Leamington, Ont.; the Leamington Canning Co. to furnish necessary land; plans to be approved by the Board's Engineer.

9754. Mar. 2.—Authorizing C.N.O.R. to build across public road between Ontario and Durham counties at station 1862÷87.

9755. Feb. 26.—Ordering that M.C.R. crossing just west of Comber station, Ont., be protected by gates to be installed not later than May 1, and operated daily between 7 a.m. and 7 p.m.

9756, 9757. Mar. 2.—Authorizing Argyle municipality to place wires across C.N.R. at two points near Neelin station, Man.

9758. Feb. 26.—Authorizing Ontario Hydro-Electric Power Commission to place wires across Lake Erie and Detroit River Ry. in Yarmouth tp.

9759. Feb. 17.—Ordering that on and after Mar. 15 use by C.P.R. and G.T.R. of Lachine Canal Bank branch and sidings shall be subject to the terms of the agreement, and varied to provide that cost of operation be divided equally, and cost of maintenance be divided on a mileage basis.

9760. Feb. 23. Amending order 3245 in so far as it applies to operation by Boston and Maine Rd. in Canada, so as to permit the use upon engines with extension smoke boxes of perforated spark plates made from steel plate, No. 8 gauge, with staggered perforations 3-16"×1½"; width of bridges between sides of perforations ⅛", and between ends of perforations 3-16", in place of No. 10 B.W.G. netting mesh.

9761. Mar. 1.—Dismissing National Transcontinental Ry. applications under secs. 227 and 256, for leave to cross overhead the C.N.R. terminal tracks and spurs in Winnipeg.

9762, 9763. Mar. 2.—Authorizing Seymour Power & Electric Co. to place wires across North American Telegraph Co.'s wires at Campbellford, and across Bay of Quinte Ry. at Stoco, Ont.

9764 to 9773. Mar. 2.—Authorizing Manitoba Government Telephones to place wires across C.N.R. at 10 points.

9774. Mar. 4.—Authorizing G.T.R. to build cross-over track on Ferguson ave., Hamilton, Ont.

9775. Mar. 3.—Authorizing C.P.R. to build two spurs for the Alberta Clay Products Co., Medicine Hat, Alta.

9776. Mar. 4.—Amending order 9047, Dec. 24, 1909, by substituting Twenty-fourth st. for Twenty-third st.

9777. Mar. 3.—Ordering that all telegraph companies doing business in Canada file with the Board, on or before April 1, copies of all forms used in transmitting and receiving messages.

9778. Mar. 1.—Ordering C.P.R. to carry out certain improvements along its right of way in Medonte tp., Ont., and that it install an electric bell at crossing at mileage 162.95, by May 1.

9779. Mar. 3.—Ordering that M.C.R. crossing just west of Ruscombe station, Ont., be protected by standard automatic electric bell.

9780. Mar. 3.—Dismissing application of St. Jacques des Piles parish, Que., for an order directing C.P.R. to construct a crossing where it intersects street I.

9781. Mar. 3.—Authorizing Vancouver, Victoria & Eastern Ry. & Navigation Co. and C.P.R. to operate trains over crossing on line from Sapperton to Fraser River Lumber Co.'s mills, New Westminster, B.C., without first being brought to a stop.

9782. Feb. 21.—Ordering Bell Telephone Co. to provide connection with West Williams Telephone Co., Parkhill, Ont., upon terms to be agreed upon.

9783. Mar. 5.—Approving Esquimalt & Nanaimo Ry. location from mileage 0 at Parksville on its Wellington-Alberni branch to mileage 34.79, at Union Bay, Vancouver Island, B.C.

9784. Mar. 5.—Authorizing C.N.O.R. to divert road between lots 20 and 21, con. 4, Whitby tp.

9785 to 9789. Mar. 4.—Authorizing Bell Telephone Co. to place wires across G.T.R. at five points in Ontario.

9790. Mar. 7.—Authorizing Essex Terminal Ry. to build second track and a spur across MacDougall st., Sandwich West tp., Ont.

9791. Mar. 4.—Authorizing C.P.R. to build across highways in Etobicoke tp., Ont.

9792. Mar. 7.—Authorizing C.P.R. to operate 24 bridges on its Mountain, Edmonton, Shuswap, Medicine Hat and Laggan sections.

9793. Mar. 4.—Authorizing C.P.R. to build extension to spur to Brandon Brewing Co.'s premises, Brandon, Man.

9794. Mar. 3.—Ordering M.C.R. to install standard automatic electric bell between Medora and Thomas st. crossings, west of Essex station, Ont.

9795. Mar. 7.—Authorizing C.P.R. to use subways at First st. west and Second st. east, Calgary, Alta.

9796. Mar. 7.—Authorizing C.P.R. to use bridge over ferry slip, Vancouver, B.C.

9797. Mar. 7.—Authorizing C.P.R. to use bridges 8.2 and 38.3, on its Macleod section, Alta.

9798. Mar. 7.—Authorizing C.P.R. to use four bridges on its Swift Current section, Sask.

9799. Mar. 8.—Authorizing G.T.R. to build passing track across road between lots 5 and 6, in concession fronting on Great Cataraqui River, Kingston tp., Ont.

9800. Mar. 8.—Authorizing Goderich Elevator and Transit Co. to build bridge for pedestrians across G.T.R. to C.P.R. at Goderich, Ont.

9801. Mar. 8.—Ordering V., V. & E. Ry. & Nav. Co. to grade and put in good order before July 1, within its right of way limits, approaches to undergrade crossing on Anderson's farm, New Westminster District, B.C.

9802. Mar. 1.—Ordering G.T.R. to protect crossings at Main st., Ottawa East, by gates to be installed not later than June 1, and to be operated by day and night watchmen.

9803. Mar. 7.—Authorizing Essex Terminal Ry. to build second track across Dougall road, Sandwich West Tp., Ont.

9804. Mar. 7.—Authorizing C.P.R. to use bridge at mileage 31.2, on its Cascade section, B.C.

9805. Mar. 1.—Ordering G.T.R. to install electric bell at Main st. crossing, Carp village, Ont.

9806. Mar. 8.—Rescinding order 9157, Jan. 5, authorizing C.N.O.R. to cross and divert G.T.R. near Brighton, Ont.

9807. Mar. 8.—Amending order 9736, Feb. 28, authorizing building of a branch line in Thorold, Ont.

9808. Mar. 8.—Authorizing Seymour Power & Electric Co. to place wires across C.P.R. at Sulphide, Ont.

9809. Mar. 1.—Ordering that bridge-tender at present employed day and night by G.T.R. at Echo Drive, Ottawa East, shall act as flagman there.

9810. Mar. 8.—Ordering that New York Central Rd. crossing near Beauharnois, Que., be protected by electric bell to be installed and maintained by the company.

9811, 9812, Mar. 8.—Approving G.T.R. plans and specifications of bridges over Moisson and Duck Creeks, Rochester tp., Ont.

9813. Mar. 9.—Ordering that rate to be charged by express companies for carriage of daily newspapers from Winnipeg, shall be the same as charged by the Dominion Express Co. in Eastern Canada, namely, ¼c. per lb. on aggregate weight per month, to points reached by the companies within 300 miles of Winnipeg, exclusive of wagon service.

9814, 9815. Mar. 9.—Authorizing Manitoba Government Telephones to place wires across Brandon, Saskatchewan & Hudson Bay Ry. at two points.

9816, 9817. Mar. 9.—Authorizing Farmers' Rural Telephone Co. to place wires across C.P.R. at two points, in B.C.

9818 to 9828. Mar. 9.—Authorizing Hamilton Cataract Power, Light and Traction Co. to place wires across Bell Telephone Co.'s wires at 10 points, and across Hamilton, Grimsby and Beamsville Electric Ry. at one point in Ontario.

9829. Mar. 9.—Ordering that C.P.R. crossing at Merry st., Magog, Que., be protected by an automatic electric bell; the town to do certain filling and fencing at bridge approach.

9830. Feb. 7.—Authorizing Dominion Light, Heat and Power Co. to place wires under Montreal Terminal Ry. at Aird st., Maisonneuve, Que.

9831 to 9838. Mar. 7.—Ordering that G.T.R. be relieved from providing further protection at crossings, south of Milton station; north of Maple; first highway east of York station; between cons. 4 and 5, Tecumseh tp.; south of Beeton station; first highway south of Bradford, and first highway west of Manilla Jct., Ont.; and that M.C.R. be relieved from further protection of crossing at second highway west of Pelton, Ont.; it appearing from inspections made by the Board's Engineer and Operating Department that the views are clear and necessary signboards and whistling posts provided.

9839 to 9847. Mar. 10.—Authorizing Esquimalt and Nanaimo Ry. to build across nine highways on its Comox extension, from mileage 0 at Parksville to mileage 34.79 at Union Bay, B.C.

9848 to 9851. Mar. 9.—Authorizing city of Cranbrook, B.C., to lay water mains under C.P.R.

9852. Mar. 10.—Authorizing Esquimalt and Nanaimo Ry. to build Wellington to Alberni extension across Jones' cross-road at mileage 100.4.

9853 to 9857. Mar. 11.—Ordering that G.T.R. be relieved from providing further protection at crossings one mile south of Craigleith; one mile south of Caldwell; immediately west of Grass Hill station, and just east of Tanner's station; and that C.P.R. be similarly relieved respecting crossing on it Guelph and Goderich branch at mileage 82.6, Hullett tp., Ont., it appearing from inspections by the Board's Engineer and Operating Department that the views are clear and proper signboards and whistling posts provided.

9858. March 11.—Authorizing E. & N. Ry. to build Wellington to Alberni extension across Alberni main road, at mileage 104.8.

9859. Mar. 9.—Authorizing G.T.R. to construct spur to Terminal Warehouse & Cartage Co.'s premises, Montreal.

9860. Mar. 11.—Authorizing E. & N.R. to build Wellington to Alberni extension across Hellier's crossroad at mileage 102.9.

9861, 9862. Mar. 11.—Ordering that G.T.R. be relieved from providing further protection at crossing three miles east of Shakespeare, and that C.P.R. be similarly relieved respecting crossing between cons. 2 and 3, Sandwich East tp., Ont., it appearing from inspections by the Board's Engineer and Operating Department that the views are clear and proper signboards and whistling posts provided.

9863 to 9865. Mar. 11.—Authorizing E. & N. Ry. to build across highway at mileage 2.52 of its Comox extension from mileage 0 at Parksville; and across Alberni main road at mileages 104.1, and 104.7.

9866, 9867. Mar. 11.—Adding the town of Lindsay and Ops tp. as parties to application in connection with question of protection to be provided by G.T.R. at O'Halloran's crossing on concession road between cons. 4 and 5 Ops tp., Ont.

9868, 9869. Mar. 10.—Ordering that C.P.R. be relieved from providing further protection at crossings at Boulding's crossing between lots 9 and 10, Luther tp., and over concession road, between cons. 2 and 3, Caledon tp., Ont., it appearing from inspections by the Board's Engineer and Operating Department, that the views are clear and that proper signboards and whistling posts are provided.

9870. Mar. 9.—Approving C.P.R. plans of shelters to be erected at flag stations.

9871. Mar. 11.—Ordering G.T.P.R. to carry highway over its railway about 2 miles west of Ardrossan Sta., Alta., and that it file plans of overcrossing within 30 days from date.

9872. Mar. 14.—Approving drainage work of Tilbury East tp., Ont., crossing C.P.R. on lot 15, con. 3.

9873. Mar. 14.—Ordering that G.T.R. be relieved from providing further protection at crossing one mile north of Mount Forest, Ont., it appearing from inspection by Board's Engineer and Operating Department that the views are clear and that proper signboards and whistling posts are provided.

9874. Mar. 14.—Approving proposed deviation of Central Ontario Ry., Whitney extension, between stations 1382 and 1461.

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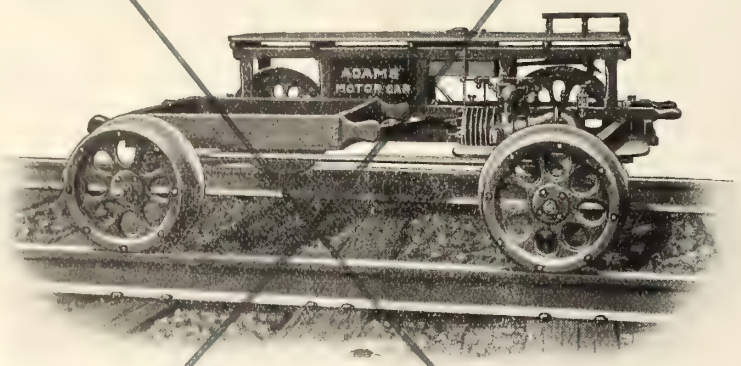

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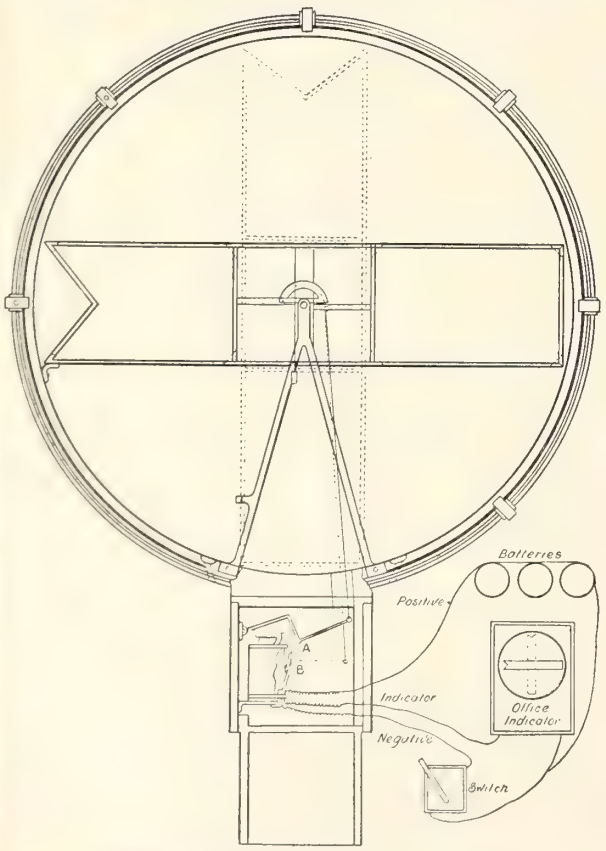

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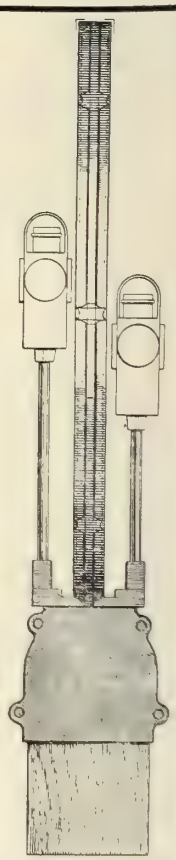

Side View of McAvity Electric Railway Signal, Type B.

9875. Mar. 14.—Ordering G.N.R. to erect fences for 1½ miles north, and two miles south of station in Fruitvale townsite, B.C., work to be completed by May 15.

9876. Mar. 14.—Authorizing C.P.R. to use bridge 63.08 on its Broadview section, Central Division.

9877. Mar. 14.—Approving plans of C.P.R. and G.T.R. interchange switch at Brampton, Ont.

9878. Mar. 14.—Authorizing C.P.R. to use bridges 3.8 and 127.4 on its Moose Jaw section, Western Division.

9879. Mar. 11.—Authorizing town of Berlin, Ont., to lay water main under G.T.R. at Albert St.

9880. Mar. 15.—Authorizing C.P.R. to construct spur to Western Tent and Mattress Co.'s premises at Calgary Jct., Alta.

9881. Mar. 14.—Authorizing C.N.O.R. to build across concession road between cons. 1 and 2, Hope tp.

9882. Mar. 16.—Authorizing C.P.R. to open for traffic portion of its second track between Dalhousie Mills and Avonmore, Ont., mileage 48.6 to 48.8.

9883. Mar. 16.—Adding town of North Oxford as party in matter of protection to be provided by G.T.R. at highway crossing just east of Beachville station, Ont.

9884. Mar. 15.—Authorizing C.P.R. to construct spur to Fonseca Roofing Co.'s premises St. Boniface, Man.

9885. Mar. 15.—Authorizing C.P.R. to construct spur to Summit Lake Lumber Co.'s premises at mileage 12.26 east of Nakusp, B.C.

9886 to 9888. Mar. 15.—Ordering that C.P.R. be relieved from providing further protection at crossings, at Donlands station; at milepost 54.4, Toronto section, Ont., and at mileage 117, Shefford station, Que., it appearing from inspections by Board's Engineer and Operating Department that views are clear and that proper signboards and whistling posts are provided.

9889. Mar. 15.—Limiting advertisement of notice of C.N.R. application for approval of amalgamation agreement with Saskatchewan Midland Ry.

9890. Mar. 15.—Approving proposed changes of G.T.R. and C.P.R. interchange track at Jacques Cartier Jct., on certain condition as to interlocking, derails, semaphores, etc.

9891. Mar. 16.—Authorizing Hamilton Cataract Power, Light and Traction Co. to place wires across C.P.R. at lot 2, con. 4, Barton tp., Ont.

9892. Mar. 16.—Authorizing Bell Telephone Co. to place wires across C.P.R. at Queen St. near Chatham station, Ont.

9893. Mar. 17.—Authorizing C.N.O.R. to construct bridge over Stephens' Pond, Darlington tp.

9894. Mar. 16.—Approving G.T.P.R. Standard Freight Tariff C.R.C. 6, between stations in Manitoba, Saskatchewan and Alberta (east of Wolf Creek).

9895, 9896. Mar. 16.—Ordering that C.P.R. be relieved from providing further protection at crossings at mileage 94.85 and 12.2, Ontario Division, Havelock section, Ont., it appearing from inspection made by Board's Engineering and Operating Departments, that the views are excellent and crossing signboards and whistling posts properly placed.

9897. Mar. 17.—Authorizing Calgary Natural Gas Co., to lay pipe under C.P.R. at Ninth Ave., Calgary, Alta.

9898. Mar. 17.—Authorizing Ontario Hydro-Electric Power Commission to carry wires across G.T.R. at lot 20, con. 2, Brantford tp.

9899. Mar. 17.—Authorizing Bell Telephone Co. to carry wires across C.P.R. at Petite Cote Road, near Vaudreuil, Que.

9900. Mar. 17.—Authorizing C.P.R. to open for traffic its Langdon North branch, Alta., mileage 0 to 38.88 under certain conditions.

9901. Mar. 14.—Ordering that Etobicoke tp. be made a party in protection of C.P.R. crossing at Dundas St., at mileage 7.76, Etobicoke tp., Ont.

9902. Mar. 19.—Approving strain sheet of west end approach to C.N.Q.R. St. Maurice River bridge, near Grand Mere.

9903 to 9906. Mar. 18.—Ordering that G.T.R. be relieved from providing further protection at the crossings at first highway west of St. Hubert station, and first highway north of Laprairie station, Que.; and that C.P.R. be similarly relieved in respect of crossing at mileage 18.8 and mileage 20.6, Newport section, Que., it appearing from inspections made by Board's Engineering and Operating Departments, that the views are excellent and that signboards and whistling posts are properly placed.

9907, 9908. Mar. 1o.—Ordering that St. Lawrence & Adirondack Ry. install electric bells at crossings at Chateaugay, and Huntingdon, Que.

9909. Mar. 18.—Approving C.N.R. revised location across Rainy Lake, Rainy River district, Ont., the openings to be as required by Public Works Department.

9910. Mar. 18.—Approving plan of G.T.R. shelter to be erected at Tecumseh Road crossing, in Rochester tp., Ont.

9911. Mar. 18.—Ordering that C.P.R. provide highway crossing over its Shuswap and Okanagan branch, about two miles north of Enderby, B.C.

9912 to 9918. Mar. 18.—Ordering that C.P.R. be relieved from providing further protection at crossing at mileage 23.6, Ontario Division, Lindsay branch; and that G.T.R. be similarly relieved in respect of crossings, 2½ miles east of Stouffville; west of Mosborough station; about 1¾ miles east of Shakespeare, Ont.; at first highway north of Lacadie; first highway south of St. Remi; first highway south of St. Lambert, Que., it appearing from inspections made by Board's Engineering and Operating Departments that the views are excellent and that signboards and whistling posts are properly placed.

9919. Mar. 18.—Authorizing Wright & Co., to lay sewer under C.P.R. at Jessie St., Hull, Que.

9920. Mar. 18.—Authorizing Montreal Light, Heat and Power Co. to carry conduit under G.T.R. at St. Ambroise St.

9921. Mar. 18.—Authorizing A. C. Beatty, Garden Hill, Ont., to carry wires across G.T.R.

9922. Mar. 18.—Authorizing Gloucester tp. Telephone Association to carry wires across Canada Atlantic Ry. at Carlsbad Springs, Ont.

9923, 9924. Mar. 16.—Authorizing Bell Telephone Co. to carry wires across G.T.R. at Pottersburg, and at McMurray and Lawrence Sts., Brantford, Ont.

9925. Mar. 18.—Authorizing Manitoba Government Telephones to carry wires across Brandon, Saskatchewan and Hudson Bay Ry., near Minto station.

9926. Mar. 18.—Authorizing Municipal Telephone Co. of Oakbank, Man., to carry wires across C.P.R.

9927, 9928. Mar. 21.—Authorizing Ontario Power Company to carry wires across G.T.R. at two points in Port Colborne, Ont.

9929. Mar. 21.—Authorizing Trenton Electric and Water Co. to carry wires across Bell Telephone Co.'s wires at Belleville, Ont.

9930. Mar. 21.—Authorizing Manitoba Government Telephones to carry wires across C.P.R., near Brandon.

9931 to 9944. Mar. 8.—Ordering that C.P.R. be relieved from providing further protection at the crossings at Irwin St., Perth, and at mileage 11.05, Drummond tp., Ont., and that G.T.R. be similarly relieved in respect of crossings, one mile east of Trenton, Ont.; at first highway east of Valois; first highway east of River Beaudette; first crossing east of Beaconsfield, Que.; about one mile west of Lancaster; public road at mileage 190 about 2 miles west of Ernestown; first crossing east of Lansdowne; crossing of Kingston Road about 3½ miles west of Trenton; three miles east of Brighton; crossing of Kingston Road, 2 miles east of Cobourg; crossing of Wharf Road at Bowmanville; crossing of Shipman Road, 1 mile east of Oshawa, Ont.; it appearing from inspections by Board's Engineering and Operating Departments that the views are excellent, that signboards and whistling posts are properly placed.

9945, 9946. Mar. 11.—Ordering that Central Vermont Ry. be added as a party in protection of C.P.R. crossing at Main St. and Louis St., Farnham, Que.

9947. Mar. 10.—Approving C.N.R. location through tps. 20-29, r. 5-8, w. p. m., mileage 69.05 to 127.92, Man.

9948. Mar. 11.—Ordering that G.T.R. within 50 days install electric bell at first highway crossing east of Waterdown station, Ont.

9949. Mar. 21.—Approving C.N.O.R. revised location in Hope tp., mileage 180.63 to 182.45, from Ottawa.

9950. Mar. 21.—Approving C.N.R. Crooked Lake branch location through tps. 49-50, r. 3-4, w. 3 m., and unsubdivided tps. 50-56, r. 5-7, w. 3 m., mileage 0 to 56.58, Sask.

9951. Mar. 19.—Approving Essex Terminal Ry. by-law authorizing W. Wollatt to prepare tariffs of tolls.

9952. Mar. 19.—Extending until June 1, time within which G.N.R. shall put its V.V. & E.R. and N. Co.'s line, between Cloverdale and Point Guichon, and its New Westminster Southern line, between Hazelmere and New Westminster, B.C., in such condition that trains can be run with safety at not less than 30 miles an hour.

9953. Mar. 18.—Authorizing C.P.R. to construct spur from its Phoenix branch, 7.7 miles south of Eholt, to lot 1762, Yale District, B.C.

9954. Mar. 18.—Authorizing C.P.R. to construct spur to the I.W.W. Plewes' premises, Toronto.

9955. Mar. 19.—Authorizing G.T.R. to construct spur to Canadian National Carbon Co.'s premises, Toronto.

9956 to 9962. Mar. 21.—Ordering that G.T.R. be relieved from providing further protection at crossings, at second highway west of Iroquois; Kennedy Road, ¾ mile west of Scarboro Jct, Ont.; first public road west of River Beaudette, Que.; 1½ miles south of Huntsville; first highway west of Mille Roches; immediately north of Sundridge; Danforth Road, first crossing north of Scarboro Jct., Ont., it appearing from inspections made by Board's Engineering and Operating Departments, that the views are excellent and that signboards and whistling posts are properly placed.

9963. Mar. 18.—Dismissing complaint of Jas. Richardson & Sons, Ltd., of Kingston, Ont., against rate of 7c. per 100 lbs. from Kingston to Montreal, on western grain arriving at Kingston by vessel, destined to points in Ontario and Maritime Provinces.

9964, 9965. Mar. 21.—Authorizing Seymour Power & Electric Co. to carry wires across North American Telegraph Co.'s wires between Rawdon and Sidney, and at Stoco Road, Hungerford, Ont.

9966. Mar. 21.—Authorizing Ontario Power Co. to carry wires across Government spur to elevator, Port Colborne, Ont.

9967 to 9969. Mar. 21.—Authorizing Bell Telephone Co. to carry alarm wires across G.T.R. at three points in Ontario.

9970, 9971. Mar. 22.—Authorizing Kaministiquia Power Co. to carry wires across G.T.R. at two points in Fort William, Ont.

Recent Ontario Legislation.

Among the Acts passed at the Ontario Legislature's recent session were the following relating to transportation interests:—

Bruce Mines and Algoma Ry.—Amendments.

Buffalo and Fort Erie Ferry Ry.—Consolidation and amendments.

Dunnsville, Wellandport and Beamsville Electric Ry.—Extending time for construction.

Hurontario Ry.—Incorporation.

Iron Range Ry.—Amendments.

Lac Seul, Rat Portage and Keewatin Ry.—Amendments.

Monarch Ry.—Incorporation.

Morrisburg Electric Ry.—Amendments.

Niagara Falls, Welland and Dunnville Electric Ry.—Incorporation.

Nickel Range Ry.—Incorporation.

North Midland Ry.—Extending time for construction.

Ontario Railway Act, 1906.—Amendments.

Ontario Railway and Municipal Board Act, 1906.—Amendments (two acts).

People's Ry.—Amendments.

St. Thomas Street Ry.—Amendments.

Simcoe Ry. and Power Co.—Amendments.

Stratford City and G.T.R.—Confirming agreement.

Tay tp. and G.T.R.—Confirming agreement.

Temiskaming and Northern Ontario Ry.—Amending act.

Toronto, Haliburton and Pembroke Ry.—Incorporation.

Toronto Suburban Ry.—Amendments.

Wahnapitae Ry.—Incorporation.

Western Central Ry.—Amendments.

Simplified Mechanical Perspective is the title of a treatise by F. F. Frederick, of the School of Industrial Arts, Trenton, N.J., planned for students of High School age, who have already received some training in mechanical drawing. The notes and problems, the author states, have been used by him in his teaching, in substantially their published form for more than 20 years. In the teaching given the endeavor is made to consider the essentials that will develop the perspective sense and enable the student to apply his knowledge to practical problems. The problems set are admirably calculated to do this, and when they are worked out in conjunction with freehand perspective, the student will secure a much better appreciation of the subject. The volume is published at 75 cents by the Manual Arts Press, Peoria, Ill.

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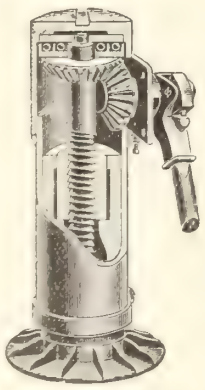
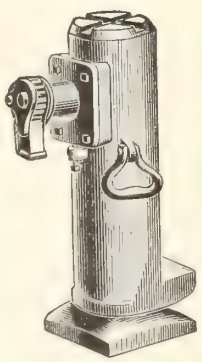


Sectional View



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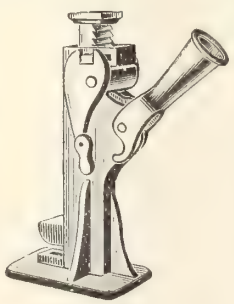

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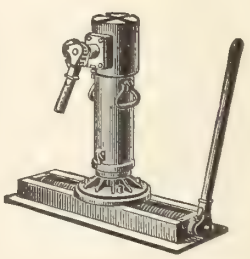

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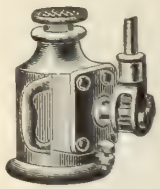

Journal Jack

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American Association G. P. & T. A.

W. E. Rispin, Ticket Agent, G.T.R., Chatham, Ont., read the following paper at the American Association of General Passenger and Ticket Agents' meeting in Havana, Mar. 28:—

I have been requested by the Canadian Ticket Agents' Association to represent them at this meeting on an invitation extended by your body with a view of giving you some idea of our progress since your last annual meeting, and to offer suggestions for the good of the passenger service, which may be acted upon by your Association should you find them worthy of your attention. The first is rather difficult, as in an association such as the Canadian Ticket Agents, progress by some may be marked only by our numerical gain in numbers, whereas to my mind progress would be more marked by the evidence of something accomplished by us as a body which would be some tangible evidence that we were the means of doing some good to our members and that they were reaping some benefit from membership. Our last annual meeting was held at Buffalo, N.Y., in Oct., 1909, when matters pertaining to our business were discussed and papers of an educational nature read by some of our members appointed for the purpose, which proved of a very entertaining and instructive nature and I am sure were a great benefit to the members assembled some of whom expressed themselves as very much edified by what they had heard and learned. One subject taken up was an illustrated tour around the world, presented by one of our members appointed for the purpose, and in a very able manner. With the aid of a large map, he took us with him on his trip explaining the different routes in their order, describing the points where changes were necessary and altogether making his address very entertaining to his hearers. Another subject taken up was the best method of handling tourist business so as to prove most satisfactory to the people directly interested, meaning of course the travellers, and insuring a continuance of their patronage. Subjects of this nature prove very interesting to the members, as well as instructive, and I am sure give evidence that membership in our association is beneficial both to the members themselves and the railway companies.

Among other business transacted the Association passed a resolution requesting that the American Association of General Passenger and Ticket Agents appoint a representative from their membership to attend our annual meetings with a view of giving an address to our assembled members on some subject pertaining to passenger work, which we feel sure would be a very strong factor in making our meetings still more attractive and I assure you that should you accede to this request your action will be thoroughly appreciated by us and your representative made thoroughly welcome. We had the pleasure of a visit from one of your members at our last annual gathering in Buffalo and were indeed pleased to see him there and derived much benefit from his address. I refer to Mr. C. A. Cairns, G.P. & T.A., C. & N.W. Ry., who, needless to say, is always welcome.

In the very excellent address delivered to your meeting at Atlantic City by Mr. Bryne he said among other things that 50% of your passenger traffic was for pleasure, 10% for health and 40% for business. Therefore 50% of the passenger traffic of the American Continent is created traffic. Did it ever strike you what an influence the ticket agent has on this created traffic and did it ever strike you how much the traveller for pleasure depends on the ticket agent for information as to where he will go and how he will go? It is a common thing for clients of my own to depend entirely on my judgment as to places I may select for them to spend a holiday, the principle requisite being that I shall be familiar with the place and its surroundings and in a position to direct them and arrange so that they shall reach their destination with the least trouble possible and a ticket agent that is thoroughly conversant with the pleasure resorts of the country is a valuable man to his employers. A great many of the members of the Canadian Ticket Agents' Association who occupy positions as city and town agents for the Canadian railways are engaged in other business as well as routing passengers, a great majority of them being among the most influential of the citizens of their respective municipalities, and therefore in a very good position to control the traffic from their territory which your travelling passenger agents will tell you they do. Until the last few years our Association has always enjoyed the courtesies of the United States railways when our meetings were held in that country, but on account of the fact that all our members are not exclusively engaged in railway work you are debarred from granting us transportation as an Association on account of the rulings of the Interstate Commerce Commission but as you are well aware we do a great deal for your different railways and are constantly routing passengers over your different railway lines and through your different gateways and would do so a great deal more intelligently were we familiar ourselves with the routes and terminals. I am sure you will all agree with us that there is no educator for a ticket agent like travel and our Association would esteem it a great favor if you could represent this matter to the I.C.C. in such a favorable light that the bar against granting transportation to members of our associations would be removed, as I feel sure that should you succeed in doing so the result would be favorable to the U.S. railways.

Some of the United States and Canadian statesmen have recently met with a view of arranging a new tariff between the two countries. It is to be hoped their efforts will result in a tariff that will be satisfactory to the people of both countries so that traffic will not be hampered, as anything that tends to put a damper on the transportation of merchandise to, and between the United States and Canada will also have an adverse effect on passenger traffic.

The annual influx of farmers from the Western and North-western States into our Canadian North-west has already started and this movement is assuming very large proportions. The settlement of so many people from these states in Canada will cause a continual tide of travel to and fro between the two countries and materially assist in building up the revenues of the railways leading to and from both countries.

On behalf of the Canadian Ticket Agents' Association I thank you for the privilege of being represented at the meeting and for your patient hearing.

Esquimalt and Nanaimo Ry.

In connection with the extension of the line to Alberni, B.C., we are advised that the section now under construction from Parkersville to Alberni, crosses the mountain range which forms the backbone of Vancouver Island, with a summit of about 1,300 ft. above sea level. For 10 miles on either side of this summit there are gradients of 1.50%, with heavy rock work along the mountain side, and a liberal allowance of 10° curves, with a good deal of trestle work. There is only one stream of any importance to be crossed—the little Qualicum River—at the outlet of Cameron Lake, which requires a 120 ft. steel span on masonry abutments. At certain points the line passes through very fine timber lands, certain areas carrying 100,000 ft. b.m., an acre. The line will also open up a large tract of fine farming land in the Alberni Valley, and at Port Alberni will connect with the trade of the west coast of Vancouver Island, which is rich in timber, minerals and fisheries, including halibut banks, and a rich whale fishery.

We were advised, Mar. 17, that the location of the proposed extension to Comox and Campbell River was under consideration. This line has been located from Parksville to Black Creek, 47 miles, and the company is about to let a contract for clearing the right of way to Black Creek, 14 miles. The clearing of the right of way between Parksville and Union Bay will be taken in hand later on. It is expected that the location as far as Campbell River, 79 miles from Parksville, will be completed this summer.

Nothing has been decided as to the construction of the Cowichan Lake branch, the matter being held up pending the result of negotiations with the American Finance and Securities Co., which is desirous of purchasing the Cowichan Lake timber limits.

H. E. Beasley, Superintendent, was quoted as saying, Mar. 9, that the most important work to be carried out on the Victoria-Nanaimo line this year will be the replacing of the wooden trestle over the Niagara canyon with a steel one. The preliminary operations are in progress, and it is expected to have everything in readiness for the installation of the steel structure by May 1. It is the intention to replace the wooden bridge at Arbutus Canyon with a steel bridge at a future date. The general policy of betterment which has been carried on ever since the company took over the line, will be continued, it being intended this year to add a number of additional sidings.

Press reports state that C.P.R. and G.T.R. trainmen have made formal demands for 20% and 40% increases of pay, respectively.

The Ontario Legislature has passed a resolution providing that the Chairman of the Temiskaming and Northern Ontario Ry. Commission shall receive an honorarium of $5,000 a year. Heretofore he has received $3,500 a year.

Tenders for Construction of Irrigation Canals and Earth Dams.

THE CANADIAN PACIFIC RAILWAY COMPANY, IRRIGATION DEPARTMENT.

Calgary, Alberta, Canada,
March 14th, 1910.

Sealed Tenders will be received up to noon of May 31st, 1910, addressed to the undersigned, for all excavation required to complete the Canal System in the Eastern Section of the Canadian Pacific Railway Company's Irrigation Block, Alberta, amounting to upwards of Twenty-five million cubic yards of material.

Plans, Specifications and all other information may be seen at the office of the Assistant Chief Engineer, Calgary, Alberta.

Proposals will not be accepted for the work as a whole, and must be accompanied by a certified cheque for twenty-five thousand dollars ($25,000), payable to J. S. Dennis, as a guarantee that the party tendering the contract will execute the same, if awarded, and that operations will be begun [illegible] immediately after the awarding of the contract.

J. S. DENNIS,
Assistant to Second Vice-President,
Canadian Pacific Railway Co.

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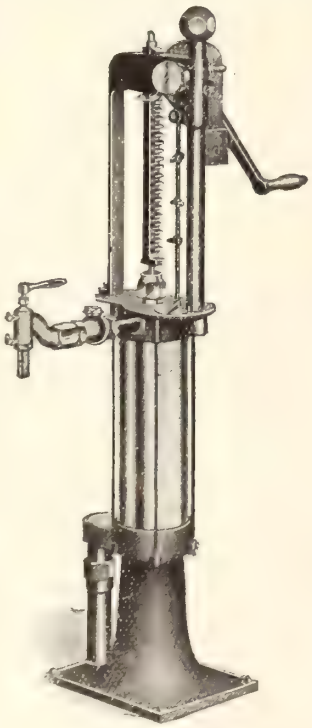

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TORONTO, ONT.

Canadian Northern Ry. Construction, Etc.

Canadian Northern Quebec Ry.—The Montmorency branch connects with the main line half-a-mile north of Hedleyville Jct., Que., and extends to the Montmorency Lumber Mills, about 1.5 miles above the falls. The branch is approximately 7.5 miles and it has been constructed particularly for the handling of pulpwood for the lumber company. About 3,000 cords have been shipped since the line was opened, and it is expected to ship about 20,000 cords a year.

Plans are said to be under consideration for the construction of a terminal station in Montreal. Three or four schemes are spoken of, one of them being for the purchase of the old jail at the corner of Notre Dame St. and Delorimier Ave., and its utilization, and another for an uptown site. The advantage of the old jail site is its proximity to the river front.

Canadian Northern Ontario Ry.—An Ottawa dispatch states that the difficulties in the way of securing an entrance into Ottawa beyond Hurdman's bridge are in a fair way of being adjusted, and that the new plan will involve a bridge over the C.P.R. and the G.T.R. tracks.

The Supreme Court has affirmed the Board of Railway Commissioners' order granting the company permission to construct sidings from the G.T.R. main line in Scarboro tp., near Toronto, to the C.N.R. right-of-way between Toronto and Ottawa, for the purpose of transferring construction material.

In the Ontario Legislature Mar. 10, the Minister of Public Works stated that the company had built and placed in operation 30 miles of line northerly from Sellwood Jct., to Hutton tp., and that four survey parties were in the field between the latter point and Port Arthur, locating a route for further construction.

J. M. Campbell, is in charge of a staff of engineers, going over the route of the Toronto-Ottawa line, easterly from Trenton, Ont. On the western section of the line between Toronto and Trenton rapid progress is being made with construction.

Wabnapitae Ry.—The Ontario Legislature incorporated a company with this title for the purpose of constructing the railway mentioned in our last issue.

Canadian Northern Ry.—M. H. McLeod, General Manager, spent some time in Toronto in March in consultation with the President and Vice President, when most of the construction to be done this year was decided on. It is probable that between 400 and 500 miles of new track will be added to the company's mileage this year.

The Oak Point branch, which is now operated from Oak Point Jct., near Winnipeg, to Oak Point, 60.4 miles, has been graded for about 30 miles further northwesterly. This will be laid with track this year and considerable more grading will be done. This branch will serve the district east of Lake Manitoba and will ultimately reach the gypsum deposits there.

On the branch from Maryfield, on the Brandon-Regina line, running south-west and westerly and crossing the C.P.R. Pasqua-Portal branch south of Midale, track was laid in 1909 for 68.39 miles and about 80 further has been graded. Track will be laid on this early this year.

On the branch from Hallboro, Man., westerly via Rapid City, 69.28 miles of track were laid in 1909 and about 6 miles more grading has been done. This may be laid with track this year.

The Rossburn branch from Neepawa, Man., which is intended to connect with the main line at Dauphin, Sask., is now being operated to Russell, Man., 104.2 miles from Neepawa. A further extension will probably be built this year.

On the Thunder Hill extension from Thunder Hill Jct., Man., near Swan River on the Dauphin-Prince Albert line, track has been laid for over 40 miles and about 13 miles more have been graded, on which track will be laid this year. Some further grading is also likely to be done.

On the Goose Lake branch from Saskatoon, Sask., towards Calgary, Alta., track has been laid to Kindersley, the first division point, 127 miles, and grading has been done for 45 miles further into Alberta. Track will be laid on this grading this year.

The Prince Albert-North Battleford branch is now built to Shellbrook, 30 miles from Prince Albert, Sask. About 40 miles further will be built this year.

From the present end of track on the Prince Albert-North Battleford line via Shellbrook, 45 miles of the Crooked Lake branch has been graded. The remaining 15 miles will be graded this year and track laid on the whole 60 miles.

From North Battleford, Sask., via Jackfish Lake towards Athabasca Landing, 40 miles have been graded and will be laid with track this year.

On the branch from Vegreville, Alta., southerly via Camrose and Stettler toward Calgary, about 130 miles have been graded and 19.47 miles of track were laid in 1909. Track will be laid on the balance of the 130 miles of grading this year.

On the branch from Edmonton, Alta., towards Athabaska Landing 21.5 miles are being operated to Morinville and about 23 miles more have been graded. This will be laid with track this year.

The main line is in operation from Edmonton 21 miles west to Stony Plains and is graded for about 12 miles further. Track will be laid on this grading this year. The grading will probably be extended to the McLeod River, about 80 miles further, this year, and a portion of the new grading will also be laid with track. At the crossing of the Pembina River a large bridge will have to be built which will occupy considerable time

Among the principal betterments to be made this year will be considerable ballasting on most of the lines. Between Port Arthur and Winnipeg a number of bridges will be filled in, and between Kakabeka and Slate River there will be a diversion of about nine miles to improve the alignment and reduce the gradient from 1% to 4/10 of 1%. There will also be another diversion of about two miles, 78 miles west of Port Arthur in connection with grade reduction. On the 438 miles between Port Arthur and Winnipeg 80-lb. steel rails have been laid on 240 miles and the relaying will be continued this year on the remaining 198 miles, replacing the present 56 and 60 lbs. rails. Yard facilities will be increased at a number of points and the locomotive houses at Port Arthur and Winnipeg will probably be extended. A number of additional sidings will be built between Port Arthur and Winnipeg and on the main line west of Winnipeg. Additional wires will be strung on some of the telegraph lines.

A proposition is said to be under consideration for the alteration of the C.N.R. route across the north-west arm of Rainy Lake, near Fort Frances, Ont. The Resident Engineer of the Department of Public Works at Winnipeg, has inspected the route, with a view of ensuring the freedom of navigation. The plan shows a new bridge to leave the mainland south of the present crossing, thence south-east to the islands south of Island no. 1, and sweeping in a semicircle to the Lobstick, where it joins the present main line. The piers would be of cement with steel super-structure, which would form the first section. Later on, the remainder would be filled and strengthened. The navigation interests ask that three drawbridges be provided one at Island no. 1; another at Rocky Inlet, and a third at Bears Pass, as well as two larger openings at the present opening west of Island no. 1, for the running of logs.

On the Fort Garry Station building at Winnipeg about 85% of the work has been done and it is expected to complete the structure by the end of the summer. Work on the yard is well under way. The tracks through the portion of the city between the Red and Assiniboine Rivers will be elevated, all level crossings being eliminated, the tracks being carried on embankment with retaining walls and steel bridges across the streets. A steel viaduct is provided at the rear of the station with room underneath for baggage, express, etc.

Replying to a delegation of farmers from the district north of Teulon, Man., recently, the Manitoba Minister of Public Works stated that the Government was prepared to give the C.N.R. a guarantee of bonds towards the extension of the line to the Eli sand pits northerly and westerly into the Brant and Argyle districts.

A cable from London, Eng., re-reports W. Mackenzie, President, as saying that he expected the railway to Hudson Bay to be in operation within three years. It remained to be seen whether the line would be constructed by the C.N.R. or by the Dominion Government.

The contract let to T. Kelly & Son, in connection with the new bridge across the Assiniboine River at Winnipeg, referred to in our Mar. issue, covers the construction of the piers only. The details of the superstructure have not been definitely settled. It has however been decided that one of the spans will be a rolling lift. The bridge will be double track. T. Kelly & Son also have the contract for the Pembina St. subway.

Canadian Northern Pacific Railway.—The British Columbia Legislature has confirmed the agreement with Mackenzie, Mann & Co. (Ltd.) for the construction of a railway from Yellowhead Pass to Vancouver, and 80 miles on Vancouver Island, upon a guarantee of bonds, and a second act incorporating the C.N. Pacific Ry. Co. for the purpose of carrying out the agreement. The agreement guarantees the company's bonds for $35,000 a mile, the company to construct a line from English Bluff near Vancouver easterly to connect with the C.N.R. at the eastern boundary of the province, and a line from Victoria to Barkley Sound, and to maintain a car ferry service between Vancouver and Victoria. Car shops are to be constructed at Victoria. The company agrees never to seek Dominion incorporation, and places the control of rates forever in the hands of the Provincial Government without appeal to the Board of Railway Commissioners. The money raised by the sale of bonds is to remain at the credit of the Provincial Government and to be paid out upon certificate as work on the different sections is proceeded with. A deposit of $500,000 is made by the company. Work on the mainland railway is to be started at or near New Westminister not later than July, 1910, and a minimum of the cost equivalent of at least 50 miles of line shall be expended thereon, during the first year, 75 miles during the second year, the line to be completed on July 1, 1914. The length of the mainland line is approximately 500 miles. It will run from the Yellowhead Pass, by the North Thompson River, touching Kamloops, if possible, or constructing a branch to that place, thence by the South Thompson River to New Westminister and Vancouver, with a line to English Bluff, south of the Fraser River, near the International boundary. The standard of the line is to be equal to that of the C.N.R. between Winnipeg and Edmonton; the gradients and curvatures are to be kept as low as possible, the water grade

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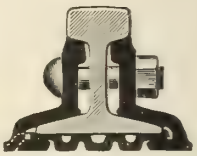

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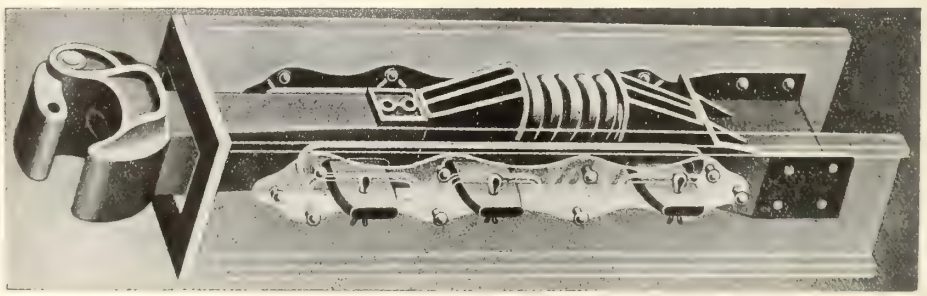

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construction are to be such as are current in the districts and supplies are to be procured as far as possible locally.

The company is reported to have acquired 1,500 to 2,000 acres of land on the south bank of the Fraser River, near New Westminster, from the end of the Government railway bridge upwards, for

According to a statement made by the B.C. Premier, Mar. 15, construction will be started on the Victoria-Barkley Sound section of the C.N. Pacific Ry. this spring, simultaneously with construction on the mainland.
(Mar., pg. 183).

Railway Finance, Meetings, Etc.

Alberta Ry. and Irrigation Co.—Traffic receipts for Feb., $25,851, against $19,420 for Feb., 1909. Aggregate traffic receipts for eight months ended Feb. 28, $251,279.

Canadian Northern Ry.—A London, Eng., cable dated Mar. 10, states that the recent bond issue has been fully subscribed by the public.

Central Ontario Ry.—The Dominion Parliament has been asked to grant the company authority to enter into agreements with the G.T.R., the C.P.R., the Brockville, Westport and North-Western Ry., the Irondale, Bancroft and Ottawa Ry., the Canadian Northern Ontario Ry., the Ontario and Ottawa Ry., and the Marmora Ry. and Mining Co.

Dominion Atlantic Ry.—Gross earnings for Jan., $79,400, against $72,657 for Jan., 1909. Aggregate earnings for seven months ended Jan. 31, $806,250, against $774,492 for same period 1908-09.

Esquimalt and Nanaimo Ry.—The British Columbia Legislature has ratified an agreement between the Government and the company settling the long standing differences as to the company's land grant. The company in return for discontinuing all actions and proceedings arising out of the grants made under the Vancouver Island Settlers' Rights Act of 1904, and quit-claiming all its right and title, the company receives the right to locate 20,000 acres of Crown lands on the Island within three years of the act being assented to.

Georgian Bay and Seaboard Ry.—Application is being made to the Board of Railway Commissioners to recommend the sanctioning of a lease of the company's line to the C.P.R. Co. for 99 years, from Jan. 10, 1910. The line as projected is to extend from Victoria Harbor, Georgian Bay, to some point on the C.P.R. Toronto-Montreal line, various places between Peterboro and Smiths Falls having been mentioned. Of this line there has been constructed to date the section from Victoria Harbor to Coldwater Jct., on the C.P.R. Toronto-Sudbury line, 11.5 miles.

Grand Trunk Ry.—The Michigan State Railway Commission has undertaken the investigation of the ownership of the Pontiac, Oxford and Northern Ry., and evidence was given Mar. 10 in reference thereto by officials of the G.T Western Ry., which is the title under which the G.T.R. carries on business in Michigan and adjoining States. The evidence given showed that C. M. Hays, E. H. Fitzhugh, J. W. Loud, M. M. Reynolds, A. B. Atwater and L. C. Stanley owned one share of the stock of the Pontiac, Oxford and Northern Ry., and that the remainder was held by C. M. Hays, in trust for the G.T. Western Ry. The railway is operated as the Pontiac, Oxford and Northern Division G.T.W. Ry.

An act has been passed by the Dominion Parliament providing that the G.T.R. may acquire and dispose of shares in the Ottawa Terminal Ry., the Lachine, Jacques Cartier and Maisonneuve Ry., and the G.T. Pacific Terminal Elevator Co.

A special meeting of the shareholders will be held in London, Eng., after the half-yearly meeting, April 14, for the purpose of discussing a resolution authorizing the company to acquire, guarantee, hold, pledge and dispose of stocks and securities of the Lachine, Jacques Cartier and Maisonneuve Ry. Co., the Ottawa Terminals Ry. Co., and the G.T. Pacific Terminal Elevator Co.

Guelph Junction Ry.—Application is being made to the Dominion Parliament to facilitate the acquisition by the City of Guelph, Ont., of the shares of the company's stock not now held by it, and to make other provisions to secure to the city full rights in the company and railway, to change the mode of electing or appointing directors, and to reduce their number.

Orford Mountain Ry.—All formalities in connection with the leasing of this line to the C.P.R. have been completed and the line was taken over Mar. 1. It is being operated as Orford Branch, District 1, Eastern Division, C.P.R.

An indenture of lease, dated Oct. 6, 1909, between the O.M.R. Co., Sir Wm. C. Van Horne and other holders of the capital stock of the O.M.R., and the C.P.R. Co., has been deposited with the Secretary of State at Ottawa.

Quebec and Lake St. John Ry.—Gross earnings for Feb., $32,339.17, against $37,071.19 for Feb., 1909. Aggregate earnings for two months ended Feb. 28, $69,994.01, against $83,320.24 for same period 1909. Mileage operated, 280 against 285.4 during the same period 1909.

A meeting of the holders of the various classes of bonds of the company was held in London, Eng., Feb. 21. It was stated that three reports were being prepared on the property, and that these would be completed during March. Authority was given to add three additional members to the committee, from among the holders of prior lien bonds. The meeting was adjourned for a month.

At a meeting of the 4% prior lien bondholders in London, Eng., Mar. 22, a resolution was passed appointing a committee to watch their interests during the continuance of the receivership.

Reid Newfoundland Ry.—The Premier stated recently in the Legislature, that in 1904 the Reid Newfoundland Co. made a claim on the Colony for the cost of additional rolling stock, equipment and accommodation alleged to have been supplied under the Railway Operating Contract of 1893, between 1901 and 1904 the Government was advised that the Colony was not liable, and that the claim should be resisted. A case for the opinion of English counsel, was subsequently prepared and the advice given to the Government was confirmed. Beyond serving a notice of its intention to apply to the court for the appointment of an arbitrator nothing further had been done by the company, at least as far as the records show.

Thousand Islands Ry.—We are advised that the press report to the effect that the line has been sold to the G.T.R. is incorrect. Some members of the G.T.R. auditing staff were engaged recently going over the company's books in conjunction with J. H. Robitoulle, of the Rathbun Co., which owns the line. This, we are advised, is an annual occurrence.

White Pass and Yukon Ry.—Gross earnings for seven months ended Jan. 31, $853,428.

The Montreal Warehousing Co.'s annual meeting was held at Montreal, Mar. 3. Following are the officers and directors for the current year:—President, C. M. Hays; Vice-President, E. H. Fitzhugh; other directors, W. M. Ramsay, J. W. Loud and W. Wainwright.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers to distinctly understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

The Northern Engineering Works, Detroit, Mich., has sold the Miami Copper Co., for its Globe plant, three 15-ton cranes, electric and hand power, also one 5-ton crane.

G. T. Merwin, heretofore on the Canadian Car & Foundry Co.'s sales staff in Montreal, has been appointed Assistant Manager of Sales, Southwestern District, for the Pressed Steel Car Co., with headquarters at St. Louis, Mo.

Bruce, Peebles & Co., Ltd., Edinburgh, Scotland, who are represented in Canada by Vandeleur & Nichols, Toronto, have issued a pamphlet, "Peebles" Alternating Current Generators, sizes AD. 18 to AD. 70 inclusive," which contains a large amount of interesting information.

The American Vanadium Co., Pittsburg, Pa., has issued in both French and German, translations of its booklet on vanadium steels, their classification of heat treatments, with directions for application of vanadium to steel and iron, by J. Kent Smith. Copies in either of the three languages will be sent on request.

Burton W. Mudge & Co., 400 Commercial Bank Building, Chicago, advise that they have assumed the exclusive handling of the Garland ventilator, for both passenger and freight equipment, as well as the Garland heating and refrigerating appliances on the latter. Information in regard to ventilation and refrigeration of all kinds of equipment will be gladly furnished by them on application.

Babcock & Wilcox boilers of 12,000 h.p. have been ordered for the North Vancouver Ferries, Ltd., ferry now under construction, and also for H.M.S. Orion, Conqueror and Thunderer of 27,000 s.h.p. each. In two battleships for the Argentine Government, they are being installed for 35,000 h.p. each, and their White Forster boilers of 18,000 h.p. each are being placed in light torpedo destroyers for the Argentine Government.

B. J. Coghlin Co., Ltd., has been incorporated under the Dominion Companies Act with an authorized capital of $200,000 and head office at Montreal, and has taken over the business of B. J. Coghlin & Co., wholesale hardware merchants, spring and axle works, of which B. J. Coghlin, who died a short time ago, was the founder. It is intended to considerably enlarge the factory this year to provide for increased business.

Transfer Railway for Brandon, Man.—A joint meeting of the Brandon City Council and the Brandon Board of Trade was held Mar. 2, to discuss the feasibility of constructing a transfer railway to connect all the railways entering the city. The idea is that such a railway should be constructed by the city, and the City Engineer was asked to prepare a plan for consideration. The C.P.R., the C.N.R. and the Great Northern Ry., will then be approached with a view of obtaining such concessions from them as will make the construction of the line practicable and profitable.

G.T. Pacific Ry., St. John, N.B., Terminals.—It was stated in St. John, N.B., that the G.T. Pacific Ry. had purchased a large area of land around the head of Courtenay Bay, St. John harbor, for terminal and [illegible]

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National Transcontinental Railway.

Tenders have been received by the Commission for the supply of 24,733 gross tons of 80 lb. steel rails, together with the necessary splice bars, track spikes, bolts and nuts, nutlocks and tie plates. Tenders have also been received for the erection of a pump house at the locomotive shops near Winnipeg, the building to be completed by July 1; for the necessary pumping plant to equip the same, such plant to be installed by Aug. 1, and also for the construction of a 2,000,000 gall. reservoir, to be completed by Aug. 1, adjoining the locomotive shops. Tenders will be received by the Commission to April 12, for the supply of the plant for the equipment of the locomotive shops near east of Winnipeg, as follows:—Machines and tools; leather belting; shafting, hangers, steel frame work, etc.; miscellaneous equipment; industrial track and lockers; motors; furnaces and forges; cranes; air compressors; grey iron foundry equipment and brass foundry equipment.

GRAND TRUNK PACIFIC RAILWAY.

We were officially advised Mar. 16, as to the present position of the work on the G.T.P.R., and the construction in hand for the present season as follows: The end of the main line track is at present at the east bank of Wolf Creek, 915 miles from Winnipeg. At this point there is a large steel bridge to erect across Wolf Creek and a half a mile beyond another large steel structure across the McLeod River. The substructures of these bridges have been under construction simultaneously for several months and are now reaching completion, and it is expected that the erection of the steel superstructures will commence in the early part of April, and as soon as it is possible to cross them, the track will be pushed forward as rapidly as the grading work will permit. The grading of the line is now under contract from Wolf Creek to Tete Jaune Cache, approximately 179 miles. This work will be pushed as rapidly as possible and it is expected to have track laid this year from the east to within 20 or 30 miles of Yellow Head Pass.

The grading of the main line from Prince Rupert easterly to Aldermere, approximately 235 miles, is well under way. There is under construction a steel bridge 7½ miles east from Prince Rupert, crossing from Kai-en Island to the mainland. The work on this structure is being pushed forward as rapidly as possible and as soon as completed, track laying will be commenced easterly from Prince Rupert, and it is expected there will be about 180 miles laid easterly from Prince Rupert by the close of this year. It is the intention to place the balance of the main line between Aldermere and Tete Jaune Cache, approximately 400 miles, under construction this year.

During 1909 twenty-three stations were erected between Winnipeg and Edmonton, and an 18 stall locomotive house and shop at Edmonton. It is the intention this year to erect a 12-stall locomotive house at Edson, the first divisional point west of Edmonton, a 12-stall locomotive house and shop at Prince Rupert, and stations at various points along the line where conditions warrant.

GRAND TRUNK PACIFIC BRANCH LINES.

The following branch lines have recently been placed under contract:

From 50 miles south of the main line at Tofield, Alta., to Calgary, approximately 135 miles; the J. D. McArthur Co., Winnipeg, general contractor.

From Balcarres, the end of the present construction of the branch line from the main line at Melville, to Regina, approximately 60 miles; the J. D. McArthur Co., Winnipeg, general contractor.

From Yorkton, the extension of the branch line from Melville to Yorkton, to Canora, approximately 30 miles; Rigby, Hyland & Plummer, Winnipeg, general contractors.

Contracts will be awarded in the near future for the construction of a branch line from the main line at Oban to Battleford, about 50 miles; from Regina southerly, about 80 miles; and from the main line at Young to Prince Albert, about 130 miles. The grading of these branches will be pushed forward as rapidly as possible with the object of having track laid on all of them during this year.

The Melville-Regina line referred to above is one of the lines which the company is constructing under the subsidy contract with the Saskatchewan Government. The subsidy contract also covers the construction of an extension from Regina to the International boundary line, near Sherwood, Mont., terminus of a branch of the Great Northern Ry. A press report states that these branch lines will be connected, and that the G.N.R. will obtain an entrance to Regina by that route, and thence to other points on the G.T.P.R. Another report states that engineering parties are in the field between Regina and Moose Jaw, Sask., making surveys for a line to Calgary. The first camp was pitched at Grand Conlee. It is said the line will run almost directly to Moose Jaw, then bend north-westerly to the elbow of the South Saskatchewan River, and then on to Calgary. (Mar., pg. 181).

G.T.R. Betterments, Construction, Etc.

Southern New England Rd.—E. H. Fitzhugh, First Vice President G.T. Ry., and Central Vermont Ry., appeared before the committee of the Rhode Island Legislature, Mar. 11, when the bill for the extension of the S.N.E.R. to Providence was considered. The bill is being promoted in the Central Vermont Ry. interests to secure an additional outlet to the seaboard, and is being met with considerable opposition from the New York, New Haven and Hartford Rd., and the Boston and Maine Rd.

Lachine, Jacques Cartier and Maisonneuve Ry.—The Montreal City Council is asking the Quebec Legislature to ratify an agreement for the closing of certain streets. The company is also making application to the Legislature for an act confirming the same agreement.

Toronto Belt Line.—U. S. Gillen, Superintendent Middle Division G.T.R., in an interview Mar. 22, said there was no immediate intention on the part of the G.T.R. to re-open the old belt line for freight or passenger traffic. When reopened it would be from Yonge St. easterly and not westerly as was generally reported.

London Track Elevation.—It was reported Mar. 10 that G.T.R. engineers were making surveys in the vicinity of Wharncliffe Rd. East, London, Ont., in connection with the proposed rearrangement of the tracks in the city so as to do away with the existing level crossing.

Stratford Yards, Stations and Shops.—The Mayor of Stratford, Ont., received a letter from E. H. Fitzhugh, First Vice President, recently, stating that the various matters relating to the extension of the shops would be settled shortly, and that the whole question would then be dealt with in a definite manner.

The Ontario Legislature has passed an act confirming an agreement providing for the continuance of a further period of 10 years from 1910, the assessment of $8,000 a year, agreed upon in 1900.

The company is reported to be purchasing additional land along the line in the city, in connection with the plans to rearrange the yards, and to build a new station.

Port Huron Station and Shops.—A deputation from the Port Huron, Mich., City Council waited on E. H. Fitzhugh, First Vice President, at Montreal, recently in connection with the proposed new station. Mr. Fitzhugh stated that a new station will be built on the site of the present one, but it would be impossible to provide for a station down town.

We are advised, in connection with the proposal to enlarge the shops—that it is intended to make some re-arrangement there, but that nothing will be done until some understanding has been reached with the city concerning the use of the end of one of the streets.

Bay City, Mich., Terminals.—Press reports state that the company is arranging to expend $500,000 in connection with the proposal to secure a terminal in Bay City, Mich. Most of the right-of-way, it is said, has been secured. (Mar., pg. 191).

C. N. R. Freight Earnings.

In the table of steam railway statistics for the year ended June 30, 1909, published in our March issue, the Canadian Northern Ry.'s freight earnings per train mile were stated as 24c., on information issued by the Department of Railways statistical branch. Our attention having been called to the fact that a serious mistake had been made, investigation showed that the actual figures given by the Department of Railways were .246189. Enquiry of Canadian Northern officials shows that the actual freight earnings per train mile for the period in question were $2.46189, in other words slightly over $2.46, instead of slightly over 24c., and that the correct figures were reported to the Department of Railways.

The Comptroller of Railway Statistics contends that the Government Printing Bureau is responsible for the mistake and that a displacement took place while the page containing the figures was being printed. On looking into the matter we do not see how this could have occurred. But no matter who is responsible the fact remains that a very serious mistake occurred and the Comptroller should take whatever steps may be necessary to prevent such inaccuracy in future. The value of statistical information depends altogether on its accuracy and the system of proofreading and checking should be such as to prevent such mistakes as the one pointed out.

Brampton, Ont., passed a resolution at a public meeting Mar. 22, asking that the railway companies be asked to grant commutation rates between that town and Toronto. At present the C.P.R. issues commutation tickets from Toronto to Streetsville, and the G.T.R. to Weston, Ont., on the lines reaching Brampton.

Hon. W. J. Hanna and Hon. J. J. Foy, representing the Ontario Government met the Secretary of State at Ottawa, Mar. 30, to discuss the question of Provincial and Dominion [illegible] with a view of doing away with the friction at present caused owing to the granting of charters by the Dominion which overlap those granted by the Province.

A. W. Smithers, Chairman of the Board G.T.R., speaking as Chairman of the English Association of American Bond and Shareholders, London, Eng., [illegible] the enormous [illegible] eminent a long series of big enterprises for which adequate capital would be [illegible] present proud position respecting credit.

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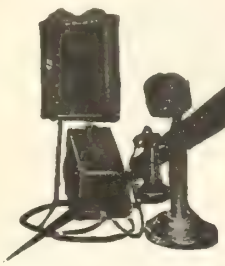

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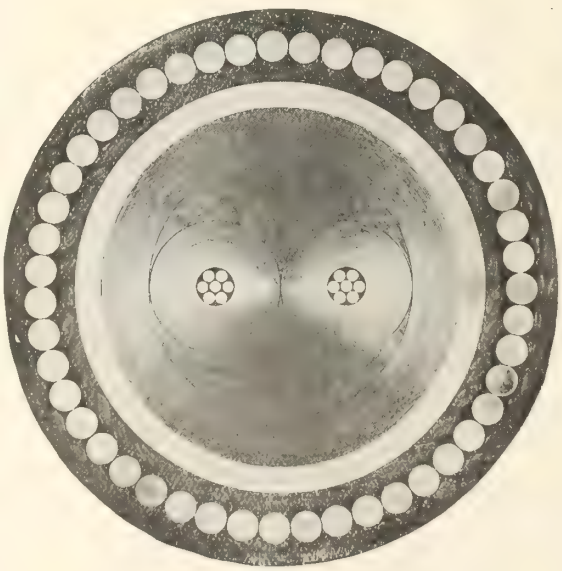

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TORONTO, CANADA, APRIL, 1910.

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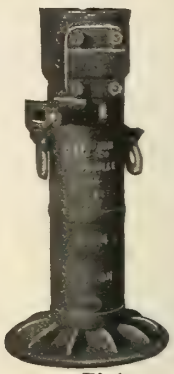

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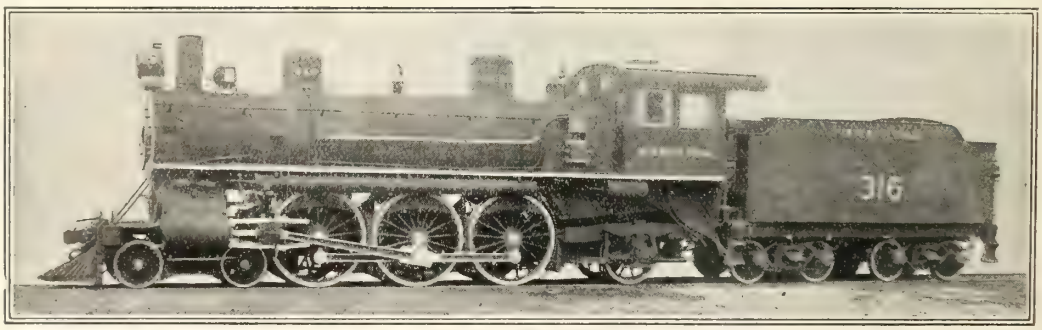

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St. John Harbor.—A resolution has been passed by the St. John, N.B., Harbor Board, recommending the city council to transfer the harbor property on the west side to the C.P.R., in exchange for the 1,600 ft. strip and wharves thereon, on condition that development of the 40 acre tract be begun within five years.

Lachine Canal Banks.—The arbitration proceedings which have been in progress for nearly three years arising out of the expropriation by the C.P.R. of certain lands on the Lachine canal banks owned by the St. Paul Land and Hydraulic Co., have come to a termination the arbitrators handing in their award Mar. 14. The company asked $150,000 for the land and the C.P.R. offered $8,000. The arbitrators allowed $35,000.

Windsor St. Station, Montreal.—The contract for putting in the pier foundations, which includes 300 open type caissons from 6 to 9 ft. diameter, is to be completed by April 20. Tenders for the four track viaduct which will be built between the present station tracks and St. Antoine St. will be let in the near future. The illustration on this page shows the approved design for the extended building.

Georgian Bay and Seaboard Ry.—A survey party was reported Mar. 11, to be working from Bathurst, Ont., a station 19 miles westerly from Smith's Falls, northerly and westerly with a view of securing a suitable location for the easterly end of this line.

St. Mary's and Western Ontario Ry.—The Ontario courts have quashed a by-law passed by Blanshard tp., authorizing the issue of $20,000 of debentures in aid of the construction of this railway. This is the second time that the by-law has been passed by the township and quashed by the courts.

Western Lines Construction.—In our last issue we gave particulars of new lines to be built this year. Some slight changes have been made and we have been furnished with official information of the construction to be undertaken as follows, a total of 434 miles:—

The line from Lauder, Man., which is built to Tillston, on the Manitoba-Saskatchewan boundary, will be extended west 24 miles into Saskatchewan.

The branch from Weyburn, Sask., to Forward, will be extended about 25 miles west by south.

From Regina south and south-east to Griffin, Sask., a station midway between Stoughton and Weyburn, a branch of about 79 miles.

The first 18 miles of the Craven-Bulyea (Sask.) line, extending the Regina-Craven line to connect at Bulyea with the Kirkella-Lanigan line.

On the Regina-Prince Albert branch from Craven, Sask., to Colonsay, on the Portage la Prairie-Saskatoon-Wetaskiwin line, 110.3 miles.

From Outlook, Sask., the present terminus of the branch north-west from Moose Jaw, an extension of 93.5 miles northwest in the direction of Castor, the present eastern terminus of the branch east from Lacombe, Alta.

From Macklin, Sask., on the Saskatoon-Wetaskiwin line, south-east 54.2 miles to a point on the Moose Jaw-Lacombe line.

An extension of 30 miles northwesterly from Carmangay, Alta., of the present line of 28 miles from Kipp to Carmangay.

In addition to the above, 434 miles for which appropriations were made during Second Vice President Whyte's visit to Montreal in Feb., a branch of 15 miles east from Irricana, Alta., on the Langdon-Red Deer line, which was authorized in 1909 will be completed this season.

A second branch will be built between Winnipeg and Portage la Prairie 55.6 miles this year.

The Kootenay Central Ry. is projected to start from or near Elko, B.C., on the Crow's Nest Pass line. The question of building first section to Fort Steel, about 25 miles, is under consideration, but it has not been decided whether it can be gone on with this year.

A dispatch from Winnipeg dated Mar. 22, states that the company's construction department has placed contracts for extensions and improvements to be carried out during the coming season. The works include over 20 new stations of standard designs, in addition to larger buildings at Red Deer, Banff and Laggan; a brick freight shed at Regina, 450 ft. long; an addition of 200 ft. to the existing freight shed at Moose Jaw; and three new buildings at Calgary, in addition to many small erections at various points along the line.

Edmonton, Alta.—Application is being made to the Alberta Legislature to confirm certain by-laws of the city of Edmonton containing an agreement between the city and the C.P.R. and the Calgary and Edmonton Ry.

Cranbrook, Y.M.C.A.—A Winnipeg press report, states that a contract has been let by the C.P.R. Construction Department for the erection of a Y.M.C.A. building at Cranbrook, B.C., on the same lines as the one at Kenora, Ont.

Midway to Hope, B.C.—A Vancouver, B.C., press dispatch states that surveys were completed Mar. 4, by C.P.R. engineers for a line through the Hope Mountains. The present westerly terminus of the company's Crows' Nest Pass line is at Midway, and the route now surveyed extends from that place, via Penticton, to Hope on the main transcontinental line 89 miles east of Vancouver. From Midway the route, reported to be gone over, proceeds via the west fork of the Kettle River, and crossing a summit reaches Penticton, at the foot of Okanagan Lake; thence through the Similkameen district to Otter Creek, across a low divide into the valley of the Coldwater River, on to the Coquihalla summit of the Hope Mountains, and down the western slope of the mountains to Hope in the Fraser River Valley.

Minneapolis, St. Paul and Sault Ste. Marie Ry.—Press reports state that the

The Canadian Pacific Company's Windsor Street Station, Montreal

as it will appear when the additions now under way are completed. The left portion of the illustration shows the St. Antoine Street front, the larger portion to the right being the Windsor Street front.

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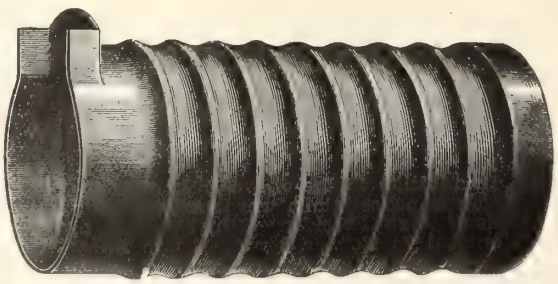

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company has appropriated $8,000,000 for construction and betterments for the current year, of which $3,000,000 will be expended on the old Wisconsin Central Ry. The principal new construction will be the completion of the line into Duluth. (Mar., pg. 215).

MAINLY ABOUT PEOPLE.

Lady Shaughnessy and Miss Shaughnessy sailed for England, Mar. 18.

G. H. Ham of the C.P.R. headquarters staff, attended the Old Timers' dinner in Winnipeg, Mar. 10.

H. R. Miles, C.P.R. Resident Engineer, North Bay, Ont., has been elected to the town council.

Jas. Woods, Secretary-Treasurer Quebec Harbor Commission, died suddenly at Quebec, Mar. 1.

J. A. Blair, for many years G.T.R. agent at Port Dalhousie, Ont., died at Spokane, Wash., Mar. 1.

C. S. Maharg, Superintendent C.P.R., Moose Jaw, Sask., was married to Miss Staples, Mar. 2, at Teeswater, Ont.

G. Fauquier, railway contractor, Ottawa, and Mrs. Fauquier, left early in March for Virginia Hot Springs.

Lord Strathcona has contributed $7,000 to the Toronto Public School Cadet Corps towards the provision of uniforms.

E. B. Osler, M.P., director C.P.R., has been re-elected President of the Ontario Rifle Association for the current year.

E. B. Osler, M.P., recently gave $25,000 for a site and equipment for a supervised playground in West Toronto.

Hon. W. C. Edwards, President Temiskaming Navigation Co., has been elected President of the Canada Cement Co., Ltd.

Sir H. Montagu Allan of Montreal, was presented to the King by Lord Strathcona, at a levee held in London, Eng., Mar. 2.

Lord Strathcona has been appointed by the British Government a member of the Advisory Committee on Commercial Intelligence.

F. Barlow Cumberland, Vice President Niagara Navigation Co., addressed the Berlin, Ont., Canadian Club, Mar. 3, on the Union Jack.

W. F. Wilson, Assistant Manager, New York Central Fast Freight Lines, Buffalo, N.Y., died suddenly on a train at Utica, N.Y., Mar. 16.

A. Price, General Superintendent C.P.R. Western Division, addressed a committee of the Y.M.C.A., at Lethbridge, Alta., Mar. 14.

Lady Reid, widow of Sir Robt. G. Reid, of the Reid Newfoundland Co., and Miss Reid, are spending about three months on the Mediterranean.

Sibthorp Wells, G.T.R. Claims Agent (Personal Injuries), Montreal, died there, Mar. 3. He had been in the company's service for several years.

G. M. Bosworth, Fourth Vice President C.P.R., and Capt. J. W. Troup, Manager C.P.R. Pacific Coast Steamship Service, returned to Canada Mar. 6, from Europe.

W. R. and Mrs. Baker, Hayter, and Mrs. Reed, F. W. Morse and R. Bickerdike, M.P., were among the Governor General's guests at dinner in Montreal, Mar. 19.

G. W. Caye, Assistant to the Vice President and General Manager G.T.P.R., who was recently married at New York, has returned to Winnipeg from his wedding trip.

G. A. S. Potts, a Winnipeg lawyer, who was claiming $25,000 from the C.P.R. for alleged services in connection with the recent strike of employes in the west, died at Field, B.C., Mar. 8.

Mrs. G. M. and Miss Bosworth returned to Montreal, Mar. 17, after a short visit to Great Britain. The marriage of Miss Bosworth to D. Seely is announced to take place in Montreal, Apr. 21.

A. K. McNair, a Toronto contractor, engaged on the construction of a dam on the Temiskaming Lake, at the head of the Ottawa River, died suddenly at Temiskaming, Que., Mar. 1, aged 59.

Hon. G. P. Graham, Minister of Railways and Canals, addressed the Ontario Club, Toronto, Mar. 3, and spoke generally on the expansion and prospects of the Dominion railways and waterways.

The marriage of Miss D. Fletcher, grandaughter of Collingwood Schreiber, C.M.G., General Consulting Engineer, Dominion Department of Railways, to R. Lake, M.P., is announced to take place Apr. 4.

Mrs. Thos. Malcolm, of Campbellton, N.B., wife of the President of the International Ry. of New Brunswick, is convalescing satisfactorily after an operation for appendicitis which was performed in Montreal.

Hon. L. P. Brodeur, Minister of Marine, who went south at the end of Feb. to recuperate after his serious illness, is reported to be recovering, and it is expected will return to Canada in a few weeks.

Miss Marjorie Blair, youngest daughter of the late Hon. A. G. Blair, at one time Minister of Railways and Canals and afterwards Chief Railway Commissioner, is to be married in April in Ottawa to Sutherland Gilmour.

H. R. Charlton, General Advertising Agent G.T.R. and G.T.P.R., gave an address with cinematograph illustrations to the Chicago Press Club, Mar. 4, on a hunting and fishing trip in the Timagami district of Ontario.

C. Clarke, Division Freight Agent, G.T.R., Detroit, Mich., left there Mar. 4, and sailed from San Francisco on the s.s. Tenyo Maru on Mar. 15, for Japan via Honolulu. He is expected back in Detroit about the end of May.

John Phillips, who died at Toronto, Feb. 28, aged 66, was in G.T.R. employ for nearly 50 years. He had been agent at Brantford, Fort Erie and Ingersoll, Ont., and for the last 11 years of his service was inspector of elevators.

Capt. C. H. Nicholson, Manager G.T.P.R. Pacific Coast Steamship Service, Vancouver, returned to Canada, Mar. 16, from Great Britain, where he has been in connection with the construction of vessels for the service.

Among the subscribers to the endowment fund of Queen's University, Kingston, Ont., which has now reached $400,000, are W. Harty, M.P., and C. Bermingham, of the Canadian Locomotive Works, Kingston, who each gave $5,000.

R. P. Fairbairn, Chief Engineer Ontario Public Works Department, has been appointed acting Deputy Minister of Public Works for Ontario, since the appointment of A. W. Campbell as Deputy Minister of Railways and Canals for the Dominion.

Probate of the will of the late Archer Baker, European Manager C.P.R., London, Eng., has been granted to his widow, to whom he left the whole of his property. The gross value of the estate was sworn at £12,552 18s 4d, and net personalty at £11,131 8s 5d.

The Hon. Angus MacDonnell, head of the firm of Angus MacDonnell & Co., which has the contract for the construction of the Alberni extension of the Esquimalt and Nanaimo Ry., is a nephew of the Countess Grey, wife of the Governor General of Canada.

The King has appointed Lord Strathcona and Sir Thos. G. Shaughnessy to be Knights of Grace of the Order of the Hospital of St. John of Jerusalem, and D. McNicoll, Vice President, and W. R. Baker, Secretary and Assistant to the President C.P.R., to be Esquires of the same order.

Lord Mount Stephen has deposited securities to the value of $300,000, with a trust, the income to be utilized to foster desirable British emigration to Canada. The trustees are R. Meighen and J. Turnbull, Montreal, and the work will be carried on through the medium of Dr. Barnado's Homes.

Major J. E. Hutcheson, Superintendent and Purchasing Agent Ottawa Electric Ry., has been mentioned as the probable commandant of the Canadian team which will go to England this year for the annual Bisley shooting competitions, but it is not expected that he will accept the position.

C. B. Foster, Assistant General Passenger Agent C.P.R., Vancouver, who visited Toronto in March for the first time since his promotion from the District Passenger Agency there to the Pacific Coast, was warmly welcomed and entertained at luncheon and dinner by a number of transportation officers and others.

W. Whyte, Second Vice-President C.P.R., and G. J. Bury, General Manager Western Lines, are patrons, and Grant Hall, Superintendent of Motive Power and Car Department Western Lines, is honorary president of a troop of boy scouts which has been formed in connection with the C.P.R. Winnipeg shops.

Hon. W. R. Motherwell, Minister of Agriculture for Saskatchewan, is reported as a likely appointment to the Board of Railway Commissioners. Since the death of T. Greenway, who was appointed to the Board when the number constituting it was increased from three to six, but who never took up the duties, the work has been done with five members.

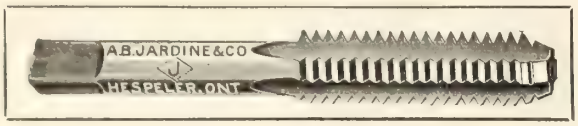
F. R. Haney, who has been appointed Assistant Tax and Insurance Commissioner and Claims Adjuster for C.P.R. Lines East of Fort William, Ont., entered the C.P.R. Law Department at Toronto in 1897, and moved to Montreal in 1901 as chief clerk of the Tax and Insurance Department, which position he held to Feb. 1, the date of his present appointment.

E. W. Bateman, who was recently appointed Local Right of Way and Lease Agent C.P.R. Pacific Division, Vancouver, B.C., was born near Crewe, Eng., July 24, 1859. He came to Manitoba in 1882, and was for a number of years engaged in private business, and from 1900 to 1905 was in the Manitoba Government Land Titles office. He entered C.P.R. service in 1905 as chief clerk in the Right of Way Department, Winnipeg, which position he held to Jan. 16, 1910.

R. Patterson, Master Mechanic G.T.R., Stratford, Ont., read a paper on technical education for the modern mechanic before the Canadian Institute in Toronto recently, in which he outlined the G.T.R. apprentice system and made a powerful plea for Government assistance for technical education. President Falconer of Toronto University and Dean Galbraith of the Faculty of Applied Science spoke in warm commendation of the paper.

During Feb., six railway employes were killed and 31 injured in the course of their work on Canadian railways. Of the fatalities, three each were due to derailments and to being run over, while of the other accidents, seven were due to derailments, five to falls, four each to being run over, and to falling material, three each being struck by an object in passing, and to being struck by a locomotive, two each to being caught between cars and to machinery, and one to an explosion of steam.

"Jardine" Taps for the Boiler Shop
"Jardine" Taps for the Machine Shop
"Jardine" Taps for all Purposes

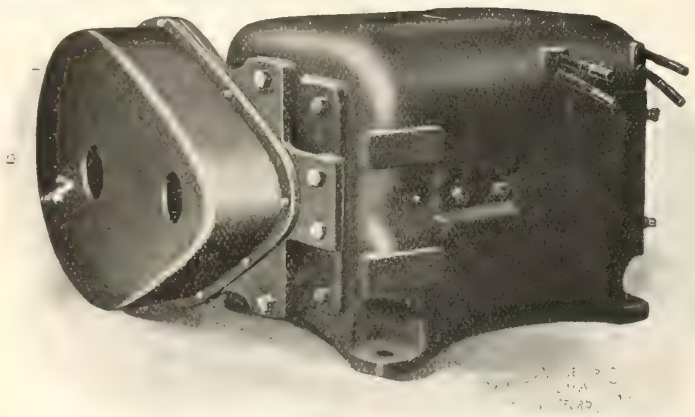


Send us your specifications for special Taps.
We have the appliances.
Delivery and price will please you.

There are no better Tools than "Jardine" Tools.

ASK FOR OUR CATALOGUE No. 13.

A. B. Jardine & Co. - - Hespeler, Ont.



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Manufacturers and Electrical Engineers - 41 Street Railway Chambers, Montreal

JUST A FEW OF THE LINES WE CARRY

McCord Malleable Iron Journal Boxes.
Fewings Cast Steel Car Replacers.
Monk Bridge Stay Bolt Iron.
Ajax Passenger Car Diaphragms.
Pantasote Curtain and Upholstery Materials.
Curtain Supply Co.'s Curtains and Fixtures.
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Q and C Rail Saws.
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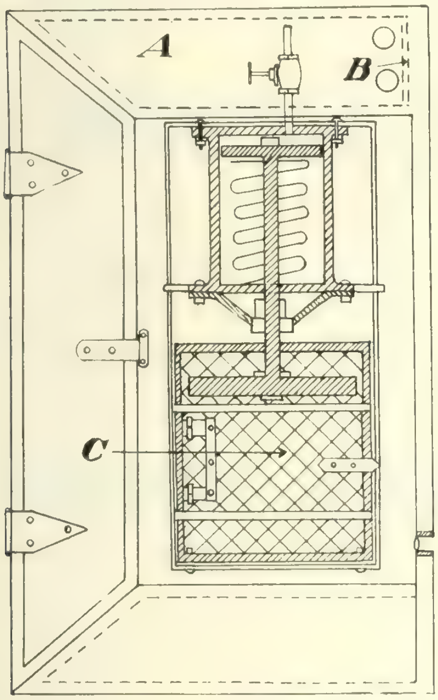
A Waste Press to Save Oil.

By H. J. Varlow, General Foreman C.P.R., Fort William, Ont.

The consumption of oil on railways is a serious one, not only as to what is used but what is wasted, therefore it is wise to prevent unnecessary waste where ever possible. A large quantity of oil is used in connection with packing journal boxes. The waste packing after being removed from the oil box contains a quantity of oil which could be used over again if proper precaution be taken. The oil after being extracted from the waste can be filtered, and by proper filtering can be used over and over again. The accompanying sketch shows a simple arrangement which can be made in any railway shop. "A" is a tank 4½ ft. long, 3 ft. high and 2½ ft. wide. There is a cavity "B" of 2 ins. round the sides and bottom. This is fed with steam from a steam pipe. "C" is a round cage made out of strong smoke box netting with one blank end and three bands round, 2 ins. by ½ in. to strengthen it. On the top side is a door where the waste is put in and when full the door is closed. At the front end is attached an air



brake cylinder, one off a box car will do. The cage and the air brake cylinder are coupled together with a band of iron round one end of the cage and round the end of the cylinder making this rigid and therefore no strain on the tank whatever. The cage and air brake cylinder stand in the tank on feet about 8 ins. clear from the bottom. The air is coupled on to the air line to the cylinder head. When the tank is heated with steam the waste becomes hot and the oil is made to run more freely. The piston head is forced into the cage to squeeze the waste, the oil dropping in the tank. The waste can be taken out in a short time quite dry. By using this arrangement the oil wasted in packing for oil box journals is reduced to a minimum. The cost is small considering the results obtained. This arrangement can be placed in the oil house.

The Canadian Society of Civil Engineers has awarded the Sir Casimer Gzowski silver medal for the best paper read before the Society during the past year, to Prof. Brown, of McGill University.

Railway Rolling Stock Notes.

The Mineral Range Rd. has ordered 100 ore cars.

The G.T.R. is building 10 Pacific type passenger locomotives at its Point St. Charles shops, Montreal.

The G.T.R. has received five mogul locomotives from the Canadian Locomotive Co., Kingston, Ont.

The Intercolonial Ry. has received one yard crane from F. H. Hopkins & Co., Montreal, and two coal cranes from the U.S.

The Anglo-Newfoundland Development Co. has the following rolling stock on its line from Grand Falls to Botwood, Nfld.:—four locomotives, 28 box cars, 40 flat cars, one passenger car and one caboose.

The C.P.R., between Feb. 15 and Mar. 15, received the following additions to rolling stock:—19 flat cars, 59 box cars and six vans from its Angus shops, Montreal, and four D-10 locomotives from the Montreal Locomotive Works.

The C.P.R., between Feb. 15 and Mar. 15, ordered the following rolling stock:—11 locomotives D-10, 40 box cars, 23 flat cars, two vans, one ballast car, at its Angus shops, Montreal, and 10 locomotives N-3, from the Montreal Locomotive Works.

The G.T.P.R., between Feb. 15 and Mar. 17, received the following additions to rolling stock:—483 box cars, nos. 310615 to 310824 and 311052 to 311325; 100 flat cars, nos. 361000 to 361099; and four first class coaches, nos. 2031 to 2035, from the Canadian Car and Foundry Co., Montreal.

The G.T.P.R. has ordered 20 ten wheel locomotives from the Montreal Locomotive Works, and 10 from the Canadian Locomotive Co., Kingston, Ont., details of which were given in our March issue. The statement then made that the 20 locomotives ordered from the Montreal Locomotive Works were for the G.T.R. was an error.

The two superintendent's cars which the G.T.P.R. is having built by the Canadian Car and Foundry Co., will have an observation room, 9′ 8″ long, bedroom 10′ 6″, and the usual kitchen, lavatory and porters' accommodation. Following are the chief dimensions:—

Length over end sills	42′ 0″
Length over buffer beams	48′ 6″
Width over side sills	9′ 8″
Width overall at eaves	10′ 0¼″
Width between deck sills	5′ 0″
Height overall	14′ 2″

The Canadian Northern Ry., between Feb. 15 and Mar. 15, ordered the following rolling stock:—600 box cars, 50 automobile box cars, two baggage and second class cars, three dining cars, and five baggage cars from the Canadian Car and Foundry Co., Montreal; 250 Hart convertible cars from the Hart-Otis Car Co., Montreal; and 500 flat cars and 50 refrigerator cars from the Crossen Car Manufacturing Co., Cobourg, Ont.

The Canadian Copper Co., Copper Cliff, Ont., has ordered from the Hart-Otis Car Co., Montreal, 25 fifty ton Otis type steel ore cars. Following are the chief dimensions:—

Length over end sills	25′ 0½″
Length inside	23′ 0″
Width inside	9′ 6″
Height inside	3′ 1″
Height top of rail to top of side	7′ 5 13-16″
Height from rail to floor	4′ 4 13-16″

M. P. & J. T. Davis, National Transcontinental Ry. contractors, have ordered from the Hart-Otis Car Co., Montreal, 45 Hart convertible cars, 1910 design. Following are the chief dimensions:—

Length over end sills	36′ 8″
Length inside as gondola	34′ 8″
Length inside as hopper	20′ 10″
Width inside	8′ 8″
Height inside	3′ 9¼″
Height from rail to top	8′ 1⅜″
Height from rail to floor	4′ 4⅛″

The Dominion Nickel Copper Co. has ordered from the Montreal Locomotive Works one mogul locomotive, of which the following are the chief details:—

Weight in working order	131,000 lbs.
Weight on drivers	113,500 lbs.
Weight on engine truck	17,500 lbs.
Wheel base, driving	12′ 6″
Wheel base, engine	20′ 6½″
Wheel base, engine and tender	50′ 0″
Cylinders	19″ by 26″
Driving wheels	50″
Boiler, type	Extended wagon top
Boiler, diar. at first ring	62″
Boiler, pressure	180 lbs.
Tubes, no. and diar.	240—2″
Tubes, length	10′ 5¼″
Brakes	Westinghouse American
Capacity, water	4,500 gals.
Capacity, coal	9 tons

The Canadian Northern Ry. has ordered 12 six-wheel and 10 ten-wheel locomotives from the Montreal Locomotive Works. Following are the chief details:—

	6-wheel.	10-wheel.
Weight in working order	124,500 lbs.	164,500 lbs.
Weight on drivers		126,500 lbs.
Weight on engine truck		38,000 lbs.
Wheel base, driving	11′ 6″	14′ 6″
Wheel base, engine		24′ 10″
Wheel base, engine and tender	40′ 0″	53′ 6″
Cylinders	19″ by 26″	20″ by 26″
Driving wheels	50″	63″
Boiler, type	Straight top	Ext. wagon top
Boiler, diar. first ring	64¼″	66″
Boiler pressure	180 lbs.	200 lbs.
Tubes, no and diar.	259—2″	308—2″
Tubes, length	11′ 0″	13′ 2¼″
Brakes	Westinghouse	American
Capacity, water	3,500 gals.	5,000 gals.
Capacity coal	5 tons	10 tons

The Canada Iron Corporation, Ltd., Montreal, has ordered one consolidation locomotive from the Canadian Locomotive Co., Kingston, Ont., for the Northern New Brunswick and Seaboard Ry. Following are the chief details:—

Weight on drivers	148,300 lbs.
Weight, total	164,850 lbs.
Wheel base of engine, rigid	15′ 3″
Wheel base, total	23′ 6″
Wheel base of engine and tender	54′ 5″
Length overall, engine and tender	65′ 1″
Width overall	10′ 2″
Height overall	14′ 6¾″
Heating surface, firebox	162 sq. ft.
Heating surface, tubes	1,934 sq. ft.
Heating surface, total	2,096 sq. ft.
Driving wheels diar.	56″

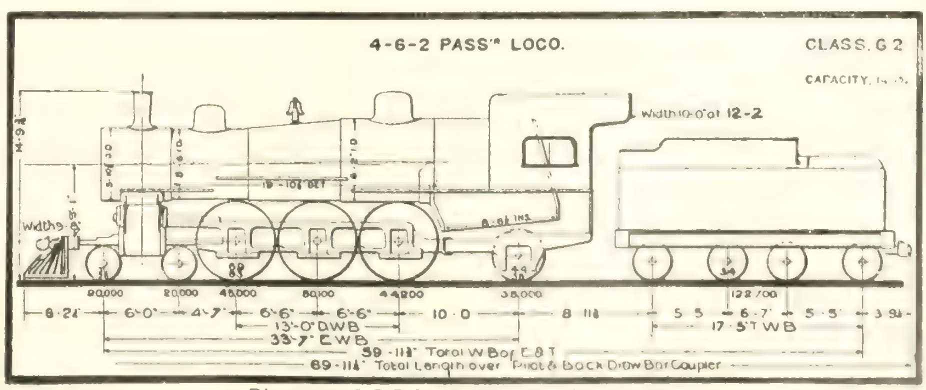
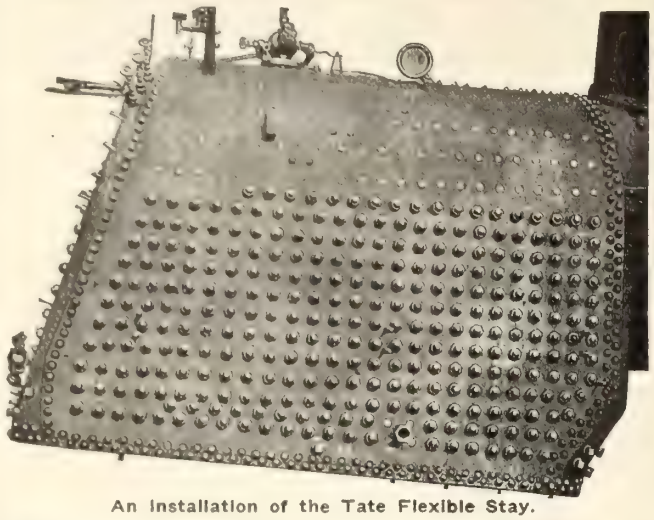


Diagram of C.P.R. Pacific type locomotive.



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TACKLE BLOCKS, wood and galvanized iron. CLEATS, CHOCKS and TURNBUCKLES, fine selection. CAULKING MALLETS, CAULKING IRONS and HAWSING BEETLES. ANCHORS—Iron Stock—Galvanized Stock, Dirigo Folding and Chester Folding. COIL CHAINS—English make, tested. WIRE ROPES for rigging and derrick stays, etc. PURE MANILLA ROPES and HALYARDS—all kinds. CAULKING COTTON and OAKUM — varied qualities. PAINTS — Good selection of marine and copper paints. VARNISHES—Special for spars. SHIP LAMPS — Splendid variety in stock.

Call at earliest convenience.

RICE LEWIS & SON LIMITED, - TORONTO

Driving wheels centres	Cast iron
Driving journals	8" by 12"
Cylinders	21" by 28"
Boiler, type	Radial stayed
Boiler pressure	200 lbs.
Tubes, no. and diar.	236 2¼"
Tubes, length	114"
Injectors and safety valves	Locomotive type
Brakes	Westinghouse
Weight of tender loaded	120,000 lbs.
Tank	U-shaped, sloping coal well
Capacity, water	5,000 gals.
Capacity, coal	10 tons
Truck	Diamond, all steel
Wheel, diar.	33"
Wheel, style	Chilled cast iron
Journal	5½" by 10"
Brake beam	Steel

Following are some additional details of the two superintendent's private cars which the G.T.P.R. has ordered from the Canadian Car and Foundry Co., Montreal:—

Platforms, steel, special design	Standard Coupler Co.
Couplers	Tower
Heating System	Safety Car Heating and Lighting Co.
Lighting	One car, oil; other, Commercial Acetylene Co. system
Air brakes	Westinghouse P1412
Trucks	4 wheel passenger type
Wheels	Cast iron 33", 625 lbs.
Axles	Steel, 4¼" by 8"
Brake beams	Simplex

Following are the chief details of the 10 consolidation locomotives which the C.P.R. is having built at the Montreal Locomotive Works:—

Weight in working order	220,000 lbs.
Weight on drivers	195,000 lbs.
Weight on engine truck	25,000 lbs.
Wheel base, driving	16' 6"
Wheel base, engine	25' 5"
Wheel base, engine and tender	55' 8"
Valve gear	Walschaert
Cylinders	24" by 32"
Driving wheel	63"
Boiler, type	Extended wagon top
Boiler, diar, at first ring	72"
Boiler, pressure	180 lbs.
Tubes, no. and diar.	272—2" and 24—5"
Tubes, length	15' 2¾"
Brakes	Westinghouse American
Capacity, water	5,000 gals.
Capacity, coal	12 tons
Superheater	Vaughan-Horsey

Following are the chief particulars of the 10 G2 Pacific locomotives which the C.P.R. is building at its Angus shops, Montreal, and of two similar ones which it has ordered in the U.S., mention of which has been made in previous issues. A diagram on pg. 297 shows the general dimensions.

Weight on drivers	136,000 lbs.
Total weight	215,000 lbs.
Cylinders	21" by 28"
Drivers, diar.	69"
Boiler, type	Radial stayed, wagon top
Boiler, pressure	200 lbs.
Heating surface, total	2,952 sq. ft.
Tubes, no. and diar.	193—2¼", 22—5"
Tubes, length	19' 6"
Firebox	94⅛" by 70"
Grate area	45.6 sq. ft.
Capacity, water	5,000 gals.
Capacity, coal	10 tons
Air brakes	Westinghouse ET6
Axles	Krupp steel
Brake beams	Simplex trussed
Brake shoes	C.P.R. standard
Couplers	Tower
Headlight	Pyle National Electric
Journal bearings	Canadian Bronze Co.
Sight feed lubricators	Detroit
Springs	Crucible
Steam gauges	Star
Steam heat equipment	Gold system
Wheel tires	Krupp crucible
Wheel centres	Cast steel
Superheater	Vaughan and Horsey

Canadian Ticket Agents' Association.—G. A. Cullen, G.P.A., Delaware, Lackawana & Western Rd., has been selected to represent the American Association of General Passenger and Ticket Agents at the next meeting of the C.T.A.A. in Quebec, Oct. 5 to 7. T. J. Trueman, C.P.R., Midland, Ont., has recently joined the C.T.A.A.

The Crossen Car Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $1,000,000 and office at Cobourg, Ont., to carry on the business of manufacturers and dealers in all kinds of vehicles for the carriage of passengers and freight.

Recent British Columbia Legislation.

At the recent session of the B.C. Legislature acts were passed affecting transportation interests as follows:—

British Columbia and Alaska Ry.—Incorporation.

British Columbia Central Ry.—Incorporation.

British Columbia Electric Ry.—Confirming agreement between company and city of Victoria.

British Columbia Mainland and Coast Industrial Co.—Authorizing company to construct railways and tramways.

Cariboo, Barkerville and Willow River Ry.—Incorporation.

Comox Logging and Ry.—Incorporation.

Canadian Northern Pacific Ry.—Incorporation.

Canadian Northern Ry.—Confirming agreement between company and Government for construction of C.N. Pacific Ry.

Electrical Energy.—Providing for inspection of premises, works, wires and appliances generating, supplying or transmitting electrical energy.

Esquimalt and Nanaimo Ry.—Ratifying agreement between company and Government.

Graham Island Ry.—Reviving act of incorporation.

Howe Sound, Pemberton Valley and Northern Ry.—Authorizing company to extend its projected railway.

Island Valley Ry.—Incorporation.

Kettle River Valley Ry.—Confirming agreement between company and Government for construction of a railway.

Menzies Bay Ry.—Incorporation

Midway and Vernon Ry.—Amending act granting subsidy for construction.

Nelson.—Validating city by-law respecting street railway.

North Vancouver.—Confirming agreement of Council granting aid to North Vancouver City Ferries.

North Vancouver Island Ry.—Incorporation.

Pacific and Alaska Ry.—Incorporation.

Penticton Ry.—Incorporation.

Port Moody, Indian River and Northern Ry.—Incorporation.

Queen Charlotte Ry.—Incorporation.

Railway Subsidy Lands.—Authorizing repurchase by Government of lands granted in aid of construction of railways.

Vancouver and Nicola Valley Ry.—Incorporation.

Railway Commissioners' Traffic Orders.

Summaries of other traffic orders are given on another page under "Orders by Railway Commissioners":—

CLASSIFICATION OF AUTOMOBILES.

9494. Feb. 4.—Re objection of Canadian Manufacturers' Association to classification of automobiles proposed by Canadian Freight Association. It is ordered that application of Canadian Freight Association for variation in the Canadian Classification rating of automobiles, "set up," in less than carloads, be refused. That the Canadian Classification rating of automobiles and other self-propelling vehicles, taken apart (wheels detached), in box cars, less than carloads, actual weight, be changed to double-first class; and that this change be incorporated in the forthcoming amendments to the Canadian Classification.

The Northern Construction Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $200,000 and office at Winnipeg, to take over the Northern Construction Co., Ltd., incorporated under the Ontario Companies Act in 1904. A. R. Mann and A. C. McKenzie are those chiefly interested.

C. P. R. Construction Contracts.

The following contracts have been let for construction on C.P.R. western lines, already referred to under the heading of C.P.R. Betterments, Construction, Etc., on another page:—

From Forward, Sask., westerly for 25 miles, to McArthur and Dutton;

From Craven, Sask., to Colonsay, 110 miles, to J. Bradley;

From Outlook, Sask., northwesterly for 93 miles, to McArthur and Dutton;

From Macklin, Sask., southeasterly to a junction with the line from Outlook, 54 miles, to Janse, McDonald and Timothy;

From Carmangay, Alta., northwesterly for 30 miles to Foley, Welch and Stewart;

From Irricana, Alta., easterly for 15 miles, to Foley, Welch and Stewart.

Modern Lettering, Artistic and Practical, is the title of a book of instruction in the art of lettering, valuable not only to the beginner, but useful also to the experienced workman. The author, W. Heyney, is a man of experience, and gives in clear and simple language a useful course of instruction in lettering suitable for architectural, sign writing, decorative and artistic work. The instructions are illustrated by 35 plates of alphabets drawn by the author and suitable for adaptation to any class of work. In the first part the author describes the drawing materials and explains how they are to be used; in the second part, the mechanical construction of letters and numerals, and gives general rules for the construction of letters; in the third the alphabets, their history, description and proper use are treated of; the fifth, treats of the proper and artistic employment of lettering, the arrangement of letters, composition, spacing, grouping, designing, etc. The price of the volume is $2, and the publisher is W. T. Comstock, 23 Warren St., New York.

THE GRAND TRUNK RAILWAY COMPANY OF CANADA.

NOTICE is hereby given that the Ordinary General Half-yearly Meeting of the Grand Trunk Railway Company of Canada, will be held at the City Terminus Hotel, Cannon Street, London, E.C., on Thursday the 14th day of April, 1910, at twelve o'clock noon precisely, for the purpose of receiving a Report from the Directors, for the election of Directors and Auditors, and for the transaction of other business of the company.

Notice is also given that at such meeting a resolution will be submitted, approving of the provisions of an Act of the Parliament of Canada, authorizing this company to acquire, guarantee, hold, pledge and dispose of stocks and securities of the Lachine, Jacques Cartier & Maisonneuve Railway Company, the Ottawa Terminals Railway Company and the Grand Trunk Pacific Terminal Elevator Company, Limited, and to enter into such agreements as may be necessary to carry out the purposes of said Act.

Notice is also given that the transfer books of the company in London and Montreal will be closed from Monday the 14th day of March, to the day of meeting, both days inclusive.

By order,

ALFRED W. SMITHERS,
Chairman.

H. H. NORMAN,
Secretary.

Dashwood House, 9 New Broad Street, London, E.C., 14th March, 1910.

THE ALGOMA STEEL CO., LIMITED

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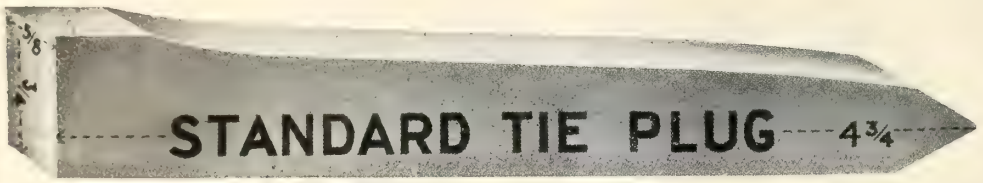

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OWEN SOUND, ONT.

These plugs are giving good satisfaction. We are also large dealers in Ties, Posts, Timbers, Lumber, Sash, Doors, Interior Finish, and with the plant we have here should be able to supply you. . . . .

Our Specialty is Good Material Promptly. Try us once.

THE **N. L. PIPER RAILWAY SUPPLY CO.,** LIMITED

314 FRONT ST., WEST
—TORONTO—

MANUFACTURERS OF

ANCHOR LIGHTS

MAST HEADS

SIDE LIGHTS

SHIP LAMPS ETC

checked with L.W.O. card April 5. 1910

TRANSPORTATION APPOINTMENTS.

The information under this head, which is almost entirely gathered from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian Lake Line.—J. M. Maver has been appointed Soliciting Freight Agent, Montreal.

L. J. Burns has been appointed Soliciting Freight Agent, Hamilton, Ont.

F. P. Welch has been appointed General Agent, Fort William and Port Arthur, Ont.

Canadian Northern Ry. — Osborne Scott, heretofore chief clerk advertising and general baggage offices, Winnipeg, has been appointed Travelling Passenger Agent, with headquarters in Toronto.

E. H. Williams, heretofore Locomotive Foreman at Kipling, Sask., has been appointed Locomotive Foreman at Brandon, Man., not General Foreman as stated in our last issue.

H. J. Cowie, heretofore Freight Agent at Liverpool, Eng., has been appointed European Traffic Manager, and will also have charge of Canadian Northern Steamships, Ltd., traffic business there.

Canadian Northern Steamships, Ltd.—H. C. Bourlier, heretofore of the Allan Steamship Co.'s Toronto office, has been appointed General Agent Passenger Department, Ontario Division, Canadian Northern Steamships, Ltd. Office, Toronto.

Canadian Pacific Ry.—A. C. Lytle, heretofore General Superintendent and Freight and Passenger Agent Orford Mountain Ry., has been appointed Assistant Superintendent District 1, Eastern Division, with jurisdiction over Orford Branch, reporting to the Superintendent District 1. Office, Eastman, Que.

E. W. Beatty, heretofore Assistant Solicitor, has been appointed General Solicitor. Office, Montreal.

F. R. Haney, heretofore chief clerk to Tax and Insurance Commissioner, Montreal, has been appointed Assistant to Tax and Insurance Commissioner, and Claims Adjuster for Lines East of Fort William, Ont. Office, Montreal.

P. A. Crysler, heretofore General Car Inspector Eastern Lines, has been appointed assistant general foreman of passenger car repair work at Angus shops, Montreal.

C. Lott, heretofore a train dispatcher at Smith's Falls, Ont., has been appointed temporarily a Train Rules Instructor and Examiner for the Eastern Division.

S. J. Sharp, until recently General Agent Passenger Department Atlantic Steamships, Toronto, who was transferred to a similar position at Winnipeg, as announced in our last issue, has resigned, and will go into the general steamship agency and real estate business in Toronto.

W. E. Woodhouse, heretofore Master Mechanic Western Division, Calgary, Alta., has been appointed Superintendent Winnipeg shops, vice S. J. Hungerford, resigned to enter Canadian Northern Ry. service.

E. A. Bradley has been appointed chief clerk Right of Way Department, Winnipeg, vice E. W. Bateman promoted.

R. Tidmus, heretofore in city ticket office, Nelson, B.C., has been appointed city ticket agent at Winnipeg, vice D. J. Rochon deceased.

J. Robertson, heretofore transitman, Moose Jaw, Sask., has been appointed Resident Engineer there, vice F. S. Rosseter resigned.

R. Anthony, heretofore Locomotive Foreman, Moose Jaw, Sask., has been appointed General Foreman there, vice J. H. Wilson transferred to Kenora, Ont., as stated in our Jan. issue.

R. A. Pyne, heretofore District Master Mechanic, Nelson, B.C., has been appointed Master Mechanic Western Division, vice W. E. Woodhouse transferred. Office, Calgary, Alta.

T. J. Brown, heretofore transitman, Calgary, Alta., has been appointed Resident Engineer there, vice H. W. MacLeod transferred to the operating department.

W. H. McConnell, heretofore Trainmaster District 1, Western Division, Moose Jaw, Sask., has been appointed General Yardmaster, Calgary, Alta., vice W. A. Whited, who has left the service.

L. E. W. Bailey, who was recently appointed road foreman of locomotives, District 4, Western Division, has his headquarters at Macleod, Alta., not at Cranbrook, B.C., as stated in our last issue.

R. Brown, heretofore assistant boiler foreman, Winnipeg shops, has been appointed Locomotive Foreman, Cranbrook, B.C., vice D. T. Main promoted.

W. O. Miller, formerly Superintendent District 2, Pacific Division, Vancouver, B.C., has been appointed Superintendent District 3, Pacific Division, Nelson B.C.

D. T. Main, heretofore Locomotive Foreman, Cranbrook, B.C., has been appointed District Master Mechanic, Nelson, B.C., vice R. A. Pyne promoted.

H. W. MacLeod, heretofore Resident Engineer, Calgary, Alta., has been appointed Trainmaster, District 3, Pacific Division, Nelson, B.C., vice T. H. Crump, Trainmaster, Grand Forks, who has been transferred to Field, B.C.

The position of European Manager's Assistant has been abolished, E. Edwards, who held the position, has left the service.

T. J. Smith, heretofore Freight Agent at Liverpool, Eng., has been appointed General Freight Agent, vice H. D. Annable. Office, 62-65 Charing Cross, London, Eng.

F. W. Forster, heretofore Agent at Bristol, Eng., has been appointed Agent at Liverpool, Eng., vice J. J. Gilbertson resigned. He has also assumed the duties of Freight Agent there, vice T. J. Smith promoted.

A. S. Ray has been appointed Agent at Bristol, Eng., vice F. W. Forster transferred to Liverpool.

Grand Trunk Pacific Ry.—The following agents have been appointed:—G.T.P. Junction, Man., W. A. L. Armstrong; Firdale, Man., W. A. Taylor; Gregg, Man., W. W. Barr; Lazare, Man., J. A. Jacques; Fenwood, Sask., J. O. Deshaye; Raymore, Sask., F. O'Flynn; Venn, Sask., A. M. Demings; Watrous, Sask., R. M. Sutherland; Leney, Sask., J. H. Lewis; Ardrossan, Alta., A. Hughes.

Grand Trunk Ry.—Sir Wm. H. White, K.C.B., has been elected a director, vice Sir C. Rivers Wilson resigned.

C. H. Storey, heretofore foreman Brockville yards, has been appointed acting Roadmaster, Districts 5 and 6, between Vaudreuil, Que., and Kingston Jct., Ont., vice J. Henderson resigned. Office, Brockville, Ont.

H. E. Rice has been appointed Road Foreman of Locomotives, districts 25, C.S.M., 27, 28, 29 and P.O.N., vice J. R. Bunce assigned to other duties. Headquarters, Durand, Mich.

The following agents have been appointed:—Norton Mills, Que., H. A. Dunn; Danville, Que., F. Eastman; Jeanette's Creek, Ont., F. D. Ellis; Drumbo, Ont., F. Newman; Wiarton, Ont., C. W. Hinchy; Newton, Ont., J. Baxter; Ravensworth, Ont., J. G. Blanchfield.

Michigan Central Rd.—B. J. Coulson, heretofore yardmaster, Montrose, Ont., has been appointed General Yardmaster there, with jurisdiction over Montrose yard and interchange of traffic at Suspension Bridge.

J. J. O'Neill, heretofore night yardmaster, Windsor, Ont., has been appointed General Yardmaster at Victoria yards, Ont., with jurisdiction over Victoria and Welland yards, and interchange of traffic at Black Rock yard, Ont.

J. Handley, heretofore conductor, has been appointed acting Assistant Trainmaster, St. Thomas, Ont.

New York Central and Hudson River Rd.—The Mohawk and Malone, and St. Lawrence and Adirondack Rys. are now being operated as the Adirondack Division, J. W. Eber is Superintendent with office at Utica, N.Y.

Northern Navigation Co.—B. Patten, heretofore Travelling Freight Agent, has been appointed General Agent at Port Arthur, Ont., vice R. Beaumont, who is reported to have been appointed Agent G.T.P.R. Pacific Coast Steamship Service, Vancouver, B.C.

Pere Marquette Rd.—J. W. Kearns, heretofore Travelling Passenger Agent, London, Ont., has been appointed District Passenger Agent, Detroit, Mich., vice H. W. Jameson, who has left railway service for commercial work.

W. M. Hood has been appointed Travelling Passenger Agent, London, Ont., vice J. W. Kearns promoted.

Quebec Central Ry.—Jos. Fortin, heretofore acting Superintendent, has been appointed Superintendent. Office, Sherbrooke, Que.

Jno. Farquhar, heretofore Roadmaster, has been appointed General Roadmaster and Superintendent of Bridges and Buildings. Office, Sherbrooke, Que.

Too Late for Classification.

Alberta Central Ry.—Sir Thos. G. Shaughnessy, President C.P.R., is reported as stating Mar. 18, that there was no information to give with reference to reports from Calgary, that the company had acquired the A.C. Ry. charter. The report was to the effect that the charter had been sold to the C.P.R., which company intended to begin the construction of a line from Red Deer, through the Rocky Mountains to the Pacific Coast. (Dec., 1909, pg. 881).

G.T. Pacific Ry. on Vancouver Island.—W. Wainwright, Second Vice President, in reply to a delegation representing the Board of Trade of Victoria, B.C., is reported as having stated that the company proposed to start the construction of its line to Vancouver, early next year. That ferry service would be operated across Bute Inlet and that a subsidiary line would give connection with various points on Vancouver Island.

G.T.R. Track Relaying.—The company has completed the relaying of its double track between Montreal and Napanee, Ont., 198.9 miles, with 100 lb. rails, and rails have been bought for the relaying of the 133 miles between Napanee and Toronto, which will be done this year.

Morrissey, Fernie and Michel Ry.—The officers and directors for the current year are:—President and Treasurer, E. Rogers, Toronto; Vice President, E. C. Whitney, Ottawa; other directors, H. B. McGiverin, Ottawa; A. E. Stovel, Toronto, and W. P. Clough, New York.

Point St. Charles Burying Ground.—There is a plot of ground at the foot of St. Etienne St., Point St. Charles, Que., which was used as a burying ground for the 6,000 victims of the ship-fever in 1847-48, to whose memory a monument was erected by the employes of Peto, Brassey and Betts, which firm had the original contract for the construction of the G.T.R. This plot of ground lies between the G.T.R., its car siding and the main land opposite the guard pier, and the company is desirous of expropriating it for yard extension. The proposal is being opposed by the Irish [illegible] of the city.

Prince Albert and Hudson Bay Ry.—An unconfirmed press report states that a contract has been let to A. J. Taylor, New York, for the construction of the first portion of this proposed railway

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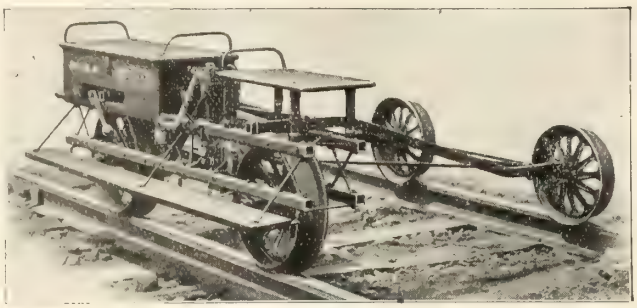

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and that a staff of engineers had arrived in New York from England Mar. 4, en route for Prince Albert, Sask. Dr. R. S. Reid, arrived in St. John, N.B., from Scotland, Mar. 11, and proceeded to Prince Albert, stating that he would have charge of the camps, etc., for the company. He said the surveys would be completed from Prince Albert to Edmonton, and Prince Albert to Fort Churchill on Hudson Bay as fast as possible and that it was hoped to complete 1,000 miles of line within two years.

A Prince Albert dispatch, dated Mar. 4, says, G. Atwood, the company's Chief Engineer, arrived there on the previous evening, and announced that the final location surveys would be proceeded with at once, and that construction would be started as soon as the frost was out of the ground. W. H. May, who is said to have been in charge of the preliminary survey work, will it is said remain as Assistant Engineer. A. J. Taylor was reported as being expected from New York by Mar. 30, to complete arrangements for starting work. A. B. Spicer, the principal shareholder, is reported as being expected from Great Britain at an early date, to represent the company. (Mar., pg. 187).

Quebec Central Ry.—Gross earnings for Jan., $61,025.09; expenses, $55,207.80; net earnings, $5,817.29, against $54,086.31 gross earnings; $50,654.12 expenses; $3,432.19 net earnings for Jan., 1909. Aggregate gross earnings for seven months ended Jan. 31, $641,795.18; expenses, $441,647.28; net earnings, $200,147.90, against $606,777.55 aggregate gross earnings; $428,233.92 expenses; $178,543.63 net earnings for same period 1908-09.

Temiskaming and Northern Ontario Ry.—Total revenue for Jan., $154,428.43; operating expenses, $97,091.34; net earnings, $57,337.09; ore royalties, $3,520.91; total, $60,858.00; less hire of equipment, $6,445.61; net result, $54,412.39; expenses per cent. of earnings, 62.2.

White Pass and Yukon Ry.—It is reported from Vancouver that an extension of five miles will be built to the Pueblo mine this season.

Telegraph and Cable Matters.

T. J. McKavanagh, Chief Electrician of the cable steamer Minia, read a paper on submarine cables at a meeting of the Nova Scotia Society of Engineers at Halifax, Mar. 10.

It is reported that the Commercial Cable Co. will, shortly, lay another cable between this continent and Europe, thus making the sixth cable controlled by the company.

D. Adams, who entered the Montreal Telegraph Co.'s service in 1869, has been appointed local manager G.N.W. Telegraph Co., at London, Ont., succeeding the late W. C. Furness.

The C.P.R. telegraph operators are reported to be considering the question of asking an increase of pay, and for the abolition of Sunday work, except where absolutely necessary, when double pay is suggested.

The Board of Railway Commissioners issued an order Mar. 3, directing that all telegraph companies doing business in Canada, file with the Board, by Apr. 1, copies of all forms used in receiving and transmitting messages.

The Board of Railway Commissioners took up the question of telegraph rates Mar. 21, when the Western Associated Press stated the objections of the western press to the schedules filed by the telegraph companies, Mar. 1, in accordance with the Board's order.

Press reports state that the G.T.P.R. has applied to the Dominion Government for authority to erect a system of wireless telegraph stations across the Rocky Mountains, to connect Edmonton with Prince Rupert, for its own, as well as for commercial purposes.

In reply to questions in the Newfoundland Legislature recently, the Minister of Justice said that a copy of the evidence in the enquiry into the use of railway telegraphs for purposes other than there contemplated by the Railway Act, would be laid on the table at an early date.

The Newfoundland Minister of Finance in a budget statement, Mar. 8, stated that with four months of the fiscal year to elapse, the telegraph receipts to Feb. 28, were $37,899,21, against $33,046.65 for a similar period 1908-09. He also stated that since 1890, about 2,500 miles of telegraph line had been erected.

E. W. Humphreys, who was at one time interested in the Dominion Deforest Wireless Telegraph Co., and the Northern Commercial Telegraph Co., has entered a suit in the Superior Court, to recover about $2,500,000 from the Northern Commercial Telegraph Co., Roeblinger Sons & Co., F. C. Dixon, and S. Carsley, of Montreal, and for the annulment of certain loans and contracts.

The bill to incorporate the Maritime Telephone and Telegraph Co., was considered by the Nova Scotia Legislature, Mar. 15, an amendment being put forward by the applicants defining that the powers sought were to conduct a telephone and telegraph business solely, and that the clause relating to water rights was intended to give power only for the crossing of streams or lakes with wires and poles.

The proposal to adopt a system of telegraph letters similar to one recently inaugurated in the U.S., is under consideration by the telegraph companies. The idea is that letters of 50 words should be sent at night at the same rate as 10 words in the daytime. J. Kent, Manager C.P.R. Telegraphs was reported to have said recently that should such a system be adopted in the U.S., it would also be introduced in Canada.

The Board of Conciliation appointed to investigate the grievances of the G.T.R. telegraphers, on the lines east of the Detroit and St. Clair Rivers, in reporting, state that they agree that the schedule which became effective Jan. 1, 1908, should remain in force with certain exceptions, and should become effective on the Canada Atlantic Ry., which should be classed as a branch line except from Swanton to Ottawa, which should be dealt with as a main line, the 1907 schedule in force on the C.A.R. to be cancelled. The schedule should also be altered so that the monthly pay of operators on branch lines should be from $46 to $75, and on main line, $50 to $75, with extra allowances for reliefs away from home, Sunday work, and extra service. W. Nesbitt, K.C., for the company objected to extra pay for Sunday work.

The application of eastern and western newspaper publishers against the telegraph rates on Press Association matter, came before the Board of Railway Commissioners, Mar. 22. As a result of a conference, the C.P.R. announced that it would give a rate for the eastern zone, which would be open to any association of publishers on the same terms as to the volume and number of words, as to the Press Association, and stated that a sliding scale of rates would be drawn up and filed by Apr. 12, under which the morning paper rate would remain in force and evening papers would pay an increase of 20%. The press representatives in reply said that until a per word tariff was filed for the western business, they would not be in a position to say whether the new rate would be satisfactory. The Board intimated that after the amended tariff was submitted for approval a sitting would be arranged in Winnipeg, when objections would be heard.

C. P. R. Telegraph Extensions.

In addition to the telephone train dispatching circuits to be installed on the C.P.R. this year, particulars of which are given on another page, a 210 lb. copper wire will be strung from Montreal to Vancouver, to be used entirely for British Pacific cable's Trans-Canada traffic. It will be operated with the Wheatstone automatic system duplexed. It is expected that only one relay office will be necessary between Montreal and the Pacific cable.

An additional copper wire will be strung between Cranbrook and Sirdar, B.C., also two iron wires between Nanaimo and Victoria, B.C., which will be continued on to Vancouver through a new 3-core cable which is now being manufactured and will be laid about June next between Vancouver and Nanaimo. This will provide an alternate cable connecting the main line with Vancouver Island, and has been found necessary on account of the increased traffic on the Island. There will also probably be wires strung between Amherst and Truro, N.S., Montreal, Que., and Ottawa, Ont., Stanbridge and St. Guillaume, Que., and Farnham and Drummondville, Que. In addition to the above there will be a large amount of re-building and general repairs requiring about 400 men during the summer.

Among the Express Companies.

The Board of Railway Commissioners has notified express companies operating in Canada that its final sitting in connection with its enquiry into express charges will be held at Ottawa, Apr. 6.

The Board of Railway Commissioners has extended until June 1, the time during which the tariffs of tolls of the various express companies operating in Canada, have been temporarily approved.

The Board of Railway Commissioners passed the following order 9813, Mar. 9. —Re complaint of Manitoba Free Press, Telegram Printing Co., and Tribune Publishing Co., of Winnipeg, complaining against the rate charged by the Dominion Express Co. for carrying newspapers out of Winnipeg. Upon its appearing that at one time newspapers were carried by the respondent company from Winnipeg to points in Western Canada at a special rate of ¼ c. per lb., which rate was advanced to ½ c. per lb., and that later, on Mar. 2, 1907, this rate was restricted to a radius of 300 miles from Winnipeg. And its also appearing that the special rate of the respondent company in eastern Canada is ¼ c. per lb. within a radius of 300 miles of the office of publication, and that the application for a rate in western Canada equal to that charged in eastern Canada, having regard to the former rate of ¼ c. per lb. from Winnipeg, is reasonable. It is ordered, That the rate to be charged by the express companies for the carriage of daily newspapers from Winnipeg, shall be the same as charged by the respondent company in eastern Canada, namely, ¼ c. per lb. on the aggregate weight per month, to points reached by the said companies within 300 miles of Winnipeg exclusive of wagon service. It is further ordered, That order 9156, dated Jan. 3, 1910, be rescinded.

A Sharbot Lake, Ont., liquor dealer, has been fined $50 and costs for selling intoxicating liquor to a C.P.R. locomotive engineer who was on duty. The engineer was dismissed from the service.

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Grain Elevator Notes.

The Great West Elevator Co., Ltd., has been incorporated under the North West Territories Ordinance, with office at Edmonton, Alta.

The Montreal Harbor Commission will erect an elevator of about 2,000,000 bush. capacity, near the Victoria pier, as a part of its scheme of harbor improvement, which will be carried out during the next few years.

A bill seeking to extend the powers of the Dominion Millers' Association was on Mar. 4, referred by the Private Bills Committee of the House of Commons to a sub-committee for consideration. The Association is seeking power to construct elevators and to operate steamships in addition to other powers.

The Saskatchewan Government has appointed a commission to consider the grain growers' proposals in connection with the suggested Government ownership of elevators. The commission consists of Prof. McGill, Dalhousie University, Halifax, N.S., G. Langley, M.L.A., and F. W. Green, Secretary Saskatchewan Grain Growers' Association.

The contract for the erection of the addition to the Goderich Elevator and Transit Co.'s elevator at Goderich, has been let, and it is stated that the work will be commenced as soon as the ice clears sufficiently to allow of the necessary dredging being done. The structure will be of concrete, supported on iron and wooden piles driven to rock, and of the square bin type reinforced with steel bars.

The Manitoba Government bill to establish a Government system of grain elevators in the province, provides that elevators will be erected in any part of the province on a petition from 60% of the farmers in the vicinity, who must agree to use the Government elevators exclusively. The expropriation of existing elevators is also covered, but it is believed that this clause involves the Dominion Government, and some difficulty may arise in such connection. A commission will be appointed by the Government for the operation of the elevators, and the right to select and remove members of the commission is reserved by the Government.

Quebec Public Utilities Commission.

The Quebec Government, Mar. 4, appointed Col. Hibbard, Montreal; Sir J. G. Garneau, Quebec; and C. Laberge, Professor in the Polytechnical School, Montreal, members of the Quebec Public Utilities' Commission, the formation of which was authorized by the Legislature, in 1909. Colonel Hibbard has been named President.

The act of the Legislature authorizing the formation of the commission is chap. 16, and was assented to May 29, 1909. It authorizes the Lieut-Governor in council to appoint a commission of three members, (to hold office for ten years, unless removed previously for cause) which commission shall be a court of record, to be called the Quebec Public Utilities Commission. One of the commissioners is to be appointed President, and another Acting President, any two of whom shall form a quorum; but a single commissioner may act in cases where there is no opposing party, and no notice to be given to any interested party; or where the commission or the President may authorize any one of its members to make a report. The President's opinion on points of law shall prevail, and the commissioners shall continue to act though there be a vacancy. No commissioner shall act in any matter in which he may be interested, and his place may be temporarily filled by the nomination of some disinterested person, by the Lieut.-Governor in council. Provision is made for the appointment of a Secretary, and for the appointment of officials having expert or technical knowledge to assist the commissioners. The salary of the President is $4,000 a year, and that of the commissioners is $3,000 each, and the Lieut.-Governor in council is authorized to grant them in addition a sum not exceeding $10 a day for each day's sitting of the Commission attended. The salary of the Secretary is fixed at $1,800 a year, and the salary of other employes and the remuneration of experts is to be fixed at the time of their appointment. The interpretation clause defines the word "public utility as meaning every corporation (other than a municipal corporation), firm, person or association of persons, the business and operations whereof are subject to the legislative authority of the province, now or hereafter operating telegraph or telephone lines, any railway, street railway or tramway, or for the production and delivery of heat, light or power, either directly or indirectly to the public.

The Commission is given jurisdiction in all matters heretofore within the jurisdiction of the Railway Committee of the Executive Council; in all questions relating to the transportation of goods by tramway companies; in all matters mentioned in articles 5165 to 5169 of the Revised Statutes of the Province; in all contestations as to tolls of public utilities, subject as to electric railways to paragraphs 6a and 6b article 5172 of the Revised Statutes of the Province; in the placing of rails, etc., on public roads in certain cases; in the placing of rails, etc., on public roads in order to reach other places, and certain contestation between public utilities and municipalities. In connection with the construction of telephone, telegraph and transmission lines, section 24 of the act specifies the conditions which shall be performed over and above those which may be prescribed in each case by the Commission. The Commission has no jurisdiction in cases for damage.

The Commission may make rules of practice regulating its procedure, and sections 29 to 45 inclusive, cover the powers possessed by the Commission as to the making of orders and for enforcing them. An appeal against an order may be made to the Court of Appeal upon questions of jurisdiction and law by permission of a judge, and sections 46 to 51 inclusive, cover all the procedure in connection with appeals.

The Commission is to report to the Government annually in July on the work done for the year ended June 30. The powers of the Railway Committee of the Executive Council and of the Minister of Public Works in respect to all matters coming under the jurisdiction of the Commission, are suspended from the time of the appointment of the Commission, and "so long as the Commission shall continue to exist."

Toronto Railway Judgment.

The Judicial Committee of the Privy Council delivered judgment in London, Eng., Mar. 18, on the appeal of the city of Toronto from the judgment of the Ontario Court of Appeal in favor of the order of the Ontario Railway and Municipal Board, regarding the right of the Toronto Ry. to lay tracks on certain streets in the city. In delivering the judgment, Lord Macnaghten said:—"This is a singular appeal, and in their Lordships' opinion a very idle one. In form it is an appeal from an order of the Court of Appeal for Ontario dismissing an appeal from the order of the Ontario Railway and Municipal Board. In substance it is an attempt to avoid or impugn an order of his Majesty in council and to reopen a question finally determined in litigation between the parties to the present controversy, the city of Toronto and the Toronto Ry. Co."

After reciting the history of the street railway agreement and the disputes that arose between the company and the city, he continued:—"On May 17, 1907, on application by the city against the company in the case commonly called the 'overcrowding case,' the Ontario Railway and Municipal Board ordered the company to construct between 10 and 15 additional miles of single track. Proceeding to comply with the order the company selected certain streets. These streets, as appears from the finding of the board, had at one time been approved by the city engineer. The city, however, did not approve the recommendations of its own engineer, taking up the position that the company had no right to build on streets, even when recommended by the city engineer, unless those streets were also approved by the city council."

The decision then refers to the clause in the act promoted by the city and passed in 1908, and says:—"The preamble of the act contains recitals with reference to other matters dealt with in the act, but it is silent as to the object of clause 1. It is difficult to understand the purpose of that clause. At first sight it looks as if it were aimed at His Majesty's order, and the advice tendered by this board on the occasion of former litigation. If that were indeed the aim of the bolt, it is very wide of the mark. In effect, it seems to be nothing more than an affirmance of a proposition, with which the railway company was never concerned to quarrel, and with which it now professes to be in complete accord."

The application of the company to the Ontario Railway and Municipal Board for power to lay tracks upon the streets it had selected was then recited, and the judgment says:—"On the appeal to the Ontario Court of Appeal, and on hearing this appeal, some reliance was placed on behalf of the city on the enactment contained in the 1908 act. The argument on the part of the appellants appears to be mainly founded on the shorthand note of some extracts from speeches delivered by counsel on the hearing of the former case, a line of argument which their Lordships are not prepared to follow nor disposed to countenance. The judgment in the former case seems to be perfectly clear, and the order of His Majesty unaffected by the legislation of 1908. Their Lordships will, therefore, advise His Majesty that the appeal must be dismissed. The appellants will bear the costs of the apppeal."

Railway Lands Patented.—Letters patent were issued during Jan., covering the following railway lands in Manitoba, Saskatchewan, Alberta and British Columbia:—

	Acres.
Canadian Northern Ry.	214.3
Canadian Pacific Ry.	1871.77
Canadian Pacific Ry., Sask. branch	7,685.5
C.P.R. roadbed and station grounds	152.02
Manitoba Southwestern Colonization Ry.	2,810.—
Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co.	160.00
Total	14,653.77

The Dominion Parliament has voted $38,700 for new machinery for the Intercolonial Ry. locomotive and machine shops at Moncton, N.B.

The U.S. Government has cancelled the privilege of bonding Chinese through Canada to the States at Pacific points. The C.P.R., it is stated, will overcome the difficulty by carrying the Chinese across the continent to Halifax, and transporting them thence to Boston or New York.

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ASSOCIATION'S OFFICE, 157 Bay St., Toronto.

EXECUTIVE COMMITTEE:—P. Dubee, Secretary, Montreal St. Ry.; E. A. Evans, General Manager, Quebec Ry. Light and Power Co.; R. J. Fleming, General Manager, Toronto Ry.; H. M. Hopper, Secretary-Treasurer, St. John Ry.; J. E. Hutcheson, Superintendent and Purchasing Agent, Ottawa Electric Ry.; C. B. King, Manager, London St. Ry.

ASSISTANT SECRETARY, Aubrey Acton Burrows, Secretary and Business Manager, Railway and Marine World.

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Winnipeg Electric Ry. Co.'s Report.

The report for the year ended Dec. 31, 1909, shows net earnings of $863,405.62 after providing for all operating expenses, taxes, the city's proportion of earnings, and other fixed charges. Out of net earnings the directors declared four quarterly dividends amounting to $600,000, leaving a surplus of $263,405.62, which has been transferred to profit and loss account, making a total credit to this account of $861,430.03.

The hydraulic works at Pinawa channel, Winnipeg River, were very satisfactory up to Nov. 23, when one of the penstocks burst, which resulted in the closing down of the whole plant for six days. While the hydraulic plant was closed down, the steam plant was put in operation and a partial service maintained in all departments. All expense in connection with this breakdown has been charged against operating expenses.

In accordance with the plan of extensions adopted at the last annual meeting, the following improvements and additions to the equipment and system have been made in the various departments: 4.995 miles of track was laid; 4.037 miles of which was track with concrete foundation and asphalt pavement—the balance being surface track with ballast. 30 large double truck closed cars, equipped with air brakes, electric heaters both in the body of the car and motorman's vestibule, and many other modern appliances to ensure the safety and comfort of passengers and operators, were constructed in the company's shops and put into service. 749 new poles were erected and 120,141 lbs. of wire, with 129 transformers, put up, in extension of the lighting and power distribution system. 26,914 ft. of new gas main were laid and 747 new gas services installed in extension of the gas distribution system.

ASSETS

Cost of property—street railway, electric lighting, electric power, gas, water power		$13,199,020.36
Stores		192,693.33
Accounts receivable		124,321.51
Cash on hand		9,286.46
Conductors' working fund		7,261.35
Subsidiary companies		295,091.14
		$14,127,674.15

LIABILITIES

Capital stock		$6,000,000.00
Bonds 5%, payable Jan. 1, 1927	$1,000,000.00	
Bonds 5%, payable Jan. 2, 1935	4,000,000.00	
		5,000,000.00
Debenture stock 4½% perpetual	£300,000-0-0	1,458,000.00
Accounts payable	$235,758.00	
Dividend paid Jan. 3	150,000.00	
Wages for Dec.	31,971.90	
Interest on bonds paid Jan. 3	125,000.00	
Accrued interest on debenture stock	16,410.00	
		559,139.90
Car license, due Feb. 1	4,080.00	
City percentage, due Feb. 1	53,489.14	
		57,569.14
Unredeemed tickets		3,074.89
Bank of Montreal		157,396.77
Suspense		31,063.42
		$13,266,244.12
Surplus		861,430.03
		$14,127,674.15

CONTINGENT LIABILITY.

Suburban Rapid Transit Co.'s bonds	$500,000.00
Winnipeg, Selkirk & Lake Winnipeg Ry. bonds	400,000.00
Principal and interest guaranteed	$900,000.00

REVENUE AND EXPENDITURE.

Gross earnings	$2,623,731.41	
Gross expenses	1,320,665.09	
Net earnings		$1,303,066.32
Fixed charges	$439,660.70	
Dividends	600,000.00	
		1,039,660.70
Surplus		$263,405.62

PROFIT AND LOSS ACCOUNT.

Balance at credit, Dec. 31, 1908	$598,024.41
Net earnings	263,405.62
Balance at credit, Dec. 31, 1909	$861,430.03

WINNIPEG, SELKIRK & LAKE WINNIPEG RY. CO.

ASSETS.

Cost of property		$824,479.61
Stores		291.75
Cash in bank	$7,406.57	
Cash on hand	515.65	
		7,922.22
Agents' balances:		
Winnipeg	$224.45	
Selkirk	58.25	
		282.70
Accounts receivable		645.32
Suspense		3,428.56
		$837,050.16

LIABILITIES.

Capital stock	$500,000	
Less unpaid	388,500	
		$111,500.00
Bonds		400,000.00
Accounts payable		314,309.17
		$825,809.17
Surplus		11,240.99
		$837,050.16

REVENUE AND EXPENDITURE.

Gross earnings	$67,419.84	
Gross expenses	31,147.78	
Net earnings		$36,272.06
Fixed charges:		
Interest on bonds	$20,000.00	
Taxes, etc.	2,698.32	
		22,698.32
Surplus		$13,573.74

SUBURBAN RAPID TRANSIT CO.

ASSETS.

Cost of property	$404,408.00
Cash on hand	79.70
Cash in bank	557.51
W. E. R. Co. loan	212,082.45
Accounts receivable	347.55
	$617,475.21

LIABILITIES

Capital stock	$100,000.00
Bonds	500,000.00
Accounts payable	15,576.56
Ticket account	251.28
Suspense	41.15
	$615,868.99
Surplus	1,606.22
	$617,475.21

REVENUE AND EXPENDITURE

Gross earnings	$46,293.86	
Gross expenses	29,038.87	
Net earnings		$17,254.99
Fixed charges:		
Interest on bonds	$25,000.00	
Taxes, etc.	1,890.61	
		26,890.61
Deficit		9,635.62

The following increases were made during 1909 over 1908: gross earnings, $417,636.53 or 18.93%; expenses, $231,792.59 or 21.29%; net earnings, $185,843.94 or 16.62%. Expenses were 50.34% of earnings, against 49.35% in 1908. The number of passengers carried was 26,382,773 against 22,019,507 in 1908; transfers issued 8,925,849 against 7,777,315 in 1908, and the earning's per capita, 10.03c. against 9.80c. in 1908.

The officers and directors for the current year are as follows:

Winnipeg Electric Ry.—President, W. Mackenzie; Vice-President, W. Whyte; Secretary-Treasurer, F. M. Morse; other directors, Sir Wm. C. Van Horne, D. D. Mann, D. B. Hanna, A. M. Nanton, H. Sutherland, R. J. Mackenzie.

Winnipeg, Selkirk and Lake Winnipeg Ry.—President, F. M. Morse; Vice President, D. H. Laird; other directors, W. Whyte, A. M. Nanton, J. H. Munson, L. J. Loader, H. Sutherland.

Suburban Rapid Transit Co.—President, A. M. Nanton; Secretary, F. M. Morse; other directors, W. Whyte, D. B. Hanna, H. Sutherland.

Calgary Street Railway Earnings, Etc.

Following is a statement of the revenue and expenditure for the six months' ended Dec. 31, 1909, of this railway, which is owned and operated by the City of Calgary, Alta., the Chairman of the Commission being R. R. Jamieson, formerly General Superintendent C.P.R. Central Division:—

REVENUE.

Passenger earnings	$56,580.35
Miscellaneous earnings	925.33
	$57,505.68

OPERATING EXPENSES.

General expense	$ 3,931.25
Maintenance of way and structures	1,523.91
Maintenance of equipment	3,060.90
Power for operation	13,361.26
Transportation expenses	14,137.19
	$36,014.51
Balance revenue over operating expenses	$21,491.17
Interest and fixed charges	11,489.80
Net revenue	$10,001.37

DISPOSITION OF NET REVENUE.

Material purchased for maintenance and operation, 1910	$ 1,280.72
Insurance prepaid for 1910	1,213.15
Carried forward to contingent account	7,507.50
	$10,001.37

PASSENGERS CARRIED.

July	101,273 or 3,751 per day, operating 2 cars
Aug.	194,721 or 6,491 per day, operating 4 cars
Sept.	239,839 or 7,994 per day, operating 9 cars
Oct.	229,576 or 7,654 per day, operating 10 cars
Nov.	229,938 or 7,665 per day, operating 11 cars
Dec.	279,581 or 9,010 per day, operating 11 cars

Following is a statement of gross revenue and operating expenses for Jan., 1910.

REVENUE

Passenger earnings	$11,375.60
Miscellaneous earnings	189.00
	$11,564.60

OPERATING EXPENSES

Maintenance of way and structures—		
Track and roadway	$321.90	
Electric lines	81.00	
Buildings and fixtures	11.25	
		$414.15
MAINTENANCE OF EQUIPMENT		
Cars	349.21	
Electric equipment of cars	298.43	
Shop machinery	68.45	
		716.09
TRANSPORTATION		
Power for operation	$3,617.80	
Superintendence of transportation	39.00	
Wages of conductors and motormen	4,694.10	
Car service supplies	19.35	
Miscellaneous transportation expenses	211.14	
Cleaning and sanding track	33.01	
		8,614.40
GENERAL EXPENSES		
Salaries, general offices	$380.00	
Salaries, clerks	50.00	
Printing and stationery	109.30	
Miscellaneous office expenses	22.63	
Miscellaneous general expenses	45.75	
Rent of land and buildings	35.00	642.68
		$8,762.02
Income balance		$2,802.58
Income for [illegible]		11,564.60

expenses, 17.550 cents; net earnings, 5.613 cents; passengers carried, 276,752.

There [illegible] miles of track operated [illegible] was commenced in May, 1909, and completed in September. It is expected to lay some more track this year.

The British Columbia Legislature has under consideration a bill providing for the appointment by the government of a tramway inspector whose duty it shall be to inspect [illegible] ways constructed, in course of construction, or that may hereafter be constructed in the province.

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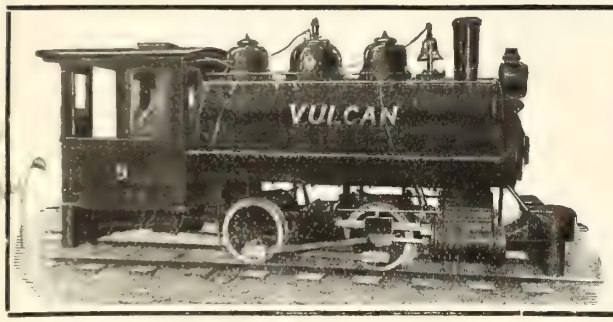

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Ontario Electric Railway Legislation.

In the closing days of the recent session of the Ontario Legislature, Sir James Whitney introduced two bills, one to amend the Ontario Railway Act, 1906, the other to amend the Ontario Railway and Municipal Board Act, 1906, one of their avowed objects being to render nugatory any decision which the Imperial Privy Council might give in the appeal pending between the city of Toronto and the Toronto Railway Company, should such decision be favorable to the company. Many of the other provisions of the bills were also of a most drastic nature and applied to other electric railway companies, Section 5, of the bill to amend the Ontario Railway and Municipal Board Act as introduced read as follows:—

"The powers conferred by this Act upon the Board shall be in addition to the powers now possessed by it, but shall not interfere with or take away the rights of any municipal corporation under any agreement between the corporation and the company and, unless with the consent of the corporation, shall be exercised subject to such rights."

While this clause provided that no rights enjoyed by a municipality under an agreement could be taken away, Section 9 provided that the Board could make an order against a company, notwithstanding any agreement or the provisions of any other act. On behalf of the Canadian Street Railway Association, strong objection was taken to this one-sided proposal, and as will be seen by the copy of the bill as passed, which is given further on, the portion of section 5 which was objected to was withdrawn, but other representatives met with scant consideration, except that section 10 was added, which limits certain powers given to the Board to cities having a population of 100,000 or over, in other words to Toronto.

The two bills as forced through the House by the Premier are confiscatory legislation of the most pronounced type, showing an absolute disregard of vested rights. Added to previous legislation, they will effectually prevent the investment of capital in electric railway construction and render it impossible to secure the construction of interurban systems which are so necessary through the rural districts of the older portions of the province. The acts are given in full below:—

AN ACT TO AMEND THE ONTARIO RAILWAY AND MUNICIPAL BOARD ACT, 1906.

His Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

1. This Act may be cited as "The Ontario Railway and Municipal Board of Amendment Act, 1910."

2. Whenever the Board is of opinion after hearing had upon its own motion or after complaint that the regulations, practices, equipment, appliances or service of any railway company in respect to transportation of persons, freight or property are unjust, unreasonable, unsafe, improper or inadequate, the Board shall determine the just, reasonable, safe, proper and adequate regulations, practices, equipment, appliances or service thereafter to be in force, to be observed and to be used in such transportation of persons, freight, and property and so fix and prescribe the same by order to be served upon the railway company to be bound thereby, and it shall be the duty of the railway company to observe and obey every requirement of every such order and to do everything necessary or proper in order to secure absolute compliance with and observance of every such order by its officers, agents and employes.

3. Whenever in the opinion of the Board repairs or improvements to or changes in any tracks, switches terminals or terminal facilities, motive power or any other property or device used by any railway company in or in connection with the transportation of passengers, freight or property ought reasonably to be made thereto in order to promote the security or convenience of the public or of the employes of the company or to secure adequate service or facilities for the transportation of passengers, freight or property, the Board, after a hearing had either upon its own motion or after complaint, shall make and serve an order directing such repairs, improvements, changes, or additions to be made within a reasonable time and in a manner to be specified therein, and every railway company shall make all repairs, improvements, changes and additions required of it by any such order within the time and in the manner specified in the order.

4. Whenever in the opinion of the Board a street railway company

(a) Does not run cars enough or possess or operate motive power enough reasonably to accommodate the passengers transported or offered for transportation to it, or

(b) Does not run its cars with sufficient frequency or at a reasonably proper time, or

(c) Does not run any car upon a reasonable time schedule for the run, or

(d) Does not provide reasonable routes and services for the accommodation of the public, or

(e) Does not provide for stopping its cars to take on and discharge its passengers at convenient points or at a sufficient number of points, or

(f) Does not sufficiently or properly heat and light any of its cars or keep the same clean, or

(g) Operates any car which is not in proper repair and condition,

the Board shall have power after a hearing had either on its own motion, or after complaint to make an order directing the company to increase the number of its cars or its motive power, to change the time for starting any car, to change the time schedule for the run of any car, to require the company to run cars and provide a sufficient service upon any route that the Board may deem necessary for the accommodation of the public, to sufficiently light and heat its cars and keep them clean, to stop its cars to take on and discharge passengers at such points as the Board may deem proper, and to make any other order which the Board may deem necessary to accommodate and transport the passengers transported or offered for transportation, and the company shall be bound to obey every such order according to the exigency thereof.

5. The powers conferred by this Act upon the Board shall be in addition to the powers now possessed by it.

6. The Board shall have the like power and authority for the enforcement of any order made by it under the provisions of this Act as it now possesses for the enforcement of its orders, and especially the power and authority conferred by sections 20 and 63 of The Ontario Railway and Municipal Board Act, 1906.

7. This Act shall be read with and as part of The Ontario Railway and Municipal Board Act, 1906, and sections 2, 3, 5 and 6 of this Act shall apply to street railways as well as other railways.

8. Section 65 of the Act mentioned in the next preceding section is hereby repealed.

9. The provisions of this Act shall apply notwithstanding any agreement between the company and a municipal corporation or the provisions of any general or special Act relating to the agreement or to the company.

10. The powers conferred by this Act in the case of street railways wholly or partly in cities having a population of One Hundred Thousand or over shall include, but in the case of other street railways shall not include, the power to require the company owning or operating the street railway to construct, maintain and operate additional lines and extensions of existing lines, in, along and upon any street or highway or part of a street or highway upon which the company has authority to construct, maintain and operate its railway.

AN ACT TO AMEND THE ONTARIO RAILWAY ACT, 1906.

His Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

1. This Act may be cited as "The Ontario Railway Amendment Act, 1910," and shall be read with and as part of The Ontario Railway Act, 1906.

2. Where under the provisions of an agreement between a municipal corporation and a street railway company or any person from whom a street railway company has derived its title, the corporation has become or shall hereafter become entitled to grant to another company or person the right to construct and operate a street railway on any street or part or a street upon which such first mentioned company was authorized or empowered to construct or operate its railway or any part of it, by reason of the failure of such company to construct and operate or to operate its railway thereon, such corporation, instead of granting such right to another company or person, may itself construct, operate and maintain a railway thereon either as a separate and distinct line of railway or as part of any other railway which such corporation owns or operates or has power to construct or operate.

3. (1) A railway company shall not, without having first obtained the permission and approval of the Ontario Railway and Municipal Board, begin the construction of its railway or of any extension of it upon any highway or part of a highway upon which it has authority to construct or extend its railway, and the Board shall have power to withhold its permission and approval whenever it is of opinion that it has not been made to appear that the construction or extension upon such highway or part of a highway is necessary or convenient for the public service, or whenever in the opinion of the Board it is not in the public interest that the railway should be constructed or extended upon such highway or part of a highway.

(2) This section shall apply to a street railway.

4. The proviso to subsection 1 of section 569 of The Consolidated Municipal Act, 1903, is hereby repealed and the following substituted for it:—

Provided that the powers conferred by this section shall not be exercised in respect of any street or part of a street in, along, or upon which a street railway company is entitled under an agreement with the municipality to construct and operate its railway, so long as such right shall continue to exist, and any question or dispute as to whether a street railway company is so entitled, shall be determined by the Ontario Railway and Municipal Board.

5. Section 2 shall not come into force until a day to be named by the Lieutenant-Governor by Proclamation.

At a meeting of mayors and representatives of the larger Canadian cities, held at Ottawa, Mar. 9, a resolution was passed declaring that in order to prevent confusion of plans of operation, federal, provincial and civic, and to prevent injury to local franchises, it is essential that all plans of railway or telegraph companies should be subject to the consent of the municipalities expressed by by-law, before any rights are granted by Parliament.

Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—It is expected that the line from New Westminster to Cloverdale will be completed and placed in operation by April 1. It is now being ballasted by gangs working from both ends. The gravel for the ballast is being obtained from a pit at Sullivan's, eight miles from New Westminster, to which point the company has constructed a spur line. The grading between Abbotsford and Chilliwack, has been practically completed, the unfinished portions, including some heavy work between Abbottsford and Sumas, along Sumas Lake. The bridges are being erected, and it is expected that tracklaying will be started April 1, at Abbotsford, 36 miles from New Westminster. The sub-power station at Cloverdale is nearing completion, and those at Abbotsford and Chilliwack are under construction.

A contract has been let to the International Contract Co., of Seattle Wash., for the construction of two towers, to carry the high power transmission wires across the Fraser River at New Westminster. The towers are to be 190 ft. above high water mark. (Mar., pg. 231.)

Cape Breton Electric Co.—The question of the extension of the electric lines in Sydney, N.S., was considered by the City Council, Mar. 15, representatives of the company being present. Mr. Pratt, representing the Stone and Webster Management Association, Boston, Mass., the managers of the company, said nothing would be done this year, probably nothing next year, but it might be that some extensions could be arranged for in 1912, provided it could be shown that they would be a source of profit. (Dec., 1909, pg. 929.)

The Dominion Ry. and Plaster Co. owns a large deposit of gypsum in the vicinity of East Bay, N.S., which is being opened up, and for the purpose of providing adequate shipping facilities, it is proposed to construct an electric railway from the pits to Sydney, about 14 miles. A free right-of-way has been secured through the county of Cape Breton, and a cash bonus of $35,000 is promised on completion of the line. The route will be along the main highway, through a well-settled district, and the terminals at East Bay will be on the Bras d'Or Lakes, which have an inland shore line of about 500 miles, and are connected with the sea by the St. Peter Canal, and the Big Bras d'Or cut. (Mar., pg. 231.)

Dunnville, Wellandport and Beamsville Ry.—Meetings were held in Beamsville and St. Catharines, Ont., Mar. 15, when the matter of bonusing the construction of this projected railway from Beamsville into St. Catharines was considered. It was explained that the extension would cost $500,000 and the city was asked to join with Beamsville village and Louth and Clinton townships in guaranteeing the company's bonds upon half of this amount. No action was taken at either meeting.

The Ontario Legislature last session passed an act extending the time within which the company may construct its projected railway. (Mar., pg. 231.)

Fort Erie Ferry Ry. Co.—The power asked for the extension of time for the construction of the company's projected branch lines was struck out of the company's bill before the Ontario Legislature recently on the ground that proper notice had not been given. (Feb., pg. 147.)

Fredericton Street Ry. Co.—Application is being made for the incorporation of a company with this title to build a street railway in Fredericton, N.B., and in the County of York, upon such streets and highways as shall be agreed upon between the company and the various municipalities. The provisional directors are:—F. B. Edgecombe, C. F. Seide, J. S. Neill, A. S. Phillips, A. S. Shute, R. B. Hanson. (Mar., pg. 231.)

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Grand Valley Ry.—The lines owned by this company include the Brantford Street Ry. in Brantford, Ont., the G.V. Ry. from Brantford via Paris to Galt, and the Woodstock, Thames Valley and Ingersoll Ry. connecting Woodstock and Ingersoll. The interests controlling this company also control the London and Lake Erie Ry. and Transportation Co., which is the title under which the South Western Traction Co. is being reorganized by the purchasers at the recent sale. The plans of the company include the connection of all these lines and the construction of other lines which the charters of the several companies authorize. The principal officers of the G.V.R. are: President, M. A. Verner, Brantford; General Manager, W. P. Kellett.

The plans for immediate construction for the G.V.R. include 13 miles of lines in Brantford, and a new line from Brantford to Port Dover, 33.6 miles long, and passing through Mount Pleasant, Waterford and Simcoe. The maximum gradient will be 1%, and the line will be operated on the A.C.D.C. system. Freight and passenger business will be operated over it, and there will be physical connections for the interchange of traffic with the G.T.R., the Michigan Central Rd., and the Toronto, Hamilton and Buffalo Ry. The points at which connection may be made with the steam railways are at Brantford with the G.T.R., and the T.H. & B., at Waterford with the M.C.R., and the T.H. & B., at Simcoe with the G.T.R. (over which the Wabash Rd. has running rights), and at Port Dover with the G.T.R. The construction of the lines in Brantford will be carried out by the company itself, and a contract has been let to Joseph Giannini, of Pittsburg, Pa., for the construction of the line to Port Dover. (Mar., pg. 231.)

Guelph Radial Ry.—An act has been passed by the Ontario Legislature providing for the construction by the city of Guelph, which owns the line, of a branch to the new central prison, which the Ontario Government proposes to erect near the city, and other branches of less than five miles in length. (Jan., pg. 57.)

Hamilton, Waterloo and Guelph Ry.—The Railway Committee of the House of Commons devoted a great deal of time during March to the consideration of this bill. The company is asking for authority to extend its line from Hamilton to Toronto, and this proposal is being opposed by the Toronto City Council. On Mar. 10, the committee approved of a clause giving the company power to make frequent stops within the city. Subsequently what is known as clause 3 was agreed on between the city and the company, and approved by the committee. On Mar. 22 when the bill, as amended, came up for consideration, this clause had been omitted from the printed copy. N. Guthrie, M.P., stated that the bill as reprinted was as the promoters desired that it should be passed. After a lengthened discussion, a sub-committee was appointed to try and bring about an understanding between the parties. (Mar., pg. 231.)

Monarch Radial Ry.—In the act of incorporation passed by the Ontario Legislature last session, it is provided that the southerly terminals shall be in the county of York near, but not in the city of Toronto. (Mar., pg. 231.)

Montreal Central Terminal Ry.—The House of Commons has passed the bill granting an extension of time within which to complete the projected lines, and authorizing the company to enter into agreements with all railway companies whose lines enter Montreal. The including clause of sec. 1 provides that the company shall not construct its line on any highway, street or public place without first having obtained the consent of the municipality. It was claimed in committee that the company was being promoted for the purpose of amalgamating all the street railway lines in and around the city, and the House inserted in the bill clauses providing that no amalgamation shall be made without the approval of the municipality if the line is to be operated on a street or highway.

Application is also being made to the Quebec Legislature to authorize the company to enter into agreements with any company having similar powers. The notice is signed by J. M. Shanly, President. (Jan., pg. 21.)

The Montreal Street Ry. is applying to the Quebec Legislature for power to construct underground railways throughout the city of Montreal, and to perform all the necessary works in connection therewith. It is also asked that in case of any disagreement between the company and the city in connection with the carrying out of the construction of such lines, the matter be disposed of by the Quebec Public Utilities Commission. W. G. Ross, Managing Director, was in Quebec, Mar. 16, in connection with the introduction of the bill. He is quoted as stating in an interview, Mar. 20, that the first underground railway to be built will be under St. James Street, from St. Lambert Hill to Victoria Square, the most congested route in the city, and that construction would be started as soon as the necessary rights were secured from the Legislature. He took the ground that no other than the Street Railway Company should be allowed to put in the subways, as the service would be a natural corollary to the surface roads. (See also Suburban Tramways Co., Mar., pg. 231.)

The company is applying to the city Board of Control for permission to lay lines on the following streets: Cote des Neiges Rd., from Trafalgar Ave. to Cote St. Luc Rd.; Cote St. Paul Rd., a double track where it is now single, from Notre Dame St. to the canal bridge; St. Patrick St., from Wellington and St. Etienne Sts., to the G.T.R.; a loop line at Britannia, Riverside and Forfar Sts.; Wellington St., a double track from Gallery Sq. to McGill St.; St. Michael Lane, Jurur and Vitre Sts., from Victoria Sq., to City Hall Ave.; St. Urbain St., from Craig to Ontario St.; St. Luke Burnside and Berthelet Sts., from Atwater Ave. to Bleury St.; Sherbrooke St., from the western city limits to the eastern divisions; Dorchester St., from Guy St. to University St.; Pine Ave., from Royal Victoria Hospital to St. Denis St.; Roy St., from St. Denis St. to Lafontaine Park; St. Gabriel St., from Notre Dame St. to St. James St.; St. James St., from St. Gabriel St. to S. Lawrence St.; Cadieux St., from Ontario St. to Sherbrooke St., and from Duluth St. to Rachael St.

Montreal Underground and Elevated Ry.—Application has been made for the incorporation of a company with this title, and with authorized capital of $20,000,000, to build a railway to be operated by steam, electricity or other motive power, through the city and island of Montreal; and to construct tunnels, viaducts, subways, bridges and other works required for the advantage of the company. Power is also asked to construct transmission lines, and to supply electricity for lighting, heating, power and other purposes. T. P. Butler, Montreal, is solicitor for applicants.

Moose Jaw, Sask.—The city council has received proposals from an Ottawa company, for the construction and operation of a street railway, and has decided, subject to conditions being satisfactory, to make a draft franchise the basis of a by-law to be submitted to the ratepayers at an early date. It is stated that at present, the arrangement is that three miles be constructed this year and a similar amount next year, the city to control the line of route and the time schedule, and to have the right to take over the property after 20 years.

Morrisburg and Ottawa Electric Ry.—The company at present known as the Morrisburg Electric Ry. has been authorized by the Ontario Legislature to change its name as above, to increase its capital stock to $500,000 and its bonding powers to $20,000 a mile, and to make a contract with any existing railway for trackage rights into Ottawa. The company was incorporated in 1898 to construct a line in Morrisburg, and in 1909 was given power to extend to Ottawa. An extension of time for the construction of these lines has also been given. (Feb., pg. 147.)

Niagara Falls, Welland and Dunnville Electric Ry.—The Ontario Legislature has incorporated a company with this title to build an electric railway from Niagara Falls to Welland and Dunnville, with a branch to Fenwick, Ont. The provisional directors are:—F. R. Lalor, Dunnville, Ont.; F. Buell, Buffalo, N.Y.; J. C. Gardner, Niagara Falls, Ont.; G. Arnold, Ridgeville, Ont.; F. E. Misner, Wainfleet tp., Ont.; G. H. Burgar and H. A. Rose, Welland, Ont. (Jan., pg. 59.)

Nipissing Central Ry.—Superintendent P. J. Uttley stated in Haileybury, Ont., Mar. 17, that the company was in a position to run its cars, but did not wish to send them out until everything was arranged so as to give a half-hourly service. An arrangement has been made for the supply of power from the Mines Power Co. (Nov., 1909, pg. 848.)

Port Arthur-Fort William Electric Ry.—N. C. Pilcher, General Manager, presented a report as to the state of the line to the commissioners, Mar. 7, showing that although there were certain sections in which considerable repairs were necessary, the general condition was good. (Mar., pg. 233.)

The Quebec and Isle of Orleans Ry. is applying for an act to extend the time for the construction of its authorized railway, and for authority to build it on the monorail type. P. Corriveau, Quebec, is solicitor for applicants.

Regina, Sask.—The Mayor of Regina was in Winnipeg, Mar. 10, regarding arrangements for the construction of a street railway in Regina. He is reported to have stated that eight miles of track would be laid this year, and routes laid out for a number of suburban lines, the construction of which would be undertaken later. A franchise is being prepared, and the necessary capital for the work is being subscribed in Winnipeg.

Toronto.—Among the provisions of the "act respecting the city of Toronto," passed last session of the Ontario Legislature, are sections authorizing the construction of tube railways within the city limits; but without a right to construct surface lines in certain parts of the city. The sections asking authority to expropriate the Toronto Ry. were struck out.

At a meeting of the city railway committtee, Mar. 22, the Board of Control was asked to secure special legal and engineering assistance for the carrying out of the powers conferred by the act. J. W. Moyes, who had previously reported on the tube railway plans has withdrawn from further connection with the matter. (Feb., pg. 147.)

Toronto and York Radial Ry.—The Toronto Board of Control, Mar. 22, discussed the question of the "third rail" on the Metropolitan division of the T. and Y.R. Ry. within the city, so as to permit of the operation of the city cars over it. The matter is now under the consideration of the city's legal department. (Nov., 1909, pg. 849.)

Toronto Suburban Ry.—The Ontario Legislature has given the company an extension of time for the construction of its authorized lines, and power to construct a line from Brampton, the projected terminal of the extension of one of its existing lines to Guelph. (Feb., pg. 147.)

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Welland, Ont.—Application has been made to the town council for a 20-year franchise, for the operation of a street railway in the town. C. J. Laughlin, Hartford, Conn., is interested in the scheme, and is reported to have said that he has made all arrangements for the underwriting of the bonds, that construction will be commenced within three months of the granting of the franchise, and that the railway will be in operation within eight months thereafter.

Winnipeg Electric St. Ry.—Application was recently made to the Manitoba Legislature to ratify an agreement between the company and the rural municipality of Kildonan. (Mar., pg. 233.)

Electric Ry., Finance, Meetings, Etc.

British Columbia Electric Ry.—A London, Eng., cable states that a private underwriting prospectus has been issued offering holders of preferred and deferred stock of the company £530,000 of 4½% perpetual consolidated debenture stock, ranking pari passu form Mar. 31, with the existing £800,000 of 4¼% perpetual consolidated debenture stock.

Calgary St. Ry.—Passenger earnings for Feb., $11,140.05; miscellaneous earnings, $213; total earnings, $11,353.50; operating expenses, way and structures, $471.74, maintenance of equipment, $753.09, power and operation, $3,452.50, superintendence, wages, car service, supplies, etc., $6,813.30; general earnings, $358.10.

Halifax Electric Tramway.—Traffic receipts for Feb., $14,018.69, and for three weeks ended Mar. 21, $10,736.97, against $12,536.02 and $9,127.39 for same periods 1909.

Hamilton, Grimsby and Beamsville Electric Ry.—Following are the officers and directors for the current year:—President, J. Dixon; Vice President, J. Dickenson, Treasurer, J. Knox; other directors, J. W. Sutherland, S. O. Greening, W. C. Hawkins and J. R. Moodie.

London and Lake Erie Ry. and Transportation Co.—A meeting of the shareholders is to be held in London, Ont., April 7, to receive a report of the provisional directors, to organize the company and transact other business.

London St. Ry.—Gross earnings for Feb., $17,349.23; expenses, $13,126.91; net earnings, $4,222.32; deductions, $2,-205.55; net income, $2,016.77, against $16,497 gross earnings; $12,724.38 expenses; $3,772.62 net earnings for Feb., 1909. Aggregate gross earnings for two months ended Feb. 28, $35,712.94; expenses, $26,705.13; net earnings, $9,007.-81; deductions, $4,647.30; net income, $4,360.51, against $34,234.83; net income, $4,360.51, against $34,234.83 aggregate gross earnings; $25,709.49 expenses; $8,525.34 net earnings for same period 1909.

Montreal St. Ry.—Passenger earnings for Feb., $300,029.83; miscellaneous earnings, $3,947.43; total earnings, $303,977.26; operating expenses, $204,-255.58; net earnings, $99,721.68; city percentage on earnings, $20,487.50; interest on bonds and loans, $14,834.90; rent leased lines, $552.89; taxes, $4,000; total charges, $39,875.29; surplus, $59,-846.39, against $280,989.21 passenger earnings; $3,101 miscellaneous earnings; $284,090.21 total earnings; $196,912.17 operating expenses; $87,178.04 net earnings; $16,373.83 city percentage on earnings; $15,164.36 interest on bonds and loans; $498.67 rent leased lines; $3,000 taxes; $35,936.86 total charges; $32,-141.18 surplus for Feb., 1909. The percentage of expenses to earnings for the month were 67.19 against 69.31 for Feb., 1909. Total earnings for five months ended Feb. 28, $1,656,039.62; operating expenses, $995,194.29; net earnings, $659,845.33; total charges, $171,910.57; surplus, $467,934.76, against $1,514,614.68 total earnings; $945,751.64 operating expenses; $568,863.04 net earnings; $159,141.74 total cahrges; $409,721.30 surplus for same period 1908-09. The percentage of expenses to earnings for the same periods, were 60.16 and 62.44.

Port Arthur and Fort William, Ont.—An act passed last session of the Ontario Legislature, on the application of the Port Arthur City Council, provided, among other things, for the confirmation of a by-law authorizing the payment of $1,733.02, costs incurred in the appeal against the decision of the Ontario Railway and Municipal Board respecting the municipal street railway.

The Legislature also passed an act on the application of the Fort William City Council, providing, among other things for the confirmation of a by-law to raise $137,000 for the improvement and extension of the street railway within the city. The preamble of the act set out that the existing debenture debt of the city was $2,089,056, of which $222,000 represented the amount of indebtedness on account of the street railway.

Quebec Ry., Light, Heat and Power Co.—The organization of this company, which is an amalgamation of the Quebec Ry., Light and Power Co., the Jacques Cartier Power Co., the Quebec Gas Co., the Frontenac Gas Co., and the Canadian Electric Co., was completed Mar. 14. Following are the officers and directors for the current year:—President, R. Forget, M.P.; Vice President, L. C. Webster, Quebec; Chairman of Executive, N. Belleau, Quebec; other directors, Hon. R. Mackay, Hon. J. P. B. Casgrain, J. N. Greenshields, P. Galibert, J. W. McConnell, A. H. Sims, S. H. Ewing and W. G. Ross, Montreal; Hon. E. B. Garneau, Hon. C. E. Hubord, Hon. L. P. Pelletier and W. A. Marsh, Quebec.

Sherbrooke Street Ry.—An option has been secured upon the property and franchises of the company, with a view to its reorganization. Ross and Holgate, engineers, Montreal, were engaged in reporting upon the property for the syndicate, which is applying to the Quebec Legislature for an act changing the company's name, increasing its borrowing powers, and amending its powers in various ways.

South-Western Traction Co.—Judgment was given Mar. 14, by the Master-in-Chancery at London, Ont., in the case of the South-Western Traction Co., which was recently sold to J. E. MacDougall, in trust for a company now being organized as the London and Lake Erie Ry. and Transportation Co. The decision grants the amount claimed under the issued bonds of the company. Coupons were justified, but no payment was recommended on a third schedule amounting to $104,932, pending further evidence as to the justice of these claims. Claims for $877,269.55 were filed. Of this amount $772,337.50 has been allowed, and claims amounting to $104,932.05 have still to be proved. The local master states that in his opinion it is proper that liberty should be given to pay an interim dividend of 50c. on the dollar, amounting in all to $886,168.75, to the persons and corporations whose claims have been allowed.

Toronto Ry.—Gross earnings for Feb., $305,557; expenses $166,497; net earnings $139,060, against $275,245 gross earnings; $148,860 expenses; $126,385 net earnings for Feb., 1909. Aggregate gross earnings for two months ended Feb. 28, $632,265; expenses $342,100; net earnings $290,165, against $563,626 aggregate gross earnings; $301,001 expenses, $262,625 net earnings for same period 1909.

Winnipeg Electric Ry.—Application is being made for an act ratifying the amalgamation of the Winnipeg Power Co., and the Winnipeg Electric Ry., and between the Winnipeg Electric Ry., the Manitoba Electric and Gas Light Co., the North-West Electric Co., and other companies, and vesting the franchises and assets of these various companies in the Winnipeg Electric Ry. Co.

Electric Railway Notes.

The British Columbia Electric Ry., has ordered 10 cars from the Preston Car and Coach Co., Preston, Ont.

The Nipissing Central Ry. has ordered two additional cars, the delivery of which will enable it to give a half-hourly service on its line between Haileybury and Cobalt, Ont.

The Grand Valley Ry. is in the market, for its Brantford lines, for 10 single truck city cars, 21 ft. car bodies, inside dimensions; and will shortly order two 60-ton electric locomotives.

The Port Arthur and Fort William Electric Ry. has recently installed a 300 k.w. motor generator generator set made by Allis-Chalmers-Bullock, Ltd., Montreal, and has purchased an 800 amp. hr. battery and booster.

The Montreal St. Ry.'s right to operate freight cars over the street routes, will come up before the Montreal Board of Control shortly, and it is stated that propositions will be made to secure from the company, in return for the franchise, an increased percentage of earnings, or a general reduction of passenger fares.

The Galt, Preston and Hespeler Ry., has ordered two interurban cars from the Preston Car and Coach Co., Preston, Ont. They will be 55 ft. long, finished in inlaid Cuban mahogany, and supplied with Westinghouse 93 A quadruple motor equipment with multiple unit control, and combination straight and automatic Westinghouse air brakes.

It is reported that application will shortly be made to the Board of Railway Commissioners on behalf of the Lord's Day Alliance, in connection with the operation of cars on Sundays on the electric railway, formerly owned by the South Western Traction Co., such operation being authorized by the act of incorporation of the London and Lake Erie Ry. and Transportation Co., which has taken over the property.

A number of contracts between the Post Office Department and electric railway companies for the conveyance of postmen have expired recently or are about to expire. Heretofore a merely nominal rate has been paid by the Department in many cases and as many of the companies have lost on the contracts, carrying the postmen for less than the cost of the service, higher rates of compensation are now being asked.

The B.C. Electric Ry., is testing a new fare box on its pay-as-you-enter cars. It is built of iron, and about 3 ft. high. The fare is deposited in a receptacle, and on the operation of a lever by the conductor, it is passed to the bottom of the box. At the end of his shift, the conductor operates another lever, which passes the takings of his shift into a separate receptacle this obviating delays at the end of each shift caused by the handing over of the single farebox.

The Recorder of Montreal has dismissed the action of the city to compel the Montreal St. Ry. to give a car service to the Mount Royal ward, recently annexed to the city. He is reported to have said, in giving judgment, that the company could be compelled to give the service, under sec. 34 of by-law 20, and he gave such judgment on a similar case a year ago, which was overruled by the Superior Court. He was still of the same opinion but was compelled to conform to the interpretation of the Superior Court.

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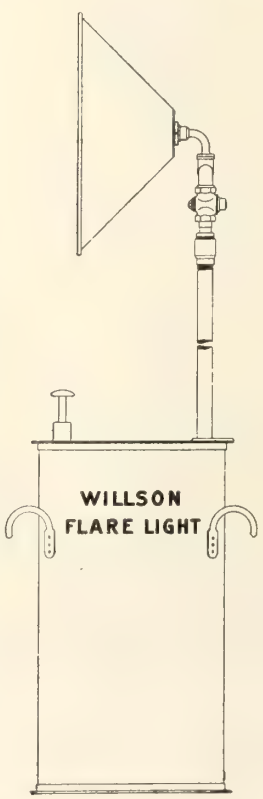

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Coast Lake and River Officers for 1910.

The following appointments have been made by the principal navigation companies engaged in Canadian navigation for their various steam vessels and tugs for the current year. In the first column is given the name of the vessel; in the second, that of the captain, and in the third, that of the chief engineer.

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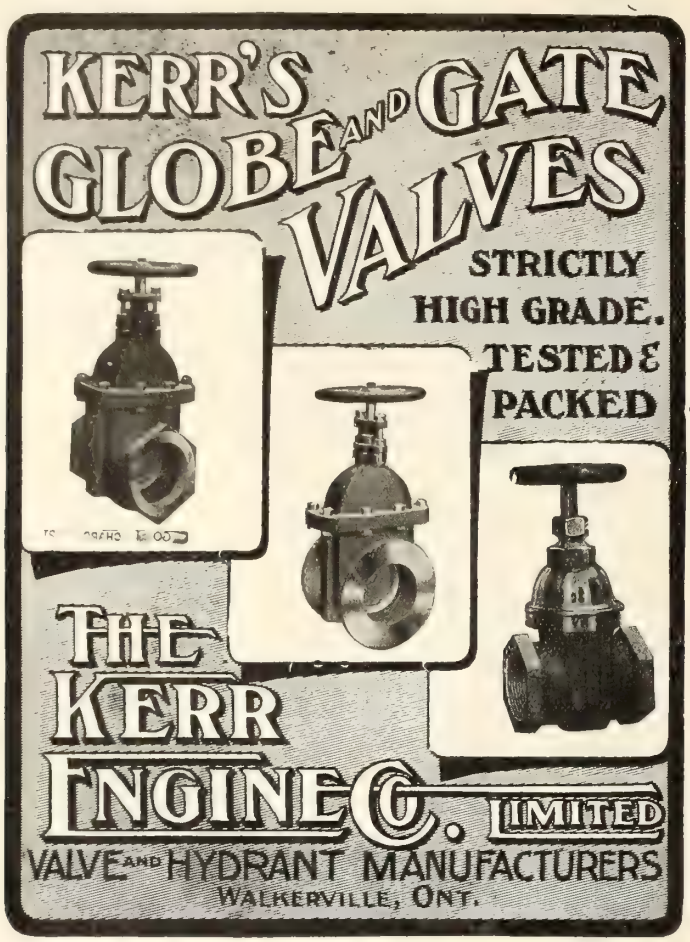

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The name of the steamer Bermuda has been changed by order in council to Senator Derbyshire.

Notices to Mariners.

The Department of Marine has issued the following:—

1. Jan. 7, 1.—Nova Scotia, Bay of Fundy, Chignecto channel, Eatonville, position of lighthouse, correction. 2.—Nova Scotia, south coast, Rugged island harbor, off Lockport, Laurier rock, bell buoy established.

2. Jan. 8, 3.—Quebec, River St. Lawrence, Lake St. Louis, Lachine, arc of visibility of front range light increased, gas buoy withdrawn.

3. Jan. 8, 5.—British Columbia, Kootenay Lake, south end, Kootenay Landing, light established.

4. Jan. 19, 6.—Nova Scotia, Bay of Fundy, Minas Basin, Kingsport, hand fog horn at light station. 7.—Canadian list of lights, abolition of duplicate names of light stations.

5. Jan. 21, 8.—Ontario, Lake Ontario, Weller Bay, light discontinued. 9.—Ontario, Georgian Bay, Owen Sound, Presqu'ile, light discontinued. 10.—Ontario, Canadian list of lights, abolition of duplicate names of light stations.

6. Jan. 25, 11.—British Columbia, Vancouver Island, west coast, Kyuquot Sound, Blind entrance, and approaches, rocks. 12.—British Columbia, Vancouver Island, Discovery passage, Chatham point, fog bell discontinued.

7. Jan. 27. 13.—New Brunswick, Northumberland Strait, Richibucto harbor entrance, life saving station established on north beach. 14.—Ireland, southwest coast, Great Skellig light, alteration in character. 15.—Ireland, south coast, Ballycottin island, alteration in fog signal. 16.—Scotland, west coast, Skerryvore light, alteration in character.

8. Feb. 2. 17.—British Columbia, Vancouver Island, east coast, Baynes Sound, Port Augusta, Goose spit, gas lighted beacon established. 18.—British Columbia, Cardero channel, Stuart island, non-existence of rock off Steep Point.

9. Feb. 2. 19.—Quebec, Chaleur Bay, Anse aux Gascons, hand fog horn at light station. 20.—Quebec, River St. Lawrence, mouth of Saguenay River, Vache patch, change in position of buoy.

10. Feb. 5. 21.—New Brunswick, south coast, Bay of Fundy, St. John harbor, intended change in character of the beacon light. 22.—New Brunswick, east coast, Northumberland Strait, Cape Tormentine, fog bell discontinued. 23.—Nova Scotia, south coast, Isaac harbor, change in character of light.

11. Feb. 8, 24.—Quebec, Chaleur Bay, Bonaventure River, light established.

12. Feb. 11. 25.—Ontario, Georgian Bay, Midland Bay, Tiffin, dredging not completed, caution. 26.—Ontario, River St. Mary, Sault Ste. Marie Canadian canal, back range lighthouse at lower entrance rebuilt. 27.—Ontario, River St. Mary, Sault Ste. Marie Canadian canal, new back range lighthouse at upper entrance.

13. Feb. 12. 28.—British Columbia, Burrard Inlet, Vancouver harbor, Brockton point, light improved. 29.—Pacific Ocean, Juan de Fuca Strait approach, Swiftsure bank, submarine fog bell established at lightship.

14. Feb. 18. 30.—Nova Scotia, southeast coast, Cranberry island, lighthouse, lower light to be discontinued. 31.—United States of America, St. Croix River, Whitlock Mill light station, intensity of light increased, light established in new structure.

15. Feb. 22. 32.—Nova Scotia, south coast, off entrance to Rugged island harbor, Gull rock, intended change in character of light. 33.—New Brunswick, Shippigan Sound, Petite Lameque bay, position of buoy, correction. 34.—New Brunswick, Chaleur Bay, Restigouche River, Dalhousie harbor, lighthouse established on [illegible] wharf.

16. Feb. 24. 35.—Information on cur-

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For plans, specifications and details apply to C. N. Coburn, Chief Engineer, Algoma Central & Hudson Bay Railway, Sault Ste. Marie, Ont., to whom all tenders should be addressed.

The lowest or any tender not necessarily accepted.

Profile, specifications and form of tender may be seen at the offices of the Canadian Engineer, 62 Church St., Toronto; B33, Board of Trade Bldg., Montreal; 315 Nanton Bldg., Winnipeg.

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C.P.R. LANDS

The Canadian Pacific Railway Company have 9,000,000 acres of selected lands for sale in Manitoba, Saskatchewan and Alberta.

Maps, as enumerated below, showing these lands in detail, will be sent free on application.

Map No. 1—Winnipeg to Second Meridian	$ 8.00 to $15.00 per acre.
Map No. 2—South-Eastern Saskatchewan, 2nd to 3rd Meridians	10.00 to 25.00 per acre.
Map No. 3—Main Line, 3rd Meridian to Range 10, W. 4th Meridian (generally)	8.00 to per acre.
Map No. 5 - South-Western Alberta	8.00 to 15.00 per acre.
Map No. 6—Part of Alberta, Edmonton, Battle and Saskatchewan Rivers Districts—4th Meridian to Range 7, West 5th Meridian	10.00 to 25.00 per acre.
Map No. 7—Part of Western Saskatchewan, 3rd to 4th Meridians	10.00 to 25.00 per acre

All prices are subject to change without notice.

TERMS OF PAYMENT

An actual settler may purchase not more than 640 acres on the ten instalment plan by paying a cash instalment at time of purchase, interest at six per cent. on the unpaid purchase money at the end of the first year, and the balance of the principal, with interest, in nine equal instalments annually thereafter, as shown in the following table:

160	Acres at	$ 8.00	per acre,	cash payment	$191.70	first year's interest	$ 65.28	and nine instalments of	$160.00
"	"	9.00	"	"	213.70	" "	73.46	" "	180.00
"	"	10.00	"	"	239.70	" "	81 62	" "	200.00
"	"	11.00	"	"	263.60	" "	89.78	" "	220.00
"	"	12.00	"	"	287.00	" "	97.96	" "	240.00
"	"	13.00	"	"	311.35	" "	106.10	" "	260.00
"	"	14.00	"	"	335.60	" "	114.32	" "	280.00
"	"	15.00	"	"	359.50	" "	122.44	" "	300.00

Purchasers who do not undertake to go into residence on the land are required to pay one-sixth of the purchase money down, balance in five equal annual instalments with interest at the rate of six per cent. per annum.

Interest at six per cent. will be charged on overdue instalments.

F. T. GRIFFIN, Land Commissioner, Winnipeg.

CANADA NORTH-WEST LAND CO.

This Company has 525,000 acres of selected lands in Manitoba and Saskatchewan which offer excellent opportunities to settlers and investors who desire to secure good lands in well-selected districts. These lands are on sale at the Company's Office at Winnipeg, and at the various land agencies of the Canadian Pacific Railway Company.

F. T. GRIFFIN, Land Commissioner, Winnipeg.

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rents and tidal streams in Eastern Canada.

17. Feb. 28. 36.—New Brunswick, Petitcodiac River, McFarlane Point, lighthouse established. 37.—New Brunswick, Petitcodiac River, Outhouse point, lighthouse established. 38.—England, west coast, Milford Haven, St. Anne's Head, alteration in lighting.

18. March 2. 39.—New Brunswick, Musquash island, Hendry Farm, and Newcastle, lights to be improved. 40.—Nova Scotia, Stoddart island, Pomquet island, and Kidston island, lights to be improved. 41.—Nova Scotia, Canso harbor, life saving station established.

19. March 2. 42.—Ontario, Lake Ontario, Toronto harbor, change in location of life saving station.

20. March 2. 43.—British Columbia, Vancouver Island, east coast, Stuart channel, Oyster harbor, Ladysmith, buoys established.

21. March 14. 44.—British Columbia, Vancouver Island, west coast, Estevan point, lighthouse established. 45.—British Columbia, Queen Charlotte Islands, Skidegate Inlet, information.

22. Mar. 16. 46.—British Columbia, Strait of Georgia, Vancouver Island, east coast, Oyster bay, gas and bell buoy established. 47.—British Columbia, Queen Charlotte Islands, danger southeastward of Capé St. James. 48.—Alaska, dangers westward of Quadra island.

Inspection of Steamboats.

An order in council has been passed repealing sec. 11 of part VIII. of the Rules for the Inspection of Steamboats, and substituting the following rule, which has been approved by the Board of Steamboat Inspection:—

Sec. 11.—Every steamboat not employed in the carriage of passengers, and every steamboat to which the foregoing provisions of the preceding sections do not apply, shall at all times, when the crew thereof is on board, be provided with and have on board or attached to such steamboat in some convenient place, a good, suitable and sufficient boat, or good suitable and sufficient boats, in good condition and properly equipped, and provided with oars in sufficient number and other necessary tackle, and of sufficient capacity to carry all the crew of such steamboat, and with sufficient means for lowering such boat or boats from on board safely and expeditiously, provided,

(a) That any steamboat not employed in the carriage of passengers when less than 50 tons gross may be equipped with life rafts when boats cannot be utilized, if, in the opinion of the inspector such life rafts would in case of disaster be sufficient to secure the safety of all on board, and

(b) Tug boats 50 tons gross and upwards while engaged exclusively in harbor or canal towing may be likewise equipped.

C. P. R. Steamships for B. C. Coast.

The C.P.R. has ordered two more steamships for service on the B.C. coast. One, which will be built at Glasgow, Scotland, will be 290 ft. long between perpendiculars, 46 ft. beam and 17 ft. deep; she will be built of steel with cellular double bottom, seven transverse bulkheads, two watertight flats, and otherwise made as nearly unsinkable as possible, and will be driven by a single screw. She will have four boilers 15¼ ft. in diameter by 12 ft. long, with forced draught on the closed stokehold system. Her engine will be of the four cylinder triple expansion type, balanced. The cylinders will be 27, 42, 48½, 48½ by 39 ins. stroke. Steam pressure will be 180 lbs., and the auxiliaries, in the way of pumps, heaters, etc., will be of the very latest type. She will be lighted throughout by electricity. The dynamos will be capable of furnishing current for 1,500 sixteen candle power lamps. She will be steam heated throughout, and the matter of ventilation will be well attended to. There will be 118 staterooms for passengers, a large number of which will be supplied with running water, both hot and cold. Her social halls will be finished in mahogany, and her dining saloon will be beautifully done in figured walnut. In addition to the dining saloon, which will seat over 100, there will be a combined grill room and restaurant which will seat 100. The conveniences, fittings, and style of finish of this vessel will be superior to anything previously designed for the B.C. coast service. Her extreme draught of water will be about 15 ft. and her speed on service will be 16 knots. She will have ample cargo capacity for any of the company's local or northern services, and will be a very useful addition to its fleet on the coast.

The second and smaller steamer will be built at Paisley, Scotland. She will be 210 ft. long, 40 ft. beam at the deck, 37 ft. beam at the water line, with a depth of 16 ft. She will be well subdivided and have steel deck-houses and decks throughout. There will be 66 staterooms for passengers, and a nice dining saloon finished in mahogany and satinwood. The social halls, smoke rooms, etc., will all be beautifully done in hardwood, and she will have all modern conveniences, including running water in the staterooms. The motive power will consist of two boilers 16 ft. in diameter by 12 ft. long, with forced draught on closed stokehold system. She will be driven by twin screws, actuated by two sets of engines, 16, 27, 44, by 30. Her mean draught will be about 11 ft. and her speed 14 knots on service. She is being built to class 100A1 at Lloyds, and will be used in the company's various services on the B.C. coast.

The contracts require that both vessels be finished before Nov. 1. Upon completion they will proceed to Victoria under their own steam.

Vessels Removed from the Register.

The following vessels were removed from the register during Jan. and Feb., for the reasons assigned:—Steam—Albatross, Vancouver, 26 tons, wrecked; Emulator, Toronto, 17 tons, broken up; Enterprise, Vancouver, 8 tons, wrecked; Halifax, Halifax, 169 tons, burnt; Maud S., Collingwood, 11 tons, broken up; Odessa, Collingwood, 8 tons, broken up; Ottawa, Sarnia, 420 tons, burnt; Rothesay, Vancouver, 348 tons, broken up; Shawatlans, Vancouver, 8 tons, burnt; Surrey, 8 tons, broken up; Sailing—Acacia, Barrington, 99 tons, wrecked; Caledonia, Liverpool, 188 tons, transferred to West Indies; Canada, Vancouver, 304 tons, lost; Cartagena, Liverpool, 199 tons, condemned; Emperor, Lunenburg, 51 tons, broken up; Florence R. Hewson, Annapolis Royal, 289 tons, abandoned at sea; Gladys F., Lunenburg, 72 tons, transferred to Newfoundland; Hector, St. John, 498 tons, transferred to Newfoundland; James W. Cousins, Digby, 87 tons, wrecked; Lion, Lunenburg, 40 tons, broken up; Mariner, Halifax, 56 tons, broken up; Mary Hendry, Liverpool, 249 tons, transferred to West Indies; Mersey, Liverpool, 191 tons, transferred to West Indies; Montrose, Shelburne, 198 tons, stranded; Zoulou, Weymouth, 12 tons, wrecked "25 years ago."

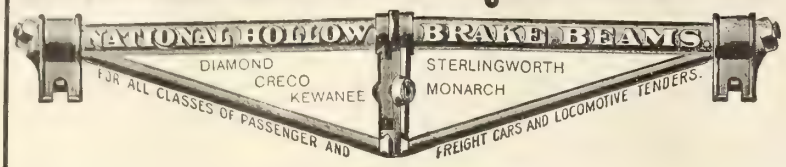
LIST OF STEAM VESSELS REGISTERED IN CANADA DURING JAN. AND FEB., 1910.

Name	No.	Where and When Built.	Engines, etc.				Length	Breadth	Depth	Gross Tons	Reg. Tons	Port of Registry	Owners
Arthur B....	126,735	Port Townsend, Wash., 1897	Screw	7	n. h. p.		69.0	13.0	6.5	135	92	Vancouver, B. C.	H. Weeks, Vancouver, B.C.
Aspy	122,588	Shelburne, N. S., 1910 ..	"	42	"	..	113.0	25.0	8.6	215	99	Yarmouth, N. S.	North Shore Steamship Co., Sydney, N.S.
Chidori ..	126,732	Steveston, B. C., 1909.....	"	1	"	..	34.7	8.1	3.9	8	5	Vancouver, B. C.	O. Mori, Vancouver, B.C.
Chilco.....	126,542	Quesnel, B. C., 1909	Paddle	12	"	..	80.0	16.4	3.2	129	75	Victoria.....	Fort George Lumber & Nav. Co., Vancouver, B. C.
Daisy ...	88,375	Comox, B. C., 1885 ...	Screw	11	"	..	71.0	14.4	5.6	47	25	"	A. Berquist, Sidney, B. C.
Lishmand....	126,278	Steveston, B. C., 1909.....	"	5	"		34.8	10.3	4.2	13	10	New Westminster B.C.	G. MacKie, M. O., New Westminster, B. C.
Helen M. Scanlon ..	126,731	Vancouver, B. C., 1909.....	Paddle	9	"	..	124.0	27.2	5.0	358	209	Vancouver, B.C.	Brooks-Scanlon Lumber Co., Vancouver, B. C.
Kingpet	126,733	" " 1910	Screw	..	"	..	33.0	8.5	4.3	11	7	" ...	J. S. Gall, Vancouver, B. C.
L. C. L. V....	126,510	Victoria, B.C., 1909.....	"	2½	"	..	27.6	8.8	3.8	9	6	Victoria.....	J. T. Adams and J. J. Young, Victoria
Nattose.....	126,640	Seattle, Wash., 1899	"	4	"	..	49.0	17.6	6.6	37	25	Vancouver, B.C.....	[illegible]
Quascilla	126,639	" " 1906.....	"	2	"	..	33.0	11.8	4.0	13	9	"	J. and W. L. Ford, Hornby Island, B. C.

LIST OF SAILING VESSELS AND BARGES REGISTERED IN CANADA DURING JAN. AND FEB., 1910.

Name	No.	Where and When Built	Rig	Length	Breadth	Depth	Reg. Tons	Port of Registry	Owners
Amorita.....	126,638	Seattle, Wash., 1906.....	Sloop ..	31.0	10.3	4.3	8	Vancouver, B.C.....	J. A. Richardson, Vancouver, B.C.
Annie L. Spindler	126,585	Lunenburg, N.S., 1910	Schr....	108.4	25.8	10.8	954	Lunenburg, N.S.....	L. Spindler, M. O., Lunenburg, N. S.
Kirk I.....	126,734	Vancouver, B. C., 1894	Scow...	60.0	24.4	6.4	102	Vancouver, B.C.	A. R. Bissett, Vancouver, B.C.
Mule	122,589	Belliveau's Cove, N. S., 1910..	Sloop ..	93.3	30.0	6.4	146	Yarmouth, N.S.	H. B. McCann, M. O., Yarmouth N.S.
P. S. B. Co., No. 1	126,637	Vancouver, B. C., 1910.....	Scow	74.0	30.2	7.2	154	Vancouver, B.C.	Progressive Steamboat Co., Vancouver, B.C.

CHICAGO RAILWAY EQUIPMENT CO.



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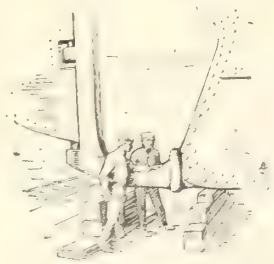

The THERMIT Process permits of all heavy wrought iron and steel sections being welded without removing them from their position. Locomotive frames are welded without dismantling the engine. In the same way sternposts of steamships, rudder frames, crank shafts, etc., are repaired.

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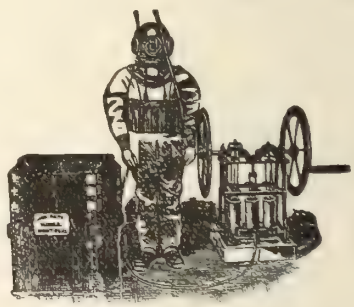

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Canadian Northern Steamships Ltd.

The Royal Edward and the Royal George are the names selected for the two triple turbine steamships Heliopolis and Cairo, which were purchased a short time ago by the Canadian Northern Steamships, Ltd., as mentioned in our Jan. issue. D. B. Hanna, Third Vice President C.N.R. has been in England for some weeks making arrangements for the inauguration of the company's Atlantic steamship service. The two vessels are now at Glasgow undergoing extensive alterations to adapt them for the Atlantic trade.

Captain G. Gregory has been appointed Marine Superintendent with headquarters at Bristol, and H. J. Cowie, heretofore the company's freight agent at Liverpool, has been appointed European Traffic Manager. In addition to the Bristol and Liverpool and London offices one will be opened in Birmingham. H. C. Bourlier, formerly with the Allan S.S. Line in Toronto, has been appointed General Agent Passenger Department, Ontario Division, with headquarters in Toronto.

Avonmouth, the port of Bristol, has been selected as the English terminus of the line. Modern docks have recently been constructed there at a cost of £3,000,000, with a special station for steamship service and the Great Western Ry. has built a cut-off connecting Avonmouth directly with the main line to London beyond Bristol, so as to shorten distance and time. From Avonmouth to London is 112 miles which ordinary express trains make in two hours and the steamship specials which will be run will do it in a little less. Montreal will be the Canadian summer port.

The Royal Edward is scheduled to leave Avonmouth May 12 and to leave Montreal May 26. The Royal George will leave Avonmouth May 26 and Montreal June 9. Sailings will be fortnightly from both Avonmouth and Montreal. The Volturno, principally for freight and third class passengers will also be in the fleet.

The Royal Edward and the Royal George are constructed of steel the main dimensions being: length, 545 ft.; breadth, 60 ft. 3 ins.; depth to shelter deck, 38 ft. They are built to Lloyds' requirements of the highest class, subdivided into 10 compartments by watertight bulkheads, and fitted with a cellular double bottom from stem to stern. They have a straight stem, and are schooner rigged, with two pole masts, and in addition to an auxiliary rudder carried, are fitted with a balance rudder. Bilge keels are fitted for a third length amidships. There are a total of seven decks rising in succession, viz:—lower, main, upper, shelter, bridge and forecastle, promenade and boat decks.

Boat Deck.—The navigating officers are accommodated at the fore end of this deck. Abaft their quarters a steel deck house forms the cafe for first class passengers. This room is designed in Regence and panelled in oak. The tables are arranged in drawing room style and accommodate small companies. The flying bridge is situated on the roof of the cafe upon which is also placed the chart and wheel houses. A large steel house is placed aft on this deck for the wireless telegraph.

Promenade Deck.—A steel deck house is erected in island fashion covering almost the entire length of this deck, forming a broad, spacious and covered in promenade around it. Amidships and at the centre of this deck is the music room 45 by 30 ft., designed and furnished in Louis XVI. style and finished in white. A large shaft passes through this room to the library, dining saloon and decks below, conveying an abundance of natural light to the various public rooms. A great portion of this deck is given up to cabins de luxe and first class cabins which are most luxuriously furnished. There are also a number of bath rooms and lavatories on this deck.

The Bridge Deck extends for four-fifths of the vessels' length and is arranged similarly to the promenade deck, having spacious alleyways alongside the steel deck house forming very comfortable and sheltered promenades. The fore end is fitted with cabins de luxe, or en suite rooms. Immediately abaft these sets of rooms the grand staircase is situated providing easy access from deck to deck, and convenience to public and private rooms. Ample natural light is reflected down this stairway from a handsomely designed skylight overhead. Additional first class staterooms separate the stairway from the library. This room is designed and furnished in Louis XV. style and its dimensions are similar to that of the music room which is directly overhead. The library is richly carved and panelled in oak of a rich natural shade with tapestries and hangings to match. Fifty by forty feet of the aft end of this deck is occupied by a first class smoking room; commodious and neatly arranged with numerous bays all around. Oak panels cover the walls and ceiling, and the floor is enhanced by a covering of interlocking rubber tiles which form a neat design. Bath rooms and lavatories occupy the remaining space on this deck.

Forecastle Deck.—The construction of this deck is at the same elevation as that of the bridge deck and has a length of 75 ft. It is fitted with a strong breakwater and is equipped with the most approved apparatus for manoeuvring the vessel.

The Shelter Deck is perhaps the most important one in the ship, most of the space being taken up by public rooms. The extreme fore end is devoted to seamen and is fully equipped with galley, scullery, lavatories and all necessities appertaining to their various requirements. A children's saloon is placed forward on this deck and is fitted with the same care and design which characterizes other public rooms. A number of first class cabins separate this saloon from the first class dining saloon which is a magnificent hall about 60 by 77 ft. The design is of the Georgian period and a wonderful unison in design is maintained producing a harmonious effect throughout. Tables accommodating eight, 12 and 16 persons are arranged in the centre, and along the sides alcoves adapted for five persons are fitted. A total of 256 passengers can dine at one time. Numerous large ports, in addition to a spacious well leading straight down from the weather deck, allows of ample daylight in this saloon. An upright grand piano is placed at the fore end of the apartment, and aft is a magnificent inlaid sideboard. The entire saloon is finished in white and upholstered in Genoa velvet. Wilton runners cover the floor, which is of polished teak. The first class dining saloon is separated from the second class dining saloon by the various offices necessary for the working of both these saloons, such as, galleys, pantries, sculleries, larders, bakery, etc., etc., each office being fitted with the very latest apparatus for its purpose. A large light and air shaft overhead in this space extends right up to the weather deck, affording abundance of light and cool air. The second class dining saloon is handsomely designed and capable of seating 150 at once. It is panelled in mahogany while the upper frame is finished natural, the whole being finished in a dark color. Tables in the centre of the apartment are laid fore and aft, with small tables each seating eight arranged along the side. Further aft on this deck is placed a second class lounge fitted and furnished in a dark shade and containing an overstrung upright piano. There is also a large bookcase in this room. Adjacent to this apartment is a second class smoking room panelled in mahogany and upholstered in a rich maroon leather the whole effect being very harmonious. Still further aft a steel deck house is erected and is partitioned off to form a third class lounge and a third class smoking room. Both these apartments are spacious and airy and afford third class passengers comfortable saloons for recreation. These rooms are well upholstered and fitted in dark mahogany. Abaft these saloons there are fitted male and female hospitals, with bathrooms and all other accessories necessary. The remaining space on this deck is cleared for a third class promenade.

The Upper Deck from stem to stern is covered in, and may be designated the working deck. On the port side accommodation is made for the crew, engineers, stewards and firemen. Fruit and vegetables are stowed in cold stores on this side of the vessel. Along the centre of this deck funnel casings, turbine hatches, etc., are placed occupying almost the total length. Forward a spacious and airy third class dining saloon has been erected with small tables arranged to seat from seven to 14 people, in all seating at one time 119. Aft on the same deck there is another third class saloon with tables seating 14 to 18 people, in all accommodating 142 people at once. Both these saloons are fitted in a very superior third class fashion, and ample light is afforded by the many large ports. The remainder of this deck is occupied by well equipped second class cabins, lavatories and bathrooms.

Main Deck.—The entire breadth of the ship for 200 ft. amidships is taken up by the turbine room, funnel hatches, coal bunkers and store rooms. Forward and aft cabins for third class passengers are fitted bath rooms, lavatories, etc., occupy the remaining space.

The Lower Deck contains no cabins but is devoted to a cold chamber with a capacity of 15,000 cubic feet, a mail and specie room, and a large baggage room. The remaining portion of the lower deck in addition to the holds below, will be used for cargo.

These steamships have so many special features that it is difficult to deal with them all in detail, but there are some worthy of special note. The thermotank system of ventilation is fitted throughout the ships with the exception of the machinery and cargo spaces. The installation consists of numerous thermotanks distributed over the various decks, which assimilate air from the open, and when charged can reduce or raise the temperature of the air to any degree desired. When this is done the air is discharged by centrifugal fans through trunks leading to various parts of the vessel. These tanks can maintain a temperature of 65 deg. Fahr. with a surrounding atmosphere at zero, and are capable of renewing the air 10 times in an hour. Electric exhaust fans are also fitted in the smoking rooms and first class dining saloon, as also in various other sections of the ship, in addition to the thermotank system of ventilation. An electric passenger hoist is another feature, to take passengers from deck to deck with a maximum of ease. Goods hoists are fitted for the conveyance of stores from the galley below to the shelter and boat decks. A complete installation of refrigerating plant is fitted for the preser- [illegible] provisions as well as for the transportation of meat and dairy [illegible]. A [illegible] of private [illegible] the engines are arranged for interchangeable working. The plant is [illegible] quantity of ice daily for use of passengers. [illegible]

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OF ALL KINDS

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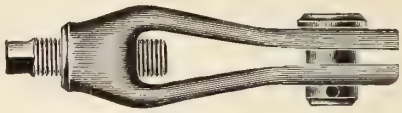

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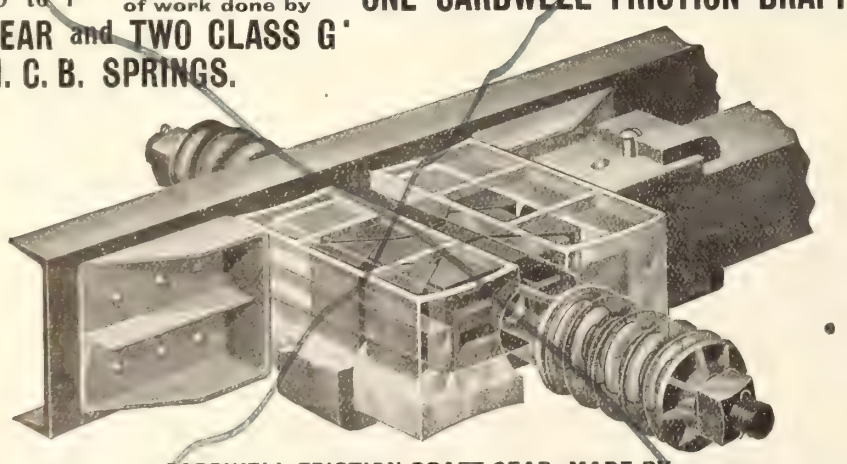

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enable different classes of goods to be carried as may be required, at almost any temperature. Electric light is installed all over the vessels and the fittings are of the most elaborate and substantial character. The installation consists of three sets of combined engines and dynamos of the compound type, any two of which are capable of generating and supplying light equal to 28,800 candle power, also supplying the necessary current for a large number of cargo cluster lamps of 200 c.p. each, and to all signal lamps, thermotanks, motors, fans, etc. The current is transmitted by insulated cables of high conductivity, all wiring being done on the double wire distribution box system. The main switchboards are fitted with ammeters, voltmeters, and switch, pilot lamps and switches, double pole switches and fuses for each of the generators, and change-over switches and double pole fuses for each of the main circuits. The instruments are of the moving coil type, and the whole switchboard is arranged for easy and convenient handling, each switch being distinctly marked by the name of the circuit which it controls. Two-way switches are fitted for the electric lights, convenient to the berths in the cabins, also two separate electric bell pushes, and in addition plugs are fitted to each first class cabin. The latest telemotor principles place the steering wheel on the navigating bridge in direct touch with the steering engine aft. Hand steering gear is also fitted on bridge aft. Telegraphs, telephones and voice pipes enable the officer on duty to transmit instructions to all necessary parts of the ship. Three separate systems of piping are installed throughout the ship; for supplying steam to the winches, windlass, steering gear, etc., supplying all thermotanks and heaters, supplying steam to the galleys, pantries, etc. A distinctly new feature in the way of fire extinguishing apparatus has been adopted in a machine capable of rapid generating and delivering to any part of the ship, upwards of 25,000 cubic feet of fire extinguishing gas per hour, by means of pipes leading to each compartment, simultaneously delivering sulphur dioxide into it. When the fire is extinguished the sulphur dioxide is withdrawn by suction. By the same machine fresh air can be simultaneously injected into the compartment, and it will thus be seen that the usefulness of this mechanism is not confined to fire extinguishing purposes, but may be used either for ventilation by extracting foul air and injecting fresh air, or to disinfect any infected compartment in the ship. A complete system of hot and cold fresh water and hot and cold salt water distribution throughout the ships is arranged for, not only to the sanitary quarters but also to the various galleys, pantries, sculleries, etc. The ships throughout are replete in everything that makes for comfort in travelling. Each vessel has accommodation for 350 first class, 200 second class, 572 third class passengers, and the crew will number well ahead of 300. The gross tonnage is 12,000.

MACHINERY.—The vessels are propelled by compound steam turbines working on three shafts, arranged with the high pressure turbine in the centre driving the centre shaft and propeller. The two low pressure turbines are arranged on either side of the high pressure turbine and drive the wing shafts and propellers. Astern turbines are placed on the wing shafts. The machinery embodies all the latest improvements and special attention has been given to the maintainenance of high efficiency under service conditions.

There are about half a million blades of hard drawn brass in the turbines, and if these were placed in one line they would extend nearly 30 miles. The three propellers, with three blades on each, are made of manganese bronze. They are accurately machined and balanced and the blades are carefully polished to reduce to a minimum the frictional resistance incidental to the high velocity at which they pass through the water, and which at the tips, exceeds 100 miles an hour. The turbines exhaust direct into two steel plate condensers, fitted with solid drawn brass tubes, and placed alongside the low pressure turbines. The cooling water for condensing the exhaust steam is circulated through the condensers by four large centrifugal pumps, two for each condenser, and the condensed steam is withdrawn from the condensers by two single acting twin air pumps. Special attention has been given to the efficiency of the main condensing plant with a view to the best possible vacuum being maintained on the service. There is a large auxiliary condenser for conserving fresh water derived from the exhaust steam of the electric engines, the refrigerating engines, donkey pumps, and other auxiliaries, and this condenser is provided with an independent circulating pump and an auxiliary air pump. The engine room is fully equipped with the most modern appliances and includes three large electric engines and dynamos, three refrigerating machines, pumps for supplying hot and cold salt water for the baths, also pumps for sanitary purposes, washing decks, for extinguishing fire and fresh water for passengers' use. There are also bilge and ballast pumps, and these can, in the event of accident to the ship, be supplemented by the large circulating pumps being connected to discharge water from the vessel, the total capacity of these pumps being equal to fully 2,000 tons per hour. The distilling plant consists of two large evaporators together capable of producing from sea water 100 tons of fresh water per 24 hours and two distilling condensers having a combined output of 12,000 gallons of pure fresh drinking water per day. In the engine room there are also arranged four large main and auxiliary feed pumps for the boilers, and one smaller feed pump for use when the vessel is in port. In connection with them there is fitted a large surface heater for extracting the waste heat in the exhaust steam from the pumps and other auxiliary machinery and utilizing it to heat the feed water for the boilers. Two gravitation feed filters are fitted for removing grease and other impurities from the feed water. Steam is supplied by four double-ended and four single-ended boilers of the cylindrical return tube type arranged in two boiler rooms and fitted with forced draught; air for the furnaces being supplied by eight large fans driven by electricity. There are about 7,000 tubes in the boilers, and in addition about 4,300 tubes for heating the air for the furnaces. There are two large double funnels each rising to about 100 ft. above the keel. The spaces between the inner and outer funnels being utilized for ventilating the boiler rooms and stokeholds.

The Heliopolis and the Cairo were taken to Glasgow at the end of last year where extensive alterations are being made to fit them for the Atlantic service. The whole of the first and second class accommodation on the main deck is being diverted to third class. No change is being made to the cabins themselves and with the exception of one or two minor alterations to the internal fittings, they will be left as before. On the upper deck, where previously were first class cabins, there are being constructed two third class dining saloons (referred to in the general description above) one forward and one aft. These will be spacious and airy rooms, capable of accommodating 261 persons at once. Promenading space previously for the use of second class passengers will be placed at the disposal of third class passengers. These vessels were designed and built for first and second class passengers only, but after the alterations third class passengers will be also provided for. The draft of the ships is being materially increased. Refrigerated as well as other cargo will be carried. The boat deck which was formerly used to accommodate boats, and other gear, is being cleared of all superfluous fittings and will form an additional excellent promenade for first class passengers. The masts are being unshipped and shortened by several feet, as also the funnels which are to be round and less in diameter and also less in height.

The twin screw s.s. Volturno which has also been bought by the Canadian Northern Steamships, Ltd., is built of steel. Her principle dimensions are: length, 340 ft.; breadth, 43 ft.; depth, 20.7 ft.; tonnage, 3,581 gross. She has two spacious decks extending the whole length of the ship where passengers have every accommodation in accordance with their class. Each deck is fitted to accommodate 700 and 600 passengers respectively, chiefly third class. She has accommodation, however, for 24 first class passengers. She has been trading between Rotterdam, Halifax and New York and maintaining a fairly regular service. She was built at Glasgow in 1906.

R. & O. N. Co.'s Steamboat Rochester.

The steamboat Rochester which is being built in the United States for the Richelieu & Ontario Navigation Co. to run between Youngstown and Ogdensburg, N.Y., will have the following dimensions:—Length over all, 256 ft.; length over stem and stern posts, 246½ ft.; breadth of beam, moulded at frame, 42 ft.; breadth of beam over wales, 43 ft. 7-⅛ ins.; depth of hull, moulded at main deck, 14¾ ft.; draught, 9½ ft.

The propelling machinery will be of the twin screw, triple expansion, inverted surface condensing type, having four cylinders working on four cranks. The size of the engines will be 16, 25, 31 and 31 x 22 ins. stroke running at 180 maximum number of revolutions per minute, the two engines to develop 2,000 h.p. The air pumps will be attached to the main engine but the feed pump, bilge pump and cooler pump will be independent of the main engines. In order to reduce the vibration in the ship due to the engines they will be balanced. Each engine will have its own condenser having each 1,500 sq. ft. of tube cooling surface.

The auxiliary machinery is as follows: Two duplex pumps for boiler feed, donkey and fire pump service; one bilge pump; one duplex tank pump for fresh water supply for drinking purposes and kitchen supply; one duplex tank pump for use as cooler pump for main engines; one duplex tank sanitary pump for flushing plumbing service; two steam fans for use in connection with the forced draft installation; two centrifugal pumps in connection with the surface condensers; two ash ejectors of hydraulic type; two injectors for boiler feeding; a refrigerating plant of five tons ice capacity with machinery part located in engine room; two 20 kilowatt generators operating at a voltage of 120 will be placed in the lower engine room on a special partial deck. A switchboard will be placed in the after end of engine room on main deck; wiring in exposed places will be in conduit and the whole wiring and plant will be particularly installed with reference to freedom from danger of causing fire; an intercommunicating telephone system will be installed connecting pilot house, engine room, engineer's room and captain's room.

There will be four boilers in two fire holds with coal bunkers between. They will be of the cylindrical return tubular

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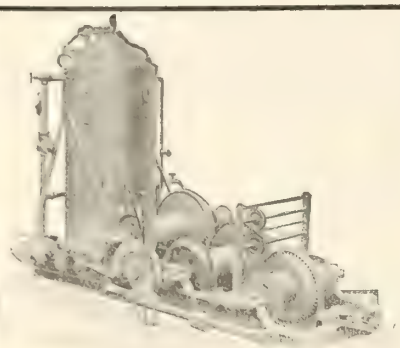

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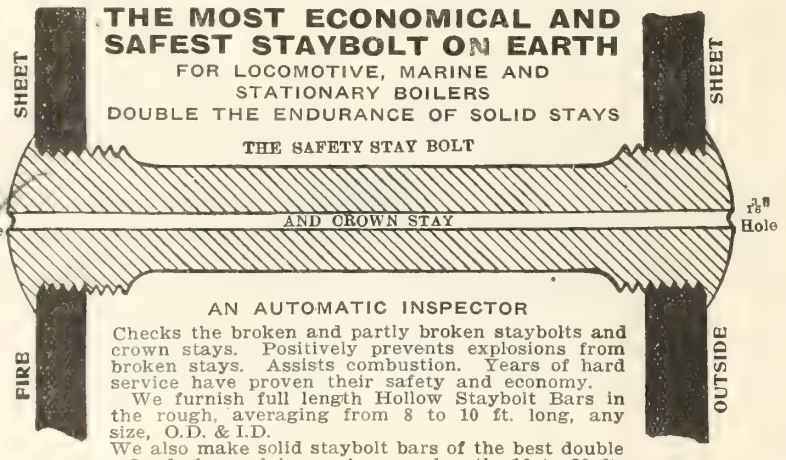

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type 11½ ft. mean diameter and 11 ft. over heads, each having two 42 ins. inside diameter corrugated furnaces of the removable type and with heating surface of best proportion for grates 5½ ft. long. The boilers will be fitted with hot draft. They must pass the Canadian and U. S. Government inspection for 165 lbs. working pressure of steam.

The dining room will be on main deck aft and panelled in mahogany. The entrance hall will be also finished in mahogany. The buffet, on the main deck will be finished in quartered oak. There will be 120 staterooms and 16 parlors on the promenade and gallery decks. The staterooms will all be outside rooms, the parlors will be equipped with brass bedsteads and decoratively finished and each will have a connecting bathroom. On the observation deck there will be a music room finished in white enamel, a smoking room finished in quartered oak, a lunch counter and news stand. The pilot house and texas will be on the hurricane deck.

This vessel when completed will be a thoroughly modern, twin screw passenger and freight steamer of the Canadian lake and river type, guaranteed to run 17¾ statute miles an hour.

Atlantic and Pacific Ocean Marine.

C.P.R. officials have denied that there is any intention to change its chief British port, from Liverpool to Fishguard.

The Allan Line s.s. Ionian collided with a derelict vessel, Mar. 3, near the west coast of Scotland. On arrival at Glasgow, Mar. 5, it was found that about 40 plates on the port side were damaged, all being above the water line.

The C.P.R. s.s. Empress of Britain, which is booked to sail from Liverpool, Eng., Apr. 22, for St. John, will, it is announced, sail instead to Quebec, thus inaugurating the St. Lawrence season for the company.

The Australian Government has extended the mail contract held by the Union Steamship Co., between Canada and Australia, for one year from July 31, and is calling for tenders for a faster service.

In response to a question in the British House of Commons, Mar. 22, it was stated that the question of establishing an all British service to the Antipodes, via Canada, was still under consideration but nothing could be said as to when a decision would be arrived at.

With reference to the recent press reports as to the establishment of an Austrian steamship service, G. M. Bosworth, Fourth Vice President C.P.R., on his return from Europe, Mar. 6, is reported to have said that the matter was not specially a C.P.R. affair. It has been discussed with several of the Austrian steamship companies, with the idea of making arrangements with lines now running out of Trieste, for regular sailings to Canadian ports.

The question as to whether or not the Canadian Northern Steamships, Ltd., will join the Canadian Atlantic Westbound Freight Conference is the subject of contradictory dispatches from England. One dispatch states that the company has made formal application for membership, while another is to the effect that D. B. Hanna, Third Vice President C.N.R., has stated that the company would not join the conference, and that though it would not cut rates, it preferred to conduct its business in its own way.

The Shipping Federation of Canada has decided to abolish the porterage charge of 25c. a ton charged on goods landed at Montreal and Quebec, and handled at the local wharves. The Montreal Harbor Commission recently refused to rent sheds to shipping companies unless this charge was dropped. The C.P.R. anonunced its intention to abolish the charge, Mar. 15, and the Federation followed on the next day, as a result of a meeting of the Canadian North Atlantic Westbound Freight Conference in London, Eng.

The steamship companies utilizing the port of Montreal during the St. Lawrence navigation season, in reply to the recent demand of the longshoremen for the abolition of the bonus system, and for increased pay, have decided unanimously that they will adhere to the bonus system, as it is the only way by which a sufficient number of longshoremen can be retained through the season to handle cargoes. The longshoremen recently applied to the Department of Labor for the appointment of a Board to enquire into their grievances, and the companies have responded that they fail to see how an investigation between themselves and the longshoremen can be held, as they have no longshoremen in their employ.

The New Zealand Shipping Co., has arranged to run a service between Eastern Canada and the Antipodes, utilizing five steamships for the purpose. These are named Rakaia, Whakatane, Waimate, Papanui and Wakanui. The first sailing from Canada is scheduled to take place May 15 from Montreal, which is to be the summer port, and monthly sailings will be made. During the winter season, sailings will take place from St. John, N.B. The company was inaugurated in New Zealand in 1873, and has its headquarters at Christchurch, N.Z., and London, Eng. It owns 17 first class steamships, operating in various parts of the world. The Canadian and New Zealand Governments have granted subsidies in aid of the enterprise, the Canadian subsidy being $10,000 a month. The C.P.R. is reported to be interested in the service.

Maritime Provinces and Newfoundland.

The Nfld. Legislature has been petitioned to inaugurate a ferry service on St. Margaret's Bay.

The G.T.P.R. is reported to be purchasing property along Courtenay Bay, St. John, N.B., for dock purposes.

An order in council has been passed providing regulations for the governance of a ferry across the Restigouche River between Crosspoint, Que., and Campbellton, N.B.

The St. John, N.B., city council is seeking legislation as regards the renewal of a grant of $50,000 a year for 20 years to the Imperial Dry Dock Co., for the construction of a dry dock at St. John.

The Maritime Fish Corporation, Ltd., has been incorporated under the Dominion Companies Act, with a capital of $1,000,000 and office at Montreal, to carry on a general fishing business, and to deal generally in fish products, and in connection therewith to own and operate steam and other vessels.

The steamer Aspy, owned by the North Shore Steamship Co., Sydney, N.S., was built at Shelburne, N.S., and her machinery installed at Yarmouth. She is 124 ft. long, 25 ft. beam, and has 9 ft. depth of hold. Her machinery consists of a fore and aft compound surface condensing engine with cylinders 15 and 22 ins. diar. by 24 ins. stroke, supplied with steam at 135 lbs., by a boiler 11 ft. 3 ins. by 10 ft., and the usual auxiliary pumps and electric lighting plant.

Province of Quebec Marine.

J. H. Fontaine, has been appointed Inspector of Boilers and Machinery of Steamboats at Levis, Que.

Notice has been given that the water will be drawn off from the Lachine canal Apr. 1, and re-admitted Apr. 30.

The Governor General in council has approved the Montreal Harbor Commissioners' by-law giving them power to allot the wharf at sections 71 and 72, for a period not exceeding 10 years.

It is reported that R. Forget, M.P., who is interested in the proposed Quebec and Saguenay Ry., is considering the possibility of establishing a winter port on the lower St. Lawrence, at Baie St. Catherine near the mouth of the Saguenay River.

The Postmaster General, while in Quebec, Mar. 14, is reported to have said that the Government had decided to facilitate the construction of a dry dock at Quebec or Levis, and that aid towards the project would be voted in the near future.

The Minister of Finance gave notice of a resolution, Mar. 14, authorizing the loan of an additional $6,000,000 for the Montreal Harbor Commission, for the carrying out of an extensive scheme of improvements, with a view to making the handling facilities at Montreal the best on the continent. The loan will be secured by the Commission's bonds, repayable within 25 years, with interest payable half-yearly at 3½% per annum. Previous loans for similar purposes amount to about $9,000,000, the interest being met out of revenue.

Levis Ferry, Ltd., has been incorporated under the Dominion Companies Act, with a capital of $500,000 and office at Levis, Que., to carry on island navigation on the River St. Lawrence and its tributaries; to own and operate steam and other vessels; to do everything connected with inland navigation, and in particular to carry out a contract made with Quebec city, by A. Bernier, dated Sept. 27, 1909, for the exclusive privilege of ferrying passengers and freight between Quebec and Levis, from May 1, 1910, to Apr. 30, 1925. The provisional directors are: G. Demers, J. Gosselin, J. F. Deemers, A. Bernier, Levis, Que., and G. S. Marceau, Quebec.

Ontario and the Great Lakes.

The Toronto Ferry Co.'s service across Toronto bay, between the main land and the island, was opened Mar. 19.

The Hamilton Steamboat Co.'s steamboat Macassa arrived at Toronto from Hamilton, Mar. 28, being the first vessel to enter the harbor from an outside port this season.

The name of the steamboat Japan, recently purchased in the U.S., by the Montreal and Lake Erie Steamship Co., has been changed by order in council to City of Hamilton.

James Richardson & Sons, Ltd., incorporated under the Dominion Companies Act, has been licensed to carry on business in Ontario, with G. T. Richardson, Kingston, as its attorney.

The St. Clair and Erie Ship Canal Co., has been given by the Dominion Parliament an extension of time within which it may start and complete its projected canal from the St. Clair River to Lake Ontario.

The Montreal, Ottawa and Georgian Bay Canal Co., has been granted an extension of time by the Dominion Parliament for the construction of the proposed canal along the Ottawa River Valley, through the divide to Lake Nipissing, and thence by the French River to Georgian Bay.

The Sarnia-Toledo Transit Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $25,000 and office at Toronto, to own and operate steam and other vessels, and to carry on a general navigation business. The provisional directors are:—S. Johnston,

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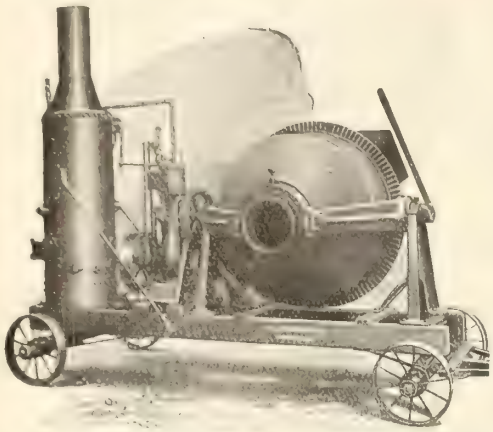

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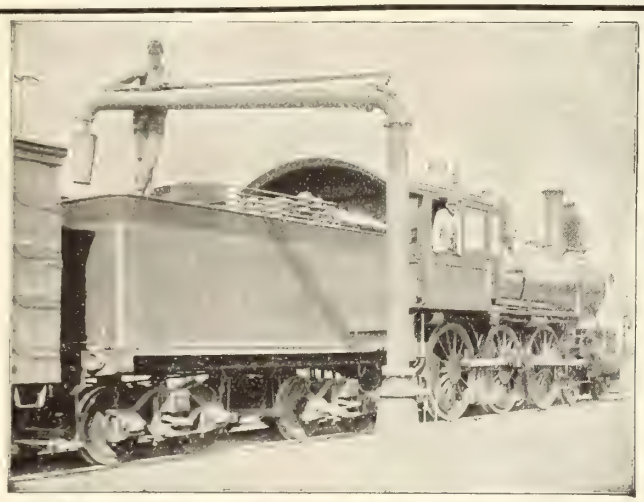

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The U.S. Lake Survey reports the levels of the Great Lakes, in feet above tidewater, for Feb., as follows:—Superior, 601.73; Michigan and Huron, 579.96; Erie, 571.19; Ontario, 245.03. Compared with the average Feb. levels for the past ten years, Superior was 0.40 ft. below; Michigan and Huron, 0.19 ft. below; Erie, 0.38 ft. below; and Ontario, 0.40 ft. below.

The Severn River and Lake Couchiching Navigation Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $100,000 and office at Orillia, to carry on business as shipowners and shipping agents, and to conduct a general shipping business. The provisional directors are:—T. W. Wood, Orillia; L. Sinclair, M. R. Edgar, A. G. Robertson and J. A. French, Toronto.

The Niagara and Ontario Steamship Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $150,000 and office at Toronto, to own and operate steam and other vessels, and to carry on a general transportation business. The provisional directors are:—F. T. Hutchison, H. W. Crawford, C. Moller, W. E. Davis, F. J. Dunbar, E. M. Fitzsimmons and M. A. Ball, Toronto.

Mr. Justice J. T. Garrow, a Judge of Appeal of the Supreme Court of Judicature for Ontario, has been appointed Local Judge in Admiralty of the Exchequer Court for the Toronto Admiralty District. Judge O'Leary of the Thunder Bay, Ont., District Court has been appointed Surrogate Judge in Admiralty of the Exchequer Court for that portion of the Toronto Admiralty District comprised in the territorial districts of Thunder Bay and Rainy River.

R. Forget, M.P., President of the Richelieu and Ontario Navigation Co., is reported to have confirmed the recent report that the company is negotiating for a working alliance or possibly the control of the Hamilton Steamboat Co., operating the steamboats Mocassa and Modjeska, and the Turbine Steamship Co., operating the steamboat Turbinia. Both of these companies are controlled by the T. Eaton Co., Toronto.

A deputation of laborers was received by the Dominion Premier, Mar. 4, when a petition was presented, asking that the deepening of the Welland canal be proceeded with, on the ground that in addition to the benefit to navigation, it would give employment to a large number of men. The Premier stated that the Government was fully alive to the advantages of the work, which was now engaging its attention.

The Dominion Marine Association has made an arrangement with the grain trimmers at Fort William and Port Arthur, by which the vessel owners forming the Association will pay a flat rate to trimmers on all grain leaving the dual ports during the forthcoming season. On the large bulk cargo vessels a rate of 50c. per 1,000 bush. will be levied, and on packet freight boats, an increase of 15c. will be paid.

A deputation representing the Port Arthur Board of Trade, waited on the Dominion Government, Mar. 18, to urge that something be done in order that steel plates and other material for the building of steel vessels in Canada, may be made in this country. The questions of the lighting of the harbor approach, the extension of the present breakwater, dredging, and the establishment of a wireless telegraph station were also taken up.

The Mayor of Goderich and a representative of the Goderich Elevator and Transit Co., visited Ottawa, Mar. 15, when they had an interview with the Minister of Public Works relative to some proposed harbor works at Goderich. They were informed that no appropriation could be made this year as the supplementary estimates had already been dealt with, but a report on the desirability of carrying out the work would be asked for, and due consideration given to the proposals.

The Morrisburg Ferry and Dock Co., is the title of a company which has been incorporated by the Dominion Parliament. It authorizes the company, subject to the provisions of the Railway Act, to construct and operate a ferry for railway cars across the St. Lawrence River, between Morrisburg, Ont., and the south side of the river in New York State; to construct and operate other steamships; to construct wharves, and to construct railway tracks on the same to be connected with the tracks of the G.T.R. or any other railway in Morrisburg. The capital of the company is fixed at $500,000, and it is authorized to issue bonds for $300,000. The provisional directors are:—B. B. Tucker, H. H. Bradfield, L. E. Murphy, W. H. McGannon, Morrisburg, Ont.

The question of the rights of Canadian vessels in the New York State canals, was brought before the House of Commons, Mar. 11, and in reply to questions, the Premier recalled the fact that this question was discussed several years ago and he inclined to the opinion that although the New York statutes accorded the same privileges to Canadian vessels, as were enjoyed by U.S. vessels, departmental regulations discriminated against them.

The Richelieu and Ontario Navigation Co. is applying to the Dominion Parliament for authority to acquire real estate for the construction of offices, and for other necessary purposes, to own hotels, dwellings and places of amusement; to carry on the business of warehousemen, wharfingers and forwarders; to construct freight and passenger stations, elevators, and general freight and passenger terminal facilities in Canada; to carry on the general business of common carriers by land and water; to acquire, hold shares in or guarantee the securities of other similar companies, and to construct and to repair steam and other vessels. The number of directors is to be not less than three nor more than 15. Certain sections of the company's existing acts are to be repealed, the new powers given being in lieu of those given in the repealed sections. The bill has passed the House of Commons and is before the Senate.

At the recent annual meeting of the British Corporation for the Survey and Registry of Shipping, the President said:—"While we have been doing our utmost to advance the interests of the Registry in other European countries, we have not been neglectful of the same interests elsewhere, and I should like

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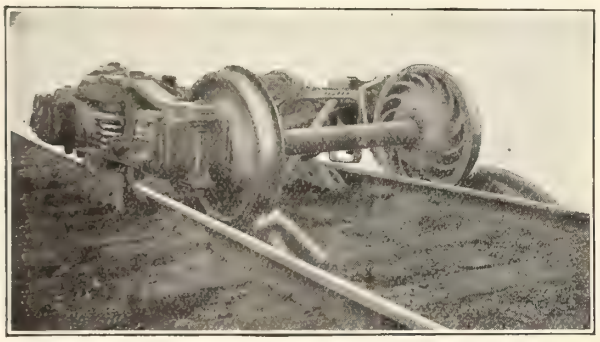

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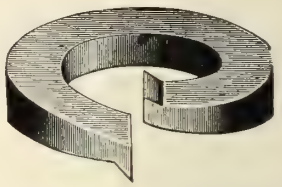

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particularly to refer to the growth in recent years of our association with Canada, through the construction to our class, for Canadian owners, of vessels specially designed for service on the Great Lakes. During the past two years, by far the largest proportion of these vessels, which were built in this country, have been constructed under the supervision of the British Corporation. The Technical Committee have taken great pains to inform themselves as to the conditions of traffic on the Great Lakes, and our assistant chief surveyor spent some time there last year in order to become personally familiar with what was known to be very trying work. The results of our experience and attention to detail, in conjunction with the specialization of the structural design so required for the peculiar circumstances of the trade have been uniformly recognized as having contributed materially to secure for British shipbuilders the very large amount of work they have recently done for Canadian lake shipowners."

Manitoba, Saskatchewan and Alberta.

The Winnipeg Board of Trade has endorsed a petition to the Department of Marine for the lighting and buoying of Lake Winnipeg and the Red River. It is anticipated that traffic will be large during the coming season.

The Appeal Court, Mar. 7, dismissed the Dominion Fish Co.'s appeal against the award of $4,000 damages to a nurse who was injured when the company's steamboat Premier was destroyed by fire on Lake Winnipeg in 1908.

The Corona Lumber Co., Ltd., has been incorporated under the Manitoba Companies Act, with a capital of $100,000 and office at Winnipeg, to carry on a general lumbering business, and in connection therewith to own and operate steam and other vessels, for its own purpose and for the carrying of passengers and freight.

The Winnipeg Board of Control has decided to petition the Dominion Government to erect a wharf at an estimated cost of $250,000. Two possible sites have been mentioned, one being on the Red River at the foot of Rupert St., and the other at the foot of McFarlane St., north of the Louise bridge. If neither of these sites is suitable, one will be purchased.

A. R. Dufresne, Dominion Government District Engineer, has communicated with the Winnipeg Board of Control, pointing out that the St. Andrews lock will be ready for the opening of navigation, and suggesting that in view of the expected increase in traffic, the draw spans on all bridges under the city's control be inspected and placed in good working order.

The vessel which was reported in our last issue as being under construction for H. Sutherland, Winnipeg, for operation on Lake Winnipeg and the Red River, is stated to be the first of a number which will be operated in the transportation of building materials. It will be of suitable size for passing the St. Andrews lock, and propelled by twin screws driven by compound engines of 600 h.p. Its length will be 180 ft., by 40 ft. beam, and the construction is of steel throughout, with a carrying capacity of 1,000 tons. The equipment will include a powerful centrifugal pump for loading sand and gravel, and a series of hydraulic hoists for building stone. In addition, a certain amount of passenger accommodation will be provided.

B.C. and Pacific Coast Marine.

Work was commenced early in March on the construction of the G.T.P. docks in the inner harbor at Victoria.

The Boscowitz Steamship Co.'s new vessel, which has been named Venture, is expected to be in service about June 1.

The Canadian Fishing Co.'s s.s. Celestial Empire, struck a rock during a storm early in March, in Squally channel, while northbound, and put back to Vancouver for repairs.

The barkentine, Everett G. Griggs, owned by the Everett G. Griggs Ship Co., Ltd., Victoria, B.C., is reported to have been sold to Capt. E. R. Sterling for $27,500. She was built in Belfast, Ireland, in 1883, and is an iron, six-masted barkentine, with dimensions:—length, 308.2 ft.; breadth, 42.9 ft.; depth, 25.1 ft.; tonnage, 2,351 register. She was formerly known under the names Lord Wolsley and Columbia.

The officers of the recently organized Grand Trunk Pacific Dock Co., which has been formed for the construction and operation of docks at Prince Rupert, Victoria, Seattle, Wash., and other places on the Pacific coast, in the interests of the G.T.P.R., are:—President, C. M. Hays; Vice President, J. S. Gibson; Secretary-Treasurer, H. Phillips; Assistant Secretary, S. H. Smith; and the trustees are C. M. Hays, E. J. Chamberlin, J. S. Gibson, S. H. Smith and L. V. Druce.

Huntly and Brewster, who operate the steamboat Sonoma, on the Ladner-Steveston run, will probably build or purchase a larger vessel for this route this spring, owing to increased business. The new vessel will probably be about 70 ft. long, with 15 ft. beam, capable of 12 knots an hour, and with capacity for about 75 passengers. If it is decided to replace the Sonoma, she will be sold. She was built at Vancouver in 1905, her dimensions being:—length, 46.5 ft.; breadth, 11 ft.; depth, 4.6 ft.; tonnage, 19 gross, 13 register, and she is equipped with engine of 3 n.h.p. driving a screw.

Capt. C. H. Nicholson, Manager G.T.P.R. Pacific Coast Steamship Service, on his return from Great Britain, Mar. 16, said that the s.s. Prince Rupert was ready to start on her outward trip to Vancouver, by way of the Horn and that the s.s. Prince George would start about May 1. The first named would be operated in passenger and freight service between Prince Rupert, Vancouver, Victoria and Seattle, but it had not been decided whether the Prince George would also be placed on the same route, or on the Vancouver-Victoria-Seattle run. The s.s. Bruno would be operated between Vancouver, Queen Charlotte Islands and Portland Canal.

The G.T.P.R. steamship Prince George was launched at Wallsend-on-Tyne, Eng., Mar. 10, the christening ceremony being performed by Miss Hays, daughter of C. M. Hays, President G.T.R. and G.T.P.R., who in speaking on the accasion, said that faster boats with greater tonnage, between Great Britain and Canada must undoubtedly come as a result of an increased demand for Canadian grain in Great Britain, but unless there was a possibility of some attraction, some advantage or reason why such grain should come to England as against foreign grown grain, it would probably be some time before such vessels were needed.

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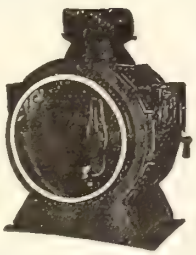

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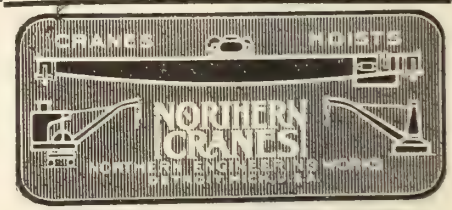

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Gates, Crossing
General Railway Signal Co. Rochester, N.Y.
The N. L. Piper Ry. Supply Co..Toronto.

Gauges, Locomotive
Taylor & Arnold.....Montreal.

Gears
American Vanadium Co.....Pittsburg, Pa.

Generators, Electric
Northern Electric & Mfg. Co.....Montreal.

Grates, Shaking
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.
Vandeleur & Nichols.....Toronto.

Groceries
The Hudson's Bay Company.....

Guides and Outfitters
Otto Bros. ..... Field, B.C.

Hammers, Cast Steel
American Brake Shoe & F'dry Co.Mahwah.
James Smart Mfg. Co....Brockville, Ont.

Handcars
Canadian Fairbanks Co., Ltd.....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Rice Lewis & Son.....Toronto.

Hardware
The Hudson's Bay Co.....
Rice Lewis & Son..'.....Toronto.

Hats
W. H. Coddington .....Hamilton, Ont.

Headlights
Commercial Acetylene Co. ..... Toronto.
The N. L. Piper Ry. Supply Co..Toronto.
Pyle National Elec. Headlight Co..Chicago.

Headlinings
Crossen Car Mfg. Co.....Cobourg, Ont.

Heaters, Feedwater
Robb Engineering Co., Ltd..Amherst, N.S.

Heating, Car
Canadian Gold Car H'g & L'g Co.Montreal.
Safety Car Heating & L'ting Co.New York.

Hoists, Electric
American Hoist & Derrick Co....St. Paul.

Hoists (Pneumatic)
Taylor & Arnold.....Montreal.

Hollow Staybolt Iron and Steel Bars
Falls Hollow Staybolt Co.Cuyahoga Falls.

Hoppers, Car (Wet or Dry)
Duner Co.....Chicago, Ill.

Hydrants
Canadian Fairbanks Co., Ltd.....Montreal.
Kerr Engine Co.....Walkerville, Ont.

Illustrations
Acton Burrows Limited.....Toronto.

Injectors
T. McAvity & Sons .....St. John, N.B.

Inspections
R. W. Hunt & Co. .....Montreal

Insurance, Accident
Can. Casualty & Boiler Ins. Co., Toronto.
Canadian Ry. Accident Ins. Co....Ottawa.
Imp. Guarantee & Acc. Ins. Co., Toronto.

Insurance, Boiler
Canadian Casualty & Boil. Ins. Co.Toronto.

Insurance, Vessel
Burnett, Ormsby & Clapp, Ltd., Toronto.

Interlocking Plant and Signals
General Railway Signal Co. Rochester, N.Y.
Montreal Steel Works.....Montreal.
Saxby and Farmer, Ltd.....Montreal.

Iron and Steel Bars
Hamilton Steel & Iron Co., Ltd..Hamilton.

Iron, Pig
Hamilton Steel & Iron Co., Ltd..Hamilton.
Nova Scotia S. & C. Co., New Glasgow, N.S.

Iron Signs
Acton Burrows Limited.....Toronto.

Iron Staybolt Bars
Falls Hollow Staybolt Co..Cuyahoga Falls.

Jacks
Canadian Fairbanks Co., Ltd.....Montreal.
Dominion Equip't & Supply Co., Winnipeg.
H and E Lifting Jack Co..Waterville, Que.
F. H. Hopkins & Co. Ltd.....Montreal.
Montreal Steel Works, Ltd.....Montreal.
Mussens Limited.....Montreal.
A. O. Norton.....Coaticook, Que.
James Smart Mfg. Co.....Brockville, Ont.
A. R. Williams Mchy. Co., Ltd....Toronto.

Japans
The Dougal Varnish Co. Ltd....Montreal.
Journal Bearings
Canadian Bronze Co.....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Kerr Engine Co.....Walkerville, Ont.
Jas. W. Pyke & Co.....Montreal.
Journal Boxes
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Journal Jacks
A. R. Williams Mchy. Co., Ltd....Toronto.
Lager Beer, &c.
E. L. Drewry..... .....Winnipeg.
Lagging and Covering, Locomotive
Taylor & Arnold.....Montreal.
Lamps, Arc
Northern Electric & Mfg. Co.....Montreal.
Lamps, Incandescent
Canadian Westinghouse Co..Hamilton, Ont.
Lamps and Lanterns
The Hudson's Bay Company.....
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Lamps, Switch
The N. L. Piper Ry. Supply Co..Toronto.
Lathes
John Bertram & Sons Co.....Dundas, Ont.
Laths
J. Harrison & Sons Co..Owen Sound, Ont.
Lighting, Car
Canadian Gold Car H'g & L'g Co.Montreal
Safety Car H't'g & L't'g Co..New York.
Lights, Contractors' and Wrecking
F. H. Hopkins & Co.....Montreal.
International Marine Signal Co. ..Ottawa.
Mussens Limited.....Montreal.
Locomotives (Compressed Air)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co...Kingston, Ont.
Montreal Locomotive W'ks (Ltd.)..Montreal.
Locomotives (Electric)
Baldwin Locomotive Works..Philadelphia.
Montreal Locomotive W'ks (Ltd.).Montreal.
Locomotives (Logging)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co....Kingston, Ont.
Locomotives (Rack)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co....Kingston, Ont.
Montreal Locomotive Works.....Montreal.
Locomotives (Steam)
American Car & Equip. Co....Chicago, Ill.
Baldwin Locomotive Works..Philadelphia.
R. M. Burns & Co.....Chicago, Ill.
Canadian Fairbanks Co., Ltd.....Montreal.
Canadian Locomotive Co....Kingston, Ont.
Dominion Equip't & Supply Co., Winnipeg.
J. T. Gardner.....Chicago, Ill.
Hicks Locomotive & Car Works..Chicago.
Montreal Locomotive W'ks. .....Montreal.
Vulcan Iron Works.....Wilkesbarre, Pa.
Lorries, Tracklaying
Crossen Car Mfg. Co.....Cobourg, Ont.
F. H. Hopkins & Co.....Montreal.
Lubricators
McCord & Co.....Chicago, Ill.
Taylor & Arnold.....'..Montreal.
Lumber
Parry Sound Lumber Co.....Toronto.
J. Harrison & Sons Co., Owen Sound, Ont.
Machinery, Cement
Jas. W. Pyke & Co.....Montreal.
Machinery and Plant, Contractors'
American Hoist & Derrick Co....St. Paul.
M. Beatty & Sons..... Welland, Ont.
R. M. Burns & Co.....Chicago, Ill.
Canadian Fairbanks Co., Ltd.....Montreal.
J. T. Gardner.....Chicago, Ill.
General Railway Signal Co., Rochester, N.Y.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Toronto Pressed Steel Co.....Toronto.
Machinery, Hoisting
American Hoist & Derrick Co....St. Paul.
Brown Hoisting Machinery Co..Cleveland.
Machinery, Tracklaying
F. H. Hopkins & Co.....Montreal.
Machinery, Logging
Russel Wheel & Fdry. Co....Detroit, Mich.
Machinery, Wood and Iron Working
Canadian Fairbanks Co., Ltd.....Montreal.
Machines, Boring and Turning
John Bertram & Sons Co.....Dundas, Ont.
Machines, Drilling
John Bertram & Sons Co.....Dundas, Ont.
Machines, Milling
John Bertram & Sons Co.....Dundas, Ont.
Machines, Planing and Shaping
John Bertram & Sons Co.....Dundas, Ont.
Machines, Radial Drilling
John Bertram & Sons Co.....Dundas, Ont.
Machines, Shaping
John Bertram & Sons Co.....Dundas, Ont.
Machines, Slotting
John Bertram & Sons Co.....Dundas, Ont.
Machine Tools
John Bertram & Sons Co.....Dundas, Ont.
Pratt & Whitney Co. .....Dundas, Ont.
Manhole Frames and Covers
American Brake Shoe & F'dry Co.Mahwah.
Canada Iron Corporation, Ltd....Montreal.
Marine Repairs
Goldschmidt Thermit Co.....Toronto.
Marine Supplies
Rice Lewis & Son.....Toronto.
Metal, Anti-friction
W. Abbott.....Montreal.
Metal, Babbit
Tallman Brass & Metal Mfg. Co. Hamilton.
Metals
Goldschmidt Thermit Co.....Toronto.
Metal Work, Structural
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Montreal Locomotive W'ks (Ltd.).Montreal.
Jas. W. Pyke & Co.....Montreal.
Milepost Numbers
Acton Burrows Limited.....Toronto.
Motors
Canadian Fairbanks Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Motors, Electric
Allis-Chalmers-Bullock Ltd.....Montreal.
Canadian Crocker Wheeler Co., Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co.....Montreal.
Vandeleur and Nichols.....Toronto.
Motor Generator Sets
Allis-Chalmers-Bullock Ltd.....Montreal.
Chapman & Walker, Ltd.....Toronto.
Vandeleur and Nichols.....Toronto.
Motors, Turntable
Taylor & Arnold.....Montreal.
Nickel
The Orford Copper Co.....New York.
Nickel for Nickel Steel
The Orford Copper Co.....New York.
Numbers
Acton Burrows Limited.....Toronto.
Nut Locks
Positive Lock Washer Co....Newark, N.J.
Nuts, Clevis
Cleveland City Forge & Iron Co., Cleveland.
Nuts, Square and Hexagon
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto
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The Hudson's Bay Company.....
Office Fittings
Can. Office & Sch'l Furniture Co..Preston.
Office Signs
Acton Burrows Limited.....Toronto.
Oils
Galena Signal Oil Co..Franklin & Toronto
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The N. L. Piper Ry. Supply Co..Toronto.
Paints
Standard Paint & Var. Co., Windsor, Ont.
Patterns
Hamilton Pattern Works....Hamilton, Ont.
Pile Drivers, Railway
F. H. Hopkins & Co.....Montreal.
Mussens Limited. .....Montreal.
Pinch Bars
The N. L. Piper Ry. Supply Co..Toronto.
Pipe, Culvert (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.
Pipe, Gas (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.
Pipe, Sewer (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.
Pipe Stocks
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.
Pipe, Water (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.
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Standard Coupler Co.....New York City.
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Mussens Limited.....Montreal.
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J. Harrison & Sons Co., Owen Sound, Ont.
Porter
E. L. Drewry.....Winnipeg
Posts
J. Harrison & Sons Co., Owen Sound, Ont
Powder, Blasting
Standard Explosives Limited.....Montreal
Printing
Southam Press.....Toronto.
Pumps
Canadian Fairbanks Co., Ltd.....Montreal.
S. F. Bowser & Co., Limited.....Toronto.
Ontario Wind Engine & Pump Co..Toronto.
James Smart Mfg. Co.....Brockville, Ont.
Vandeleur and Nichols.....Toronto.
Pumps (Centrifugal)
M. Beatty & Sons .....Welland, Ont.
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Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works.....Montreal.
Rail Drilling Machines
A. B. Jardine & Co.....Hespeler, Ont.
Rails (new)
Dominion Iron & Steel Co....Sydney, N.S.
Drummond, McCall & Co. .....Montreal.
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J. J. Gartshore.....Toronto.
F. H. Hopkins & Co...'.....Montreal.

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J. J. Gartshore.....Toronto.
Mussens Limited.....Montreal.
Jas. W. Pyke & Co.....Montreal.

Rail Joints
Goldschmidt Thermit Co.....Toronto.
The Rail Joint Co. of Canada....Montreal.

Railway Supplies
Canadian Fairbanks Co., Ltd.....Montreal.
T. McAvity & Sons .....St. John, N.B.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Rice Lewis & Son.....Toronto.
Burton W. Mudge & Co.....Chicago, Ill.
Russel Wheel & Fdry. Co....Detroit, Mich.

Reamers
Butterfield & Co.. .....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Replacers, Car and Locomotive
Alexander Car Replacer Mfg. Co..Scranton.
Dominion Equip't & Supply Co., Winnipeg.
The Holden Co., Ltd .....Montreal.
F. H. Hopkins & Co.....Montreal.

Rivets, Boiler, Bridge and Structural
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.

Rock Crushers
Allis-Chalmers-Bullock Ltd.....Montreal.
Willis Shaw Machinery Co...Chicago, Ill.

Rope
F. H. Hopkins & Co.....Montreal.
The Hudson's Bay Company.....

Ropes, Coal Haulage
The B. Greening Wire Co..Hamilton, Ont.

Ropes, Derrick
Dominion Wire Rope Co.....Montreal.
The B. Greening Wire Co..Hamilton, Ont.

Ropes, Switch
The B. Greening Wire Co..Hamilton, Ont.
F. H. Hopkins & Co.....Montreal.

Scales
Canadian Fairbanks Co., Ltd.....Montreal.

Scows, Dump and Deck
M. Beatty & Sons.....Welland, Ont.

Scrapers, Wheel and Drag
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.

Screw Plates
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Screws, Coach and Lag
Montreal Rolling Mills Co.....Montreal
Toronto Bolt and Forging Co.....Toronto.

Seats, Station
James Smart Mfg. Co....Brockville, Ont.

Semaphore Arms
Acton Burrows Limited.....Toronto.

Semaphores
General Railway Signal Co., Rochester, N.Y.
The N. L. Piper Ry. Supply Co..Toronto.
Saxby & Farmer, Ltd. .....Montreal.

Shafting, Hollow
Falls Hollow Staybolt Co..Cuyahoga Falls.

Shingles
J. Harrison & Sons Co..Owen Sound, Ont.

Ships
Polson Iron Works.....Toronto.

Shops
The Hudson's Bay Co.....

Signal House Numbers
Acton Burrows Limited.....Toronto.

Signals
General Railway Signal Co. Rochester, N.Y.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Saxby and Farmer, Limited.....Montreal.

Signals, Fog
International Marine Signal Co....Ottawa.

Signs
Acton Burrows Limited.....Toronto.

Skidders and Loaders
Russel Wheel & Fdry. Co....Detroit, Mich.

Slack Adjusters
Chicago Railway Equipment Co..Chicago.

Sledges
James Smart Mfg. Co.....Brockville, Ont.

Smoke Jacks
Paul Dickinson, Inc. ..... Chicago, Ill.

Snow Ploughs
Canadian Car & Foundry Co.....Montreal
Crossen Car Mfg. Co.....Cobourg, Ont.

Solder
Tallman Brass & Metal Mfg. Co. Hamilton.

Spikes, Railway, Ship or Pressed
Hamilton Steel & Iron Co., Ltd.Hamilton.
F. H. Hopkins & Co.....Montreal.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Toronto Bolt and Forging Co.....Toronto.

Spreader Cars
F. H. Hopkins & Co.....Montreal.

Spring Dampeners
McCord & Co.....Chicago, Ill.

Springs
American Vanadium Co.....Pittsburg, Pa.
B. J. Coghlin & Co.....Montreal.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works.....Montreal.
Standard Steel Works Co..Philadelphia, Pa.

Stand Pipes
T. McAvity & Sons .....St. John, N.B.

Sprinklers, Electric
Preston Car & Coach Co. .. Preston, Ont.

Station Name Signs
Acton Burrows Limited.....Toronto.

Staybolt Bars, Charcoal Iron
Falls Hollow Staybolt Co..Cuyahoga Falls.

Staybolt Iron
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Taylor & Arnold.....Montreal.

Staybolt Iron or Steel Bars, Hollow
Falls Hollow Staybolt Co., Cuyahoga Falls.

Staybolts, Flexible
Flannery Bolt Co.....Pittsburg, Pa.

Staybolts, Locomotive
Falls Hollow Staybolt Co..Cuyahoga Falls.
Flannery Bolt Co.....Pittsburg, Pa.

Staybolt Taps
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Steam Couplers
Safety Car H't'g & L't'g Co....New York.

Steam Hammers
John Bertram & Sons Co.....Dundas, Ont.

Steam Shovels
M. Beatty & Son.....Welland, Ont.
R. M. Burns & Co.....Chicago, Ill.
F. H. Honkins & Co.....Montreal.
Mussens Limited.....Montreal.
Willis Shaw Machinery Co. .. Chicago, Ill.

Steamship Signs
Acton Burrows Limited.....Toronto.

Steel
W. Abbott...'.....Montreal.
Hermann Boker & Co. .....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Wm. Jessop & Sons.....Sheffield, Eng.

Steel, Fire Box
Taylor & Arnold.....Montreal.

Steel for Axes
Montreal Steel Works.....Montreal.

Steel for Saws
Montreal Steel Works.....Montreal.

Steel for Springs
James Hutton & Co.....Montreal.

Steel Shafting
Nova Scotia S. & C. Co., New Glasgow, N.S.

Steel, Speedicut High Speed
Montreal Steel Works.....Montreal.

Steel, Nickel, for Nickel
The Orford Copper Co.....New York.

Steel Plates
Jas. W. Pyke & Co.....Montreal.

Steel, Tool
W. Jessop & Sons.....Sheffield, Eng.
Montreal Steel Works.....Montreal.

Stokers, Mechanical
Babcock & Wilcox (Ltd.).....Montreal.

Stoves
James Smart Mfg. Co.....Brockville, Ont.

Superheaters
Babcock & Wilcox (Ltd.).....Montreal.

Switches
Canadian Ramapo Iron W's Ld.Niagara Fs.
Montreal Steel Works.....Montreal.

Switch Stands
Canadian Ramapo Iron W's, Ld.Niagara Fs

Switch Targets
Acton Burrows Limited.....Toronto.

Tanks and Tank Fixtures
Ontario Wind Engine & Pump Co..Toronto.
Polson Iron Works, Ltd. .....Toronto.

Tanks, Oil
S. F. Bowser & Co., Limited.....Toronto.

Tapes, Measuring
Lufkin Rule Co .....Saginaw, Mich.

Taps
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Telegraph and Telephone Apparatus
Northern Electric & Mfg. Co.....Montreal.

Telegraph and Telephone Office Signs
Acton Burrows Limited.....Toronto.

Thermit
Goldschmidt Thermit Co.....Toronto

Ticket Cases
Can. Office & School Furniture Co.Preston.

Tie Plates
B. J. Coghlin & Co.....Montreal.
Hamilton Steel & Iron Co..Hamilton, Ont.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
J. Harrison & Sons Co..Owen Sound, Ont.

Tie Plugs
J. Harrison & Sons Co..Owen Sound, Ont.

Ties
J. Harrison & Sons Co..Owen Sound, Ont.
Parry Sound Lumber Co.....Toronto.

Tires, Steel
James Hutton & Co.....Montreal
Jas. W. Pyke & Co.....Montreal.
Standard Steel Works Co..Philadelphia, Pa.

Tools and Supplies
Canadian Fairbanks Co., Ltd.....Montreal.
James Smart Mfg. Co.....Brockville, Ont.
A. B. Jardine & Co.....Hespeler, Ont.
Pratt & Whitney Co. .....Dundas, Ont.

Tools, Track
John Bertram & Sons Co.....Dundas, Ont.
B. J. Coghlin & Co.....Montreal.
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works.....Montreal.
Mussens Limited.....Montreal.

Tools, Pneumatic
The Holden Co., Ltd.....Montreal.

Tools, Cast Steel Track
American Brake Shoe & F'dry Co.Mahwah.

Track Equipment
Canadian Ramapo Iron W's Ld.Niagara Fs.

Tramway Equipment
J. J. Gartshore.....Toronto.

Transformers
Allis-Chalmers-Bullock Ltd.....Montreal.

Transmission Appliances
Canadian Fairbanks Co., Ltd.....Montreal.

Trolley Wheels
Tallman Brass & Metal Co., Ltd.Hamilton.

Trucks
James Smart Mfg. Co.....Brockville, Ont.

Trucks (Electric Car)
Baldwin Locomotive Works..Philadelphia.
Montreal Steel Works.....Montreal.

Trusses, Roof
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.

Tubes, Boiler
Jas. W. Pyke & Co.....Montreal.

Turbines, Steam
Allis-Chalmers-Bullock Ltd.....Montreal.

Turnbuckles
Cleveland City Forge & Iron Co..Cleveland.
Montreal Steel Works.....Montreal.

Turntables
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.

Typewriters
United Typewriter Co.....Toronto.

Valves, Brass Gate
Kerr Engine Co.....Walkerville, Ont.

Valves, Brass Globe
Kerr Engine Co.....Walkerville, Ont.

Valves, Iron and Brass
Canadian Fairbanks Co., Ltd.....Montreal.

Valves, Iron Gate
Kerr Engine Co.....Walkerville, Ont

Valves, Locomotive Pop
T. McAvity & Sons .....St. John, N.B.
Taylor & Arnold.....Montreal.

Vanadium Steels
American Vanadium Co.....Pittsburg, Pa.

Varnishes
The Dougal Varnish Co., Ltd....Montreal.
Standard Paint & Var. Co., Windsor, Ont.

Ventilators
Paul Dickinson, Inc. ..... Chicago, Ill.

Vessels
Polson Iron Works.....Toronto.

Washers
Montreal Rolling Mills Co.....Montreal.

Waste
B. J. Coghlin & Co.....Montreal.
N.L. Piper Railway Supply Co....Toronto.

Water Softeners
Babcock & Wilcox, Ltd.....Montreal.
L. M. Booth Co.....Chicago, Ill.

Welding
Goldschmidt Thermit Co.....Toronto.

Wheelbarrows
F. H. Hopkins & Co.....Montreal.

Wheels, Car
Canadian Car & Foundry Co....Montreal.
Canada Iron Corporation, Ltd....Montreal.
Jas. W. Pyke & Co.....Montreal.
Standard Steel Works Co..Philadelphia, Pa.

Wheels, Locomotive
Canada Iron Corporation, Ltd....Montreal.

Wheels, Rolled, solid forged
Standard Steel Works Co..Philadelphia, Pa.

Wheels, Steel tired
Standard Steel Works Co..Philadelphia, Pa.

Windmills
Ontario Wind Engine & Pump Co..Toronto.

Wire and Wire Rope
Dominion Wire Rope Co.....Montreal.
The B. Greening Wire Co..Hamilton, Ont.
Mussens Limited.....Montreal.
The Wire and Cable Co.....Montreal.

Wire Cloth
The B. Greening Wire Co..Hamilton, Ont.

Wire, Copper
E. F. Phillips Elec. Works, Ltd..Montreal.
The Wire and Cable Co.....Montreal.

Wire, Electric
Chapman & Walker, Ltd.....Toronto.
E. F. Phillips Elec. Works, Ltd..Montreal.
The Wire and Cable Co.....Montreal.

Wire, Insulated Copper
E. F. Phillips Elec. Works, Ltd..Montreal.
The Wire and Cable Co.....Montreal.

Wire Rope Clips
American Hoist & Derrick Co.....St. Paul.

Wire, Telegraph and Telephone
Chapman & Walker, Ltd.....Toronto.
E. F. Phillips Elec. Works, Ltd..Montreal.
The Wire and Cable Co.....Montreal.

Wire, Transmission and Trolley
Chapman & Walker, Ltd.....Toronto.
The Wire and Cable Co.....Montreal.

Wire
American Vanadium Co.....Pittsburg, Pa.

Wrenches, Cast Steel
American Brake Shoe & F'dry Co.Mahwah.

Yachts
Polson Iron Works, Ltd.....Toronto.

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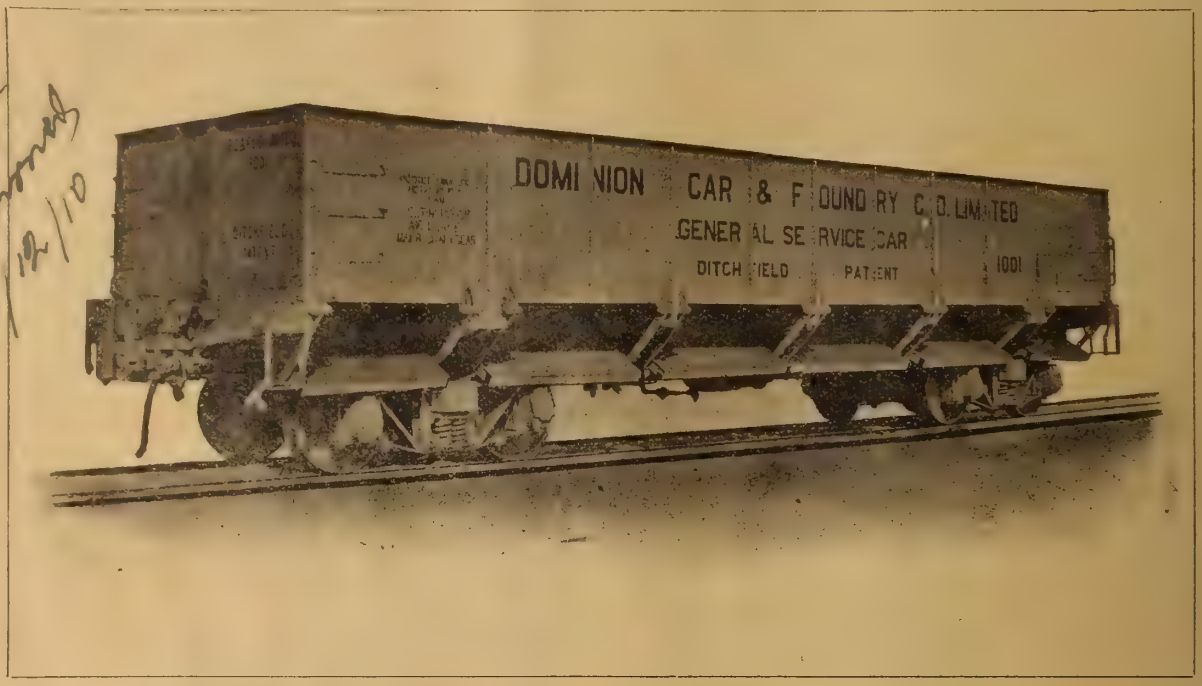

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PRESTON, ONT. Limited

— MANUFACTURERS OF —

Steam and Electric Railway Cars

Automobile Bodies and Special Carriages

Additional safety and economy in

TRACK MAINTENANCE

has been proven by the use of Continuous, Weber and Wolhaupter base-supported rail joints—after fourteen years' service, having a record of over 50,000 miles in use—the extent of which is evidence of their excellence.

THE RAIL JOINT CO. OF CANADA

See Advt. Page 366.

MUSSENS LIMITED

Railway, Mining and Contractors' Supplies

See Advt. Page 344.

THE OTTAWA CAR CO.

BUILDERS OF Limited

Electric Cars, Fine Carriages, Wagons, Sleighs, Etc.

Office and Works: Slater St., OTTAWA

Tallman Brass & Metal Co.

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Manufacturers RAILWAY VARNISHES and JAPANS

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MURPHY VARNISH CO'S VARNISHES, SURFACERS AND ENAMELS

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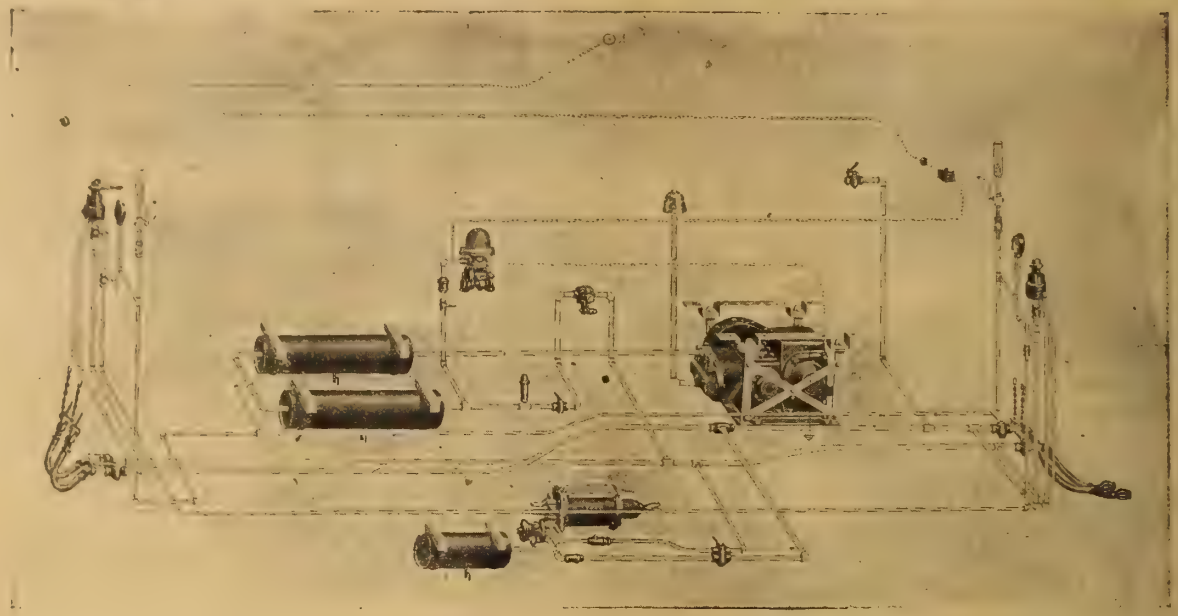

The diagramatical illustration graphically shows the small number of parts and simplicity of the equipment.

Canadian Westinghouse Co., Limited

General Office and Works, HAMILTON, ONT.

Traders Bank Building
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439 Pender Street, VANCOUVER

For Particulars Address Nearest Office
311 8th Street, West, CALGARY
158 Portage Avenue East, WINNIPEG

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MONTREAL
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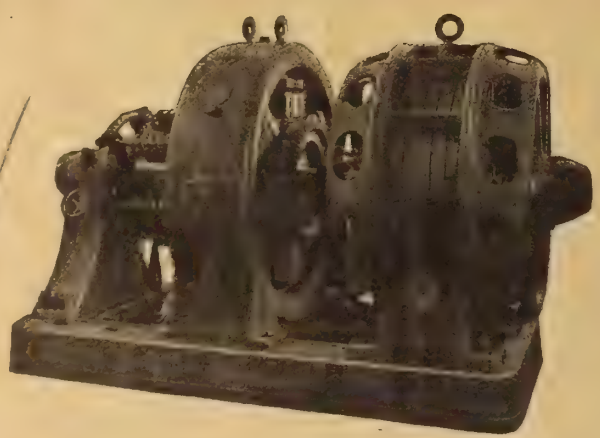
MOTOR-GENERATOR SETS



Motor-Generator Sets specially designed to meet the heavy overload capacity demanded in street railway work.

ALLIS-CHALMERS-BULLOCK

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Sales Offices, - MONTREAL, TORONTO, WINNIPEG, VANCOUVER

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See Alphabetical Index to Advertisements on page 377

THE

Railway and Marine World

With which are incorporated The Western World and The Railway and Shipping World, Established 1890

Devoted to Steam and Electric Railway, Marine, Grain Elevator, Express, Telegraph, Telephone and Contractors' interests

Old Series, No. 229.
New Series, No 147.

TORONTO, CANADA, MAY, 1910.

For Subscription Rates, See page 377.

Grade Separation.

By W. H. Breithaupt, M. Can. Soc. C.E.

Two bodies cannot occupy the same space. Of two intersecting lines of traffic on the same plane neither can be continuous; each must be intermittent, must stop, or change direction, while the other passes. And while each line may be naturally intermittent, may consist of detached units, if its units pass at variable and unrelated intervals, liability for two units, one on each line, to meet at the point of intersection remains unchecked. If either line is fixed in direction, as on a railway, and cannot turn aside, the danger of interference increases; and increases more if both lines are so fixed. The fact that the only safe crossing of street or highway and railway, or of railway and railway, is in placing one above the other, and thus giving each a free and unobstructed course, is an axiom. No so-called protected crossing—a grade crossing with gates, signals, derails and other appliances, or any of them, operated by attendants, or automatically—has been found to be ultimately safe. Separation of grades has in addition to safety, the further great advantage of elimination of delay and of maintenance and operating cost. This paper aims to give existing conditions governing the practicability of grade separation. The physical laws for grade separation are summed up in two:

1. The structure carrying the upper line of traffic must be sufficiently high above the lower traffic way to clear all objects passing on the latter.

2. The grade on either traffic way, approaching the crossing, must be practicable for the traffic thereon.

The maximum height of loaded vehicles and any objects thereon on city streets or country highways has been accepted as 14 ft. This height is also sufficient to clear regular street railway traffic. While higher objects are moved along roads occasionally, it is properly not considered necessary to endanger the practicability of crossings under railways to accommodate them. With the railway on moderate embankment, undercrossings of roads, subways as they are called, become readily practicable. In many cases it is possible to sufficiently change the grade both of railway and road to meet requirements for a subway. Sometimes a deviation of the road, or change of location for a short distance, is practicable, and greatly simplifies the desired grade separation.

The vertical clearance, top of rail to bridge, required over railway tracks is in most cases much higher than over roads, and this constitutes, in the great majority of cases, the insurmountable obstacle to grade separation. The highest fixed projection on an ordinary railway train is the locomotive smoke stack, and passenger cars project higher than the great bulk of freight cars; but some, comparatively extremely few, special freight cars are higher than either passenger cars or locomotive stacks. The extreme clearance requirement is for height, top of rail to running board, of highest car, height of brakeman added thereto, and a further allowance for contingencies, among which may be height of load of light material on an open car

P 202 M. S. BLAKLOCK
Engineer Maintenance of Way, Grand Trunk Ry.

exceeding maximum box car height. There are on the railways of standard gauge in the United States, Canada, and Mexico, about 2,377,282 freight cars of all kinds. They classify as to height, rail to running board, as follows:

Under 12 ft. including flat, gondola, and [illegible]	63.1	per cent
12 ft. to 13 ft.	23.4	" "
13 ft. to 13 ft. 6 in. inclusive...	11.9	" "
13 ft. 6 in. to 14 ft. inclusive..	0.65	" "
Over 14 ft.	0.95	" "

Of the total number of freight cars 98.4% are 13½ ft. high or under, and only 1.6% are higher than 13½ ft.; and Canada, has not fixed a standard for box less than 1% higher than 14 ft. Considering main trunk lines, the Pennsylvania Rd., Baltimore and Ohio, Erie, Lehigh Valley, Great Northern, and a number of others, i.e., as far as known, with a small percentage of cars having dimensions not ascertained, among the latter the Grand Trunk and Canadian Pacific Railways, have either none or less than ¼ of 1% of freight cars over 13½ ft. to running board.

The M.C.B. Association, whose standards are adopted by railways on the North American continent and are recognized by the Board of Railway Commissioners for Canada, has not fixed a standard for box car dimensions, but adopted in 1904, as recommended practice, a height of 12 ft. ¾ in. to eaves, equivalent to less than 13 ft. height to running board. High standard cars are such as the G.T. Pacific series 300000—310824, 13 ft. 4 in., and the C.P.R. new steel frame box car series 130000—132998, 13 ft. 4¾ in. The highest regular C.P.R. freight cars are 13½ ft. to running board and this may be said of most of the main trunk lines of railways. The highest Pennsylvania Railroad freight cars are 13 ft. 4 in.

Limits of car dimensions are fixed by clearance outlines on the various railways. A composite clearance limit diagram for 90 railways, including all Canadian trunk lines, has a height of 14½ ft., limiting "over all" height of cars to this figure and practically limiting height of top of running board of freight cars to 14 ft. In the G.T.R. St. Clair tunnel, the clearance height at width of 3 ft. is 14 ft. It is true that on many divisions or branches of the lines considered, the clearance is somewhat greater than shown in the composite diagram referred to, while on the other hand, it is less on a number of main lines, and on many branch lines. An empty freight car 14 ft. high will on 5 ft. (out to out of rails) transverse base not resist a 30 lb. wind pressure when standing alone.

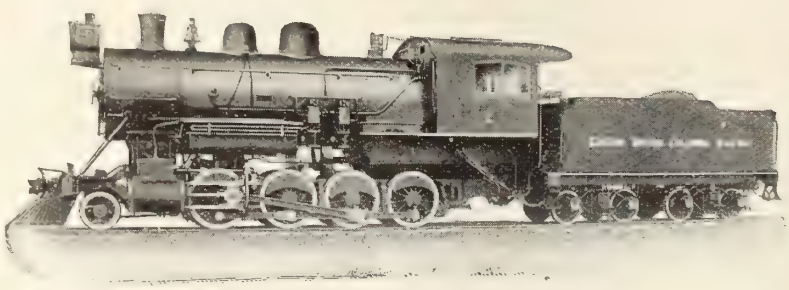
The limit of grade, approaching crossings, can for railways be taken as between 0.5 of 1% and 1%. For city streets a grade of 5% is in most cases extreme and it should be so for main country highways. A preferable maximum grade for roads is 4%, and 3% is materially better. This works out as follows:

Five per cent. grade 20x2=40 ft. length of approaches for every vertical foot of clearance.

Four per cent. grade 25 x 2=50 ft. length of approaches for every vertical foot of clearance.

Three per cent. grade 33 ft. 4 in. x 2=66 ft. 8 in. length of approaches for every vertical foot of clearance.

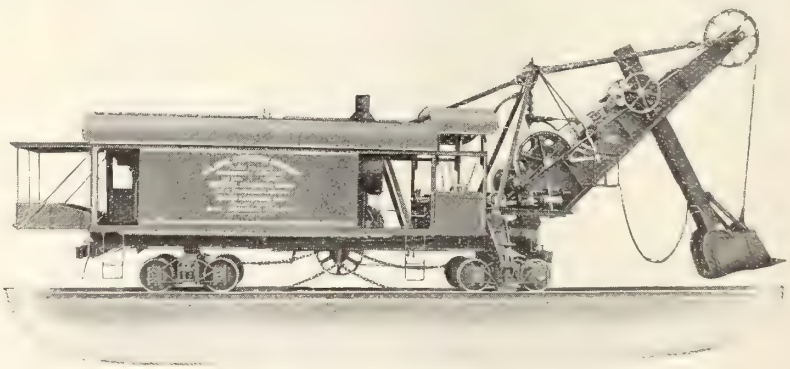
LOCOMOTIVES FOR ALL CLASSES OF SERVICE



Consolidation Type Freight Locomotive, Built for Eastern British Columbia Railway.

Total weight of engine in working order, 186,310 pounds. Weight on driving wheels, 166,100 pounds. Diameter of driving wheels, 51 inches. Boiler pressure, 210 pounds. Cylinders, 20 x 28 inches. Maximum tractive power, 39,200 pounds.

ATLANTIC STEAM SHOVEL



Direct wire rope hoist with but one sheave, instead of chain hoist with from five to seven sheaves, reduces delays and loss of time due to breakdowns, increases the efficiency of the engines, and reduces repair bills as well as fuel consumption.

Finished, interchangeable spare parts always on hand at works.

MONTREAL LOCOMOTIVE WORKS, LIMITED

BANK OF OTTAWA BUILDING, MONTREAL, CANADA

Any gain, by curtailment of vertical clearance requirement, or by change of railway grade, or by both, means corresponding shortening of road approaches, at the high ends. Such a gain of 1 ft. may greatly reduce the cost of a given grade separation, making it practicable when it would not otherwise be so. A vertical gain of 2 ft. would mean a very large addition to the number of practicable grade separations.

The extreme allowance that should be made for brakemen on a car must not exceed 7 ft.; 6½ will clear any brakeman unless he should be over 6 ft. tall, and 6 ft. brakemen are not common, to say the least. What is to be said for the contention, seriously made, that the brakeman on the running board of highest known car, should be allowed room to swing his lantern over his head? The necessity for brakemen on the tops of cars is becoming less and less, and has in many cases disappeared, rules and regulations of railway companies to the contrary notwithstanding. The air brake is now universally used in train control. In Canada the orders of the Board of Railway Commissioners, in force since Dec., 1908, provide that no regular freight train shall be allowed to proceed on its journey unless at least three-quarters of the cars comprising it are equipped with air brakes in good working order; also that every freight car built shall be equipped with air brakes and with operating levers on both sides of the end.

A stage is reached in the traffic of railways when grade crossings become intolerable, and when the risk and interruption due to them becomes more expensive than their elimination. In Europe, grade crossings, in any considerable centres of population are the exception, and this may soon be said also of main trunk line railways in the older parts of the United States. The Pennsylvania Rd. makes it a rule to avoid all grade crossings on new work, and has within the last nine or ten years eliminated over 50% of all its grade crossings on main lines. To do this clearance must be made as low as possible. Overhead bridges are as low as 16½ ft. above top of rail, while many are 18½ ft. and less. Twenty-one ft., the standard for signal bridges, is recognized as the highest clearance for which there can be any need. In New York State many overhead bridges are only 18 ft. above the top of rail, and this is the case also in Massachusetts and in other states. The New York Central and H.R. Rd. has asked for 16 ft. or 16½ ft. clearance for all overhead bridges within the electric zone, extending 16 miles from the Grand Central Station, New York.

Electric traction within limits for such large centres of traffic as Montreal and Toronto, with hydro-electric energy, abundant or soon to be, is easily within the range of probability in the not distant future. Smoke abatement alone points in this direction. The vexed question of grade separation would at once assume an entirely different aspect if these conditions were accompanied by a cutting down of the vertical clearance requirements to 17 ft. or even to 18 ft.

It is submitted that with conditions as they are and more so with regard to the future, 20 ft. (13½ ft. for car and 6½ ft. for man), is a reasonable vertical clearance. It has been shown that 13½ ft. covers the height to running board of all but a very small percentage of freight cars now in use, and that cars higher than 14 ft. to running board, i.e., higher than 14½ ft. over all, or to top of brake rod, can only to a limited extent traverse beyond their home railways. That higher cars will be economical or practicable is as little probable as that the gauge of railways will be widened or their entire structure changed. For a vertical clearance requirement greater than 21 ft. (14 ft. plus 7 ft), there can, in any event, be no conceivable rational need.

In the United States there is no federal law fixing vertical clearance for bridges over railways. A number of states deal with the question. In Massachusetts there is a special Grade Crossing Commission. The minimum clearance required by this Commission is in general 18 ft. Connecticut and Rhode Island also specify 18 ft. In New York the Public Service Commission has charge of grade crossing regulations. While this Commission requires 21 ft. clearance where practicable, many lower bridges are built throughout the state, some, as already stated, are as low as 16½ ft. New Hampshire, Ohio, and Indiana require 21 ft. The only states requiring more are Illinois and Vermont, where 22 ft. is specified, but exception is made where this height is not practicable. In all other States there is no statute or regulation, as far as has been ascertained, and heights of overhead bridges vary from 16 or 18 ft. to 22 ft.

In Canada the Dominion Railway Act of 1904 specifies a minimum clearance of 22½ ft. above rail top for bridges over railways, with no deviation except by leave of the Board of Railway Commissioners; and this board has hitherto not allowed a deviation in any case.

The foregoing paper was read before the Canadian Society of Civil Engineers recently.

The Temiskaming and Northern Ontario Ry. Commission has decided to send engineers to make a thorough examination and test of the lignite beds discovered on the projected route of the line north from Cochrane, Ont.

A General Superintendent's Opinion.

Alfred Price, General Superintendent Western Division, Canadian Pacific Ry., is well known in Eastern Canada, the scene of his earlier activities, as he is also in Western Canada, where for the last seven years he has occupied prominent positions in the company's service. He has had a most valuable all round experience as messenger, operator, car accountant, train dispatcher, car distributor, chief train dispatcher, superintendent,Superintendent of Transportation and General Superintendent. and is consequently in a position to speak with authority on railway matters. We therefore specially value the following which he favored us with a short time ago:—

Canadian Pacific Railway.
General Superintendent's Office.
Calgary, Alta., Oct. 21, 1909.

To a railroader who desires to keep in touch with current railway news and alive to the railway development of our country, I consider it essential that he read the Railway and Marine World. Its distinguishing characteristic is its reliability.

A. PRICE.

That Mr. Price's opinion of our paper is shared by railway men generally is shown by its thorough circulation among all classes of them throughout every province of the Dominion and in Newfoundland. What Mr. Price describes as "its distinguishing characteristic, its reliability," has caused it to be absolutely relied on, and as a consequence it is thoroughly read by its subscribers, and is of correspondingly value to its advertisers.

May Birthdays.

Many happy returns of the day to—

W. R. Baker, Secretary and Assistant to President C.P.R., Montreal, born at York, Eng., May 25, 1852.

G. S. Cantlie, General Superintendent Car Service C.P.R., Montreal, born there May 2, 1867.

M. Donaldson, Superintendent Ottawa Division G.T.R., Ottawa, Ont., born near Edinburgh, Scotland, May 1, 1851.

G. C. Dunn, District Engineer G.T.P.R., Winnipeg, born at Quebec, May 13, 1862.

J. D. Evans, Chief Engineer Central Ontario Railway, Trenton, Ont., born at Goderich, Ont., May 27, 1843.

E. T. Galt, President Alberta Railway and Irrigation Co., Montreal, born at Sherbrooke, Que., May 24, 1850.

C. M. Hays, President G.T.R., and G.T.P.R., Montreal, born at Rock Island, Ill., May 16, 1856.

G. H. Hedge, Assistant Master Mechanic C.N.R., Winnipeg, born at Neath, Wales, May 26, 1865.

R. B. Hepburn, President and General Manager Ontario and Quebec Navigation Co., Picton, Ont., born there May 27, 1876.

W. T. Huggan, Accountant and Auditor, Prince Edward Island Railway, Charlottetown, P.E.I., born at Halifax, N.S., May 24, 1851.

W. S. Kinnear, Assistant General Manager Michigan Central Rd., and Chief Engineer Detroit River Tunnel, Detroit, Mich., born at Circleville, Ohio, May 25, 1864.

W. Marshall, Superintendent C.P.R. Telegraphs, Ontario Division, Toronto, born at Garden Island, Ont., May 18, 1859.

M. Neilson, C.E., Consulting Engineer, Montreal Street Railway, born at Almonte, Ont., May 26, 1852.

A. L. Ogilvy, General Purchasing Agent, National Transcontinental Railway Commission, Ottawa, Ont., born at Richwood, Oxford County, Ont., May 23, 1868.

Hayter Reed, Manager-in-Chief C.P.R. hotels, Montreal, born at L'Orignal, Ont., May 26, 1849.

H. B. Sherwood, Superintendent Bay of Quinte Railway, Napanee, Ont., born at Auburn, N.Y., May 25, 1847.

E. Tiffin, Member Government Railways Managing Board and General Traffic Manager I.C.R., Moncton, N.B., born at Hamilton, Ont., May 5, 1849.

J. H. Walsh, General Manager Quebec Central Railway, Sherbrooke, Que., born at Quebec, May 12, 1860.

H. K. Wicksteed, Chief Engineer of Location, Mackenzie, Mann & Co., Ltd., Toronto, born at Quebec, May 25, 1855.

James Yeo, ex-Roadmaster Intercolonial Railway, Riviere du Loup, Que., born at Bideford, Devonshire, Eng., May 1, 1830.

Railway Subsidy Lands in British Columbia.—Under an act passed last session of the British Columbia Legislature, the Government is authorized to enter into conditional agreements to acquire for the province by purchase, exchange or otherwise, any lands granted by it in aid of the construction of railways, and to pay the whole or part of the purchase price of such lands by the issue to the vendor of inscribed stock of the province, or otherwise. All lands acquired under the act shall, after their acquisition, be subject to the provisions of the Land Act. No agreement is to take effect until it has been ratified by the Legislature.

The G.T.R. started running through trains from Montreal to Manitoba, Saskatchewan and Alberta, running over the company's own lines to Chicago, Ill.; thence by U.S. connections to Winnipeg, and from there over the G.T.P.R.

MONTREAL STEEL WORKS, LIMITED

P. O. BOX 2369 MONTREAL

MANUFACTURERS OF

STEEL CASTINGS (Acid Open Hearth System)

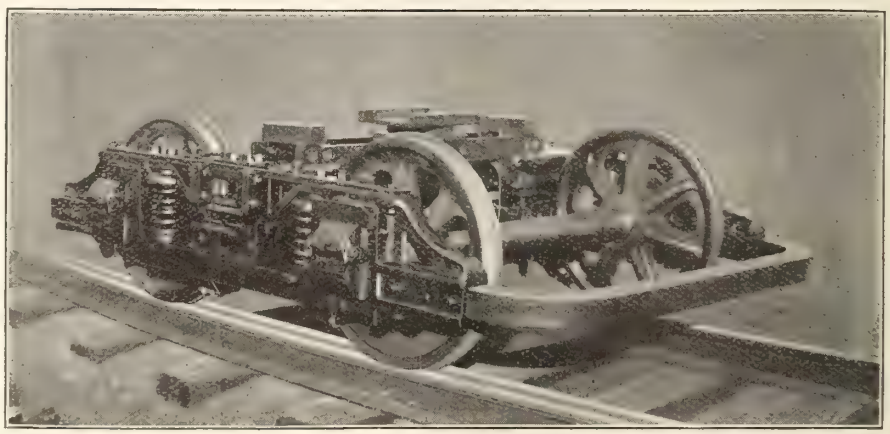
SWITCHES AND TRACK WORK for Steam and Electric Roads

MANGANESE STEEL CASTINGS for wearing Parts, insuring Great Hardness and Durability

SPRINGS OF ALL KINDS

TOWER, CLIMAX and SHARON COUPLERS and PARTS THEREOF for PASSENGER and FREIGHT CARS and LOCOMOTIVES

INTER-LOCKING PLANTS



TRUCKS FOR ELECTRIC CARS

AGENTS FOR CANADA FOR

THOS. FIRTH & SONS, LIMITED
Sheffield, England

"Speedicut" High Speed Steel, Tool Steel, Axe Steel, Saw Steel, Files, etc.
A large stock carried in our warehouse.

BARROW HÆMATITE STEEL CO.
Barrow-in-Furness, England

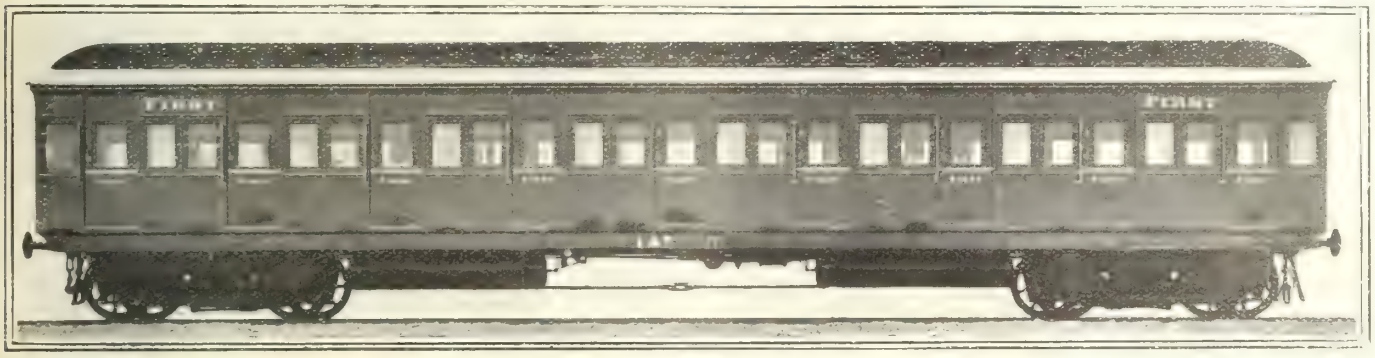
Quotations for Tee Rails, Fish Plates, etc., promptly furnished.
Catalogues sent on application.

TORONTO OFFICE: 703 TEMPLE BUILDING **P. O. BOX 82**

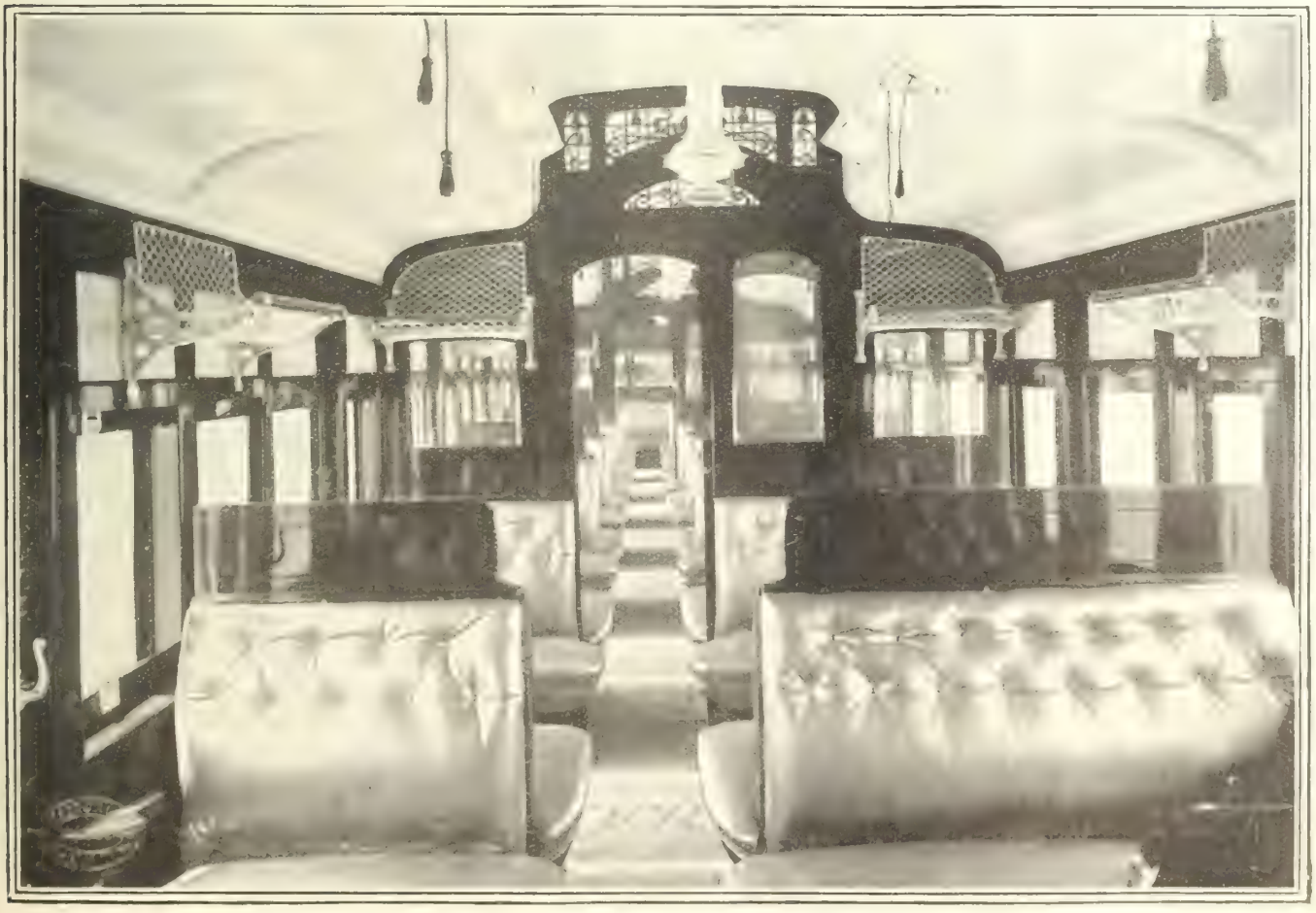
The Tait Suburban Car.

A very large traffic is dealt with by the Victorian Railways Commissioners on their suburban lines at Melbourne, Australia. The number of suburban passengers carried on these lines during the year ended June 30, 1909, was 74,541,-251, and the revenue derived therefrom £746,844. About 1,300 suburban trains and 150,000 passengers arrive and leave the central passenger terminal every day. When Thos. Tait, Chairman of the Victorian Railways Commissioners and formerly of the C.P.R. service, was in Europe and America three years ago he inspected various types of suburban carriages then in use, including those which had just been constructed for service on the Hamburg-Altona line and the suburban cars running on the Illinois Central Ry. at Chicago, and as a result of his observations the car, of which illustrations are given in this issue has been designed to meet the requirements of the Melbourne suburban traffic.

The most notable departures in this car from the suburban carriage hitherto in use at Melbourne, which is of the ordinary cross-compartment non-corridor type with swinging doors for each compartment, are the provision of a passage-way and the substitution of sliding doors for the swinging doors. The object of the passage-way is to permit of passengers distributing themselves through the car, thus obviating what frequently happens in the cars hitherto used, viz., overcrowding in one compartment when there may be vacant seats in other compartments. In order that the seating accommodation would not be diminished by the provision of this passage-way the cars have been made about a foot wider and this has necessitated the use of sliding doors as there would not be sufficient clearance of other trains on double tracks or of structures if swinging doors were used. Apart from this consideration, however, sliding doors are considered to be an advantage as they will do away with the noise and danger and some of the expense now contingent on the opening and closing of swinging doors, but, what is more important—in the event of the electrification of the Melbourne suburban lines—one of the principal advantages of electric traction, viz., the possible quick acceleration from stations will not be lost owing to trains having to be started slowly to permit of the swinging doors being closed and fastened. In this connection it may be mentioned that it is intended that passengers shall open and close the sliding doors themselves and that this will permit of some reduction in the station platform staff being effected. It may also be mentioned that, apart from the locomotive driver and fireman, only one man—a guard who travels in the compartment provided for the purpose at the extreme rear end of the train—is employed on the Melbourne suburban trains. The provisions of a passage-way and of a door on each side of the car for each pair of seats combines the advantage of the American car or of a corridor car in enabling passengers to distribute themselves to the best advantage throughout the car with the advantage of quick ingress and egress of passengers afforded by the



Exterior of the Tait Suburban Car.



Interior of the Tait Suburban Car, First Class.

Results Are What Count

A Combined Skidding and Loading Machine that will clear up the largest area at a setting and can be moved and set up ready for business in the shortest possible time will get the best results

The latest Russel Machine has some distinct improvements that save time and trouble, consequently money. Note the new method of suspending the skidding sheaves. They are hung from a vertically hinged jib or triangle the outer end of which is guyed by two lines, one on each side, which are power tightened and can be set while skidding lines are going out. The guy lines lead back so they do not interfere with either skidding or loading.

The uppermost leg of the jib has a spring connection to the tower, reducing shocks. All strains due to skidding are absorbed by the guy lines. The swinging boom is operated by wire ropes passing through sheaves suspended from a steel frame projecting from the tower and leading to two drums on loading engine, controlled by one lever. Machine is raised or lowered by hydraulic or patented geared jacks.

Built for 2 or 4 lines with stiff or swinging boom. Constructed entirely of steel, except loading boom.

IS WITHOUT QUESTION THE STRONGEST AND FASTEST MACHINE OF THE DAY

LOGGING CARS AND DUMP CARS

RUSSEL WHEEL & FOUNDRY CO.

Detroit, Mich., U.S.A.

Train of Tait Suburban Cars on the Victorian Railways.

European ordinary cross compartment car with side doors for each compartment.

The new cars are 57 ft. 4½ in. long over the bodies and are divided into three large compartments, separated by partitions fitted with sliding doors and glass panels so that passengers can see from one compartment into the other. These partitions will prevent too much draught through the car and will provide sub-divisions as required for smokers, etc. Each car will comfortably seat 92 passengers, two on each seat on one side of the passage-way, three on each seat on the other side, and six on the seat at each end of the car, and in emergencies many more passengers can find reasonable seating and better standing accommodation than in the existing carriages. A feature of these cars is that being a foot wider, which brings them to the full width of the footboards of the cars hitherto used and in line approximately with the nosing of the platforms, and the floors being designedly low, no footboards will be required, and there will be only one step—of about 10 ins.—between the car floor and the station platform. The end of the guard's van compartment has been made elliptical in shape, with a view to it being used as a motor compartment in the event of electrification, and a wide landing for the guard has been provided in the doorway of this compartment. It has not been considered advisable to provide moveable sashes at those windows past which the doors slide owing to the possibility of injury to passengers' arms or hands in the event of the doors being incautionsly opened, but ample provision has been made for ventilation.

Steel has been used largely in the construction of the bodies, and the underframes and bogies are entirely of steel. The whole of the external panelling is of steel and the interior ceilings and panels are of embossed steel of Australian manufacture suitably painted and grained. The body framing and pillars are of teak, and Australian cedar and maple have been used in the linings, mouldings, etc., of the interior. The seats are upholstered in Australian green leather. In the design and finish of the interior all sharp angles and corners or other receptacles for dust and dirt have been avoided. The lighting is by Pintsch gas with incandescent mantles. Although steel has been used so largely and the cars are a foot wider they will not weigh as much per passenger seat as the suburban cars of the same length hitherto used.

The extreme ends of each carriage are furnished with large sepia toned bromide photographs illustrating various Victorian tourist resorts. A complete train of these cars was put into service on one of the Melbourne suburban lines on Jan. 6 and has met with the general approbation of both the public and the railway staff. With the exception of a few minor alterations, which experience of these cars may show to be advisable, the Commissioners will probably adopt the Tait car for their entire Melbourne suburban service.

C. P. R. Irrigation Work.

In connection with the development of the C.P.R. irrigation block in the Bow River Valley, Alta., we are officially advised that the construction work for the current year will include about 300 miles of canals and ditches, which will bring the total mileage of canals and ditches on the western section of the block to 1,600 miles. The construction of the 300 miles will involve the moving of about 1,250,000 cubic yards of material, and the placing in position of 1,750,000 ft. of timber and 2,000 cubic yards of concrete. In this section there has been opened for traffic a branch railway from Langdon northerly for about 40 miles to Acme, and during the current year it is proposed to build a 15 mile branch line east from Irricana through the 3,000,000 acre block. It is also proposed to add 50 miles to the telephone lines in the western section, and to carry the line through the central and eastern sections of the block, a distance of 127 miles.

The plans for the development of the central and eastern sections of the block as now completed contemplates the construction of 1,000 miles of canals and ditches in the central section, and 3,500 miles in the eastern section, at an estimated cost of about $12,000,000. The work to be immediately undertaken is the development of the eastern section, for which it is expected that contracts will be let at an early date. The construction of these 3,500 miles of waterways will involve the movement of 28,000,000 cubic yards of material. During the current year 250 men will be employed upon the engineering staff in connection with the work, all of which is being carried on under the direction of J. S. Dennis, Calgary, Assistant to the Second Vice President.

Dynamos and Motors.—This is the title of a text book for use in colleges and technical schools, by W. S. Franklin, Professor of Physics at Lehigh University, and W. Esty, Professor of Electrified Engineering at Lehigh University, published at $4 by the Macmillan Co., 66 Fifth Avenue, New York. It was written to meet the demand for a simple physical treatise on dynamo electric machinery, apart from such subjects as electrical distribution and wiring and electric lighting. In the first part the authors deal with the elecrtic current, the dynamo and transformer, direct current and alternating current measurements; in the second, with the operation of a direct-current dynamo as a generator, the operation of a direct-current dynamo as a motor, power losses and efficiencies, ratings and guarantees; in the third with harmonic electromotive forces and currents, fundamental problems, the polyphase system; in the fourth with the alternator as a generator, the synchronous motor, the synchronous convertor, the simple theory of the transformer, the induction motor, the single-phase series motor; and, in the fifth, with switchboards and switchboard appliances, and the practical operation of dynamos. An appendix sets out a series of 188 problems on the different chapters, with the answers. The work is primarily a text book adapted for the requirements of the student, and aims to give him a good basis of theory as well as a practical conception of the direct and alternating current dynamos and motors.

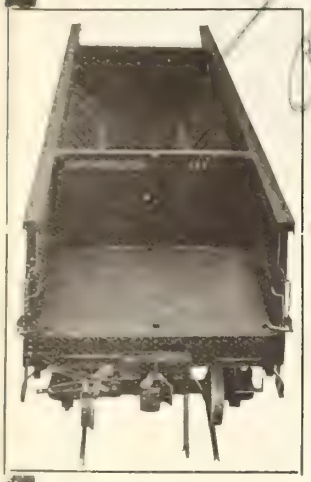
The C.P.R., which has received several complaints as to freight going astray, or being delayed, on its western lines, has issued rules for the guidance of shippers, as to the marking of packages.

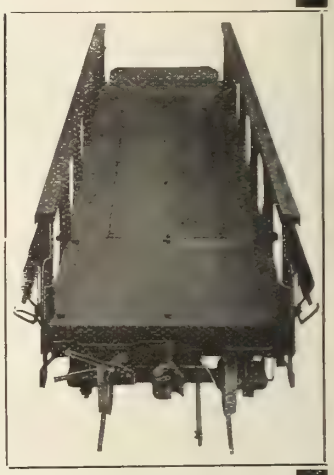
Floor Plan of the Tait Suburban Car.

OUR LEADERS

HART CONVERTIBLE CARS

OTIS DUMPING GONDOLAS





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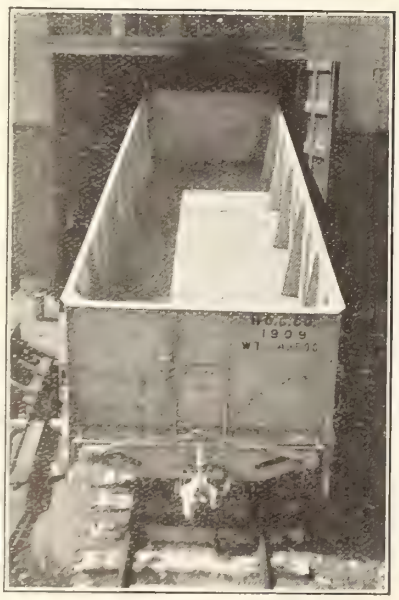

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Steel or Wood 40 Tons Capacity

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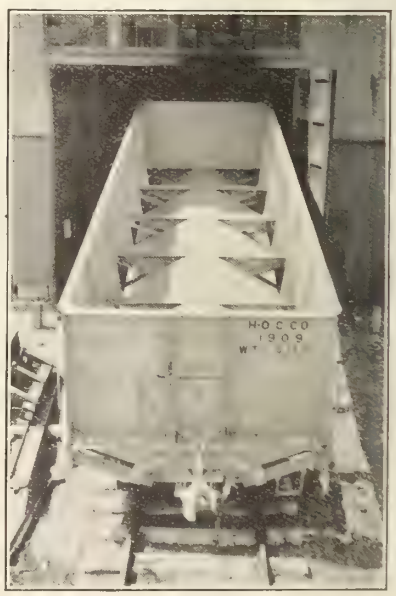
Grand Trunk Pacific Railway.
Grand Trunk Railway.
Canadian Northern Railway.
Canadian Northern Ontario Railway.
Canadian Northern Quebec Railway.
Intercolonial Railway.
Temiskaming & Northern Ontario Ry.
Central Ontario Railway.
Quebec Central Railway.
British Columbia Electric Railway.
Esquimalt & Nanaimo Railway.
Mount McKay & Kakabeka Falls Ry.
Atlantic, Quebec & Western Ry.
City of Winnipeg.
J. D. McArthur Company.
Macdonell & O'Brien.
M. P. & J. T. Davis.
Corbett-Floesch Company.
E. F. & G. E. Fauquier.
Mackenzie, Mann & Company.
Pacific Coast Coal Mines, Limited.
Atikokan Iron Company.
Quebec Contracting Company.
Willard Kitchen Company.
Birds Hill Sand Company.
Kennedy & McDonald.
Toronto Construction Company.
New Canadian Company.
Sydney Cement Company.
O'Brien, Fowler & McDougall Bros.
Canadian Copper Company.



THE HART-OTIS CAR CO. LIMITED

MONTREAL

Efficiency in Transportation.

By D. Crombie, Assistant to General Transportation Manager, G.T.R.

This subject covers a wide field, too large to be handled in one paper, consequently, comment will be made at this time only on certain aspects which have, through a closer experience, more forcibly appealed to me, viz., car service, fast freight service, train loading, fuel, and station service.

Efficiency and economy are naturally and intimately related, since, to quote the dictionary, efficiency is, mechanically speaking, "the ratio of work performed to the energy expended," while economy concerns "a frugal and judicious use of materials." From either point of view, the results must correspond to the expenditure. Efficiency is not an extravagant perfection, nor is economy served by parsimony.

Due to the tremendous development of transportation the transportation officer has been expected and forced to produce results with but limited means, since the capital account expenditure could not expand as promptly as did the volume of traffic. We have been compelled, then, to "a frugal and judicious use of materials," and have accomplished "a ratio of work performed to the energy expended," which, compared with the results in other countries, speaks well for our efficiency. It it were not so, our executive officers would not meet with such a measure of success in tapping those reservoirs of capital which lie across the sea.

When we consider that the freight rate per ton per mile in Great Britain (2.31c.) is three times our rate (¾ of a cent), and in Germany the revenue per ton per mile (1.41c.) is almost twice our revenue; and when we consider that out of our lower rate per mile we pay to our employes wages, per man, 82% greater than in Germany, and 140% greater than in England; when we consider, further, the density of their traffic per track mile as compared with ours; and yet that, with all this, the ratio of our expenses to earnings (67.5%) is less than in Germany (69.1%) and but little greater than that of Great Britain (63%), it must be granted that we have in comparison reached a high degree of efficiency. Presumably it does not occur to the complainant who addresses the Board of Railway Commissioners, alleging excessive freight rates, that the average ton of freight handled by a railroad is moved 33 miles for the same cost per ton that this individual pays his coal dealer to transport a ton of coal across his lawn. This is an illustration which has been much used, but bears repeating.

On the other hand, when the Interstate Commerce Commission statistics for 1908 show that the average carload is but 19 tons, while the average capacity of freight cars is 34 tons; that the average movement per car per day is but 23.5 miles, and that 30% of these movements are empty, or, in car service as a whole, an efficiency of but 4% of the impossible perfection; when statistics show that the tractive power of the average engine is 27,500 lbs., while the rolling resistance of the revenue freight behind the engine on a 1% grade at 10 miles per hour is but 8,746 lbs., and on the level is only 1,606 lbs., and that the average train movement of each engine in freight service is but 57 miles a day, or, in train service, an efficiency of 1.4% of impossible perfection; when we realize that one-third of the total tonnage moved is coal, and that one out of every five tons of coal mined is consumed in railway engines, and that—as H. H. Vaughan has explained in a recent paper—but 5% per cent. of this coal is transformed into useful work; when we consider that on some railways as much as 3% of the gross freight earnings is paid back to the shippers in settlement of claims for loss and damage, we must, as transportation officers, confess to a need of continued endeavor. These figures are somewhat startling, but they sound considerably worse than they really are. They require analysis.

The strict enforcement of demurrage rules, with a view to decreasing, as far as possible, the shippers' delays, and the advocacy of a high per diem rate of car rental to stimulate the railway to prompt car movement, have, in the anticipated results, both been over-estimated. The chief controlling factors in the average movement per car per day are the distance the tonnage moves from originating point to destination, and the necessary free time allowances for loading and unloading. The average distance freight shipments are moved on all railways is 131.7 miles; the average mileage per car per day is 23.5 miles, or 5.6 days per trip.

How is this time consumed? Almost all of it in "shipper's detentions." For example, the National Association of Car Service Managers report that the average detention by consignor and consignee is 1.68 days at each end, and the railway detention, after arrival of car at destination and before same is placed on the unloading track, is .31 days. But in car demurrage calculations the free time detentions account of Sundays, legal holidays, Customs and weather are not taken to account, and this is in excess of 60 days in each year, or ⅙ of the total car days. Further, as cars placed between 7 a.m. and 11 a.m. are in accordance with demurrage rules considered as though placed at 1 p.m., and cars placed after 11 a.m. are considered as placed at 7 a.m., it follows that there is an average of at least a quarter of a day omitted in the calculations owing to the difference between the actual placing and this constructive placing.

The complement of time then actually necessary in the handling of one shipment may be considered to be:

	Days
Loading time (consignees' detention)	1.68
Add ¼ day difference between actual and constructive placing	.25
In transit 131.7 miles at 10 miles per hour	.35
Advising and switching time (railway detention)	.31
Unloading time (consignees' detention) ..	1.68
Add ¼ day (as above)	.25
	4.72
Add ⅙ of complete trip time account elimination of Sundays, holidays, etc.	.78
Total time accounted for or explained, as above	5.50
Out of a total average time on each trip of.	5.60

It has seldom been shown, and it will be interesting to note, the history of car performance for the past 36 years:

Year	Total Ton Miles Moved (Millions)	Total Frt. Cars	Ton Miles per Car per Day	Miles per Car per Day	Tons per Car Mile	Av'ge L'gth of Tons Haul in Miles	Days per Trip
1907	236,601	1,991,557	328.2	23.5	13.9	131.7	5.6
1905	186,463	1,731,409	295.0	23.9	12.3	130.6	5.5
1902	157,289	1,546,101	278.7	23.6	11.8	131.0	5.5
1899	123,667	1,295,510	291.5	21.7	10.6	131.0	5.3
1896	95,328	1,221,887	213.7	22.4	9.5	124.8	5.8
1893	93,588	1,201,645	213.4	25.1	8.5	125.6	5.0
1890	76,207	1,109,952	188.1	24.4	7.7	119.7	4.9
1889	68,677	1,051,169	185.5	24.7	7.5	127.3	5.1
1886	52,802	815,911	171.0	24.4	7.0	101.5	4.5
1883	41,061	778,663	165.0	23.8	6.5	110.0	4.6
1880	30,376	[illegible]	154.3	23.0	6.5	See Note A	
1877	20,890	[illegible]	145.9	21.3	6.0	No figures	
1874	17,342	358,055	132.6	24.1	5.5	available	
1871	11,598	241,289	130.0	23.6	5.5	prior to 1883	

These figures, since 1890, are obtained from the Interstate Commerce Commission reports; prior to 1890, from Poor's Manual, the car loading, or "tons per car per mile" previous to 1890 being estimated.

If in making this estimate we allowed a greater load per car mile we would thereby necessarily create a slower movement per car per day since the total performance of "ton miles per car per day" is made up of the two factors of "tons per car mile" and "miles per car per day." It is evident we can not hope for any great improvement in the average miles per car per day.

The controlling features of the ratio of empty movements to loaded movements are the preponderance of loaded movements in one direction, namely, the outbound movement from the territory where the raw material originates to the consuming centres, and, secondly, but in a less degree, to the practice, more or less necessary, of supplying special equipment for certain commodities, which cars are unsuitable for general traffic. Eastbound tonnage dominates because in the exchange of commodities the raw materials necessarily bulk and weigh more than the finished product, and, broadly speaking, in the west the raw materials is produced and in the east dwells the producer of the finished article.

The figures on the Grand Trunk Ry. are as follows:

Eastbound tonnage..	11,281,677=	59.7%
Westbound tonnage..	7,596,026=	40.3%
Total	18,877,703=	100.0%

Consequently on our system to move the tonnage east requires an empty movement west equivalent to approximately 20% of its total movement.

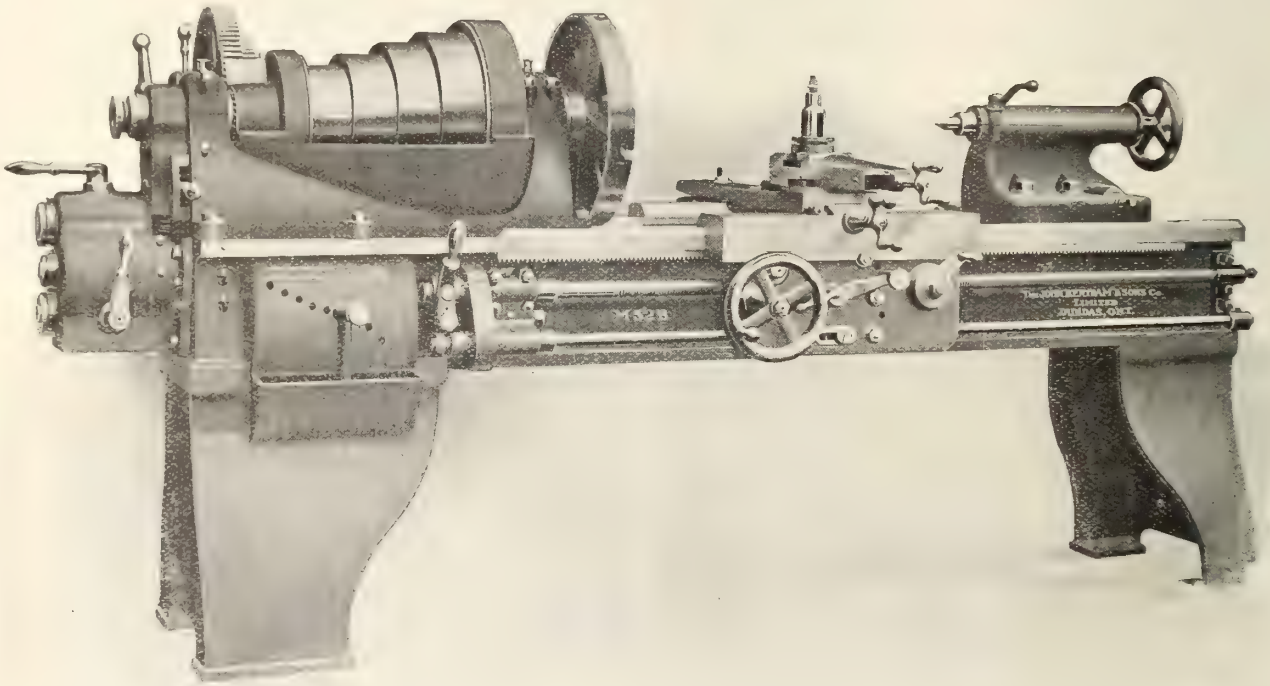
This movement is controllable only to the extent that the rate on raw materials is capable of adjustment. There should be at least a safe margin between the tariff rate and the actual cost of transportation, otherwise the railway will unduly encourage the long distance movement of raw materials instead of encouraging local development of the finished product, with the more profitable rate, and this development of the manufacturing or industrial centre, where formerly the field, the mine, or forest existed, tends to equalize the inbound and outbound movement, as well as to produce an increase in the merchandise and other more profitable traffic in the inbound loaded cars. We thus get a loaded haul in both directions at better rates instead of a loaded haul in one direction at a low rate. The empty movement may be further controlled by supervision.

Such equipment as empty coal or flat cars returning to the mines and forests should be utilized, if at all possible, for the commodities moving in box cars if in the direction of the preponderance of traffic. Avoid the use of the standard box car in the direction of the preponderance of loaded movements if other equipment is moving empty in that direction. Never move an empty in the same direction as the preponderance of traffic if the empty car can be induced to carry a load.

Broadly speaking, movement of empties westbound is justified, as the preponderance of the tonnage moves eastward, but an empty movement eastward should be jealously watched, and every means taken to eliminate or reduce such movements. To illustrate: Anthracite coal should not be handled westward from the Niagara frontier in open cars, as such cars are not suitable for the eastbound traffic. To haul an open car westbound, loaded, actually results in an eastbound empty movement, and this again is duplicated by a westbound empty movement of a box car in order to provide a car for the eastbound loading.

A New York road's box car empty at London should not be sent to the Niagara frontier empty en route home, but should be sent to Chicago for loading eastbound, and this is true even though the eastbound loading at Chicago is exclusively for Portland, Me.,

BERTRAM ENGINE LATHES



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which might necessitate the return of the car empty from Portland to the Niagara frontier. The merit in this is not always at first glance appreciated, and there are times when it would be unwise, but for the greater part of the time there is a loaded movement eastward through Michigan which can only be taken care of by the empty movement of box cars from the seaboard, and the movement of any box car empty eastward against the stream of empty box cars moving westward, would require investigation.

Has the efficiency of the transportation department kept march with the increased facilities supplied by the mechanical department? The capacity of cars and the weight of the loading in recent years has increased as follows:

Year	Capacity	Average loading all cars	Tons loaded cars
1902,	28 tons.	11.8 tons.	16.8 tons.
1905,	31 tons.	12.3 tons.	17.6 tons.
1907,	34 tons.	13.9 tons.	19.9 tons.

This low state of efficiency seems, at first glance anything but creditable, especially when we consider that coal tonnage is 33% of our total, and ore, stone, and other products of the mine, bring the percentage to 53%, while, adding grain, cement, lumber and like commodities, which lading usually approximates the full capacity of the car, makes the percentage 73%. Flour, sugar, meats, oils, liquors, manufactures, vegetables, and commodities of fair weight account for 20%, while hay, stock, mill feeds, furniture, vehicles, merchandise, etc., amount to but 7%. It is through the shippers that the influence must be exerted to obtain a full loading of the car. The average minimum carload weight of the 4,700 articles mentioned in the Freight Classification is 26,000 lbs., and, although in shipments of coal, ore, grain, lumber, and many other commodities, a loading approximating the capacity of the car can be secured, there is but little stimulus to the shipper to produce this result, or any result, in excess of the minimum. The freight traffic department, then, should, adjust the minimums, following closely the increase in car capacity.

Agents and shippers should appreciate that tariff rates are not based on the expectation that the minimum load is to be the usual load, but we hope for, and expect, a capacity load, the minimum being the breaking point between profit and loss. When it is essential to the shipper, the minimums will be accepted, but it is essential to the railroads that the minimums should not be frequently used.

The daily car report acquaints the headquarters or staff officer with the situation on the line. Every car on hand at the station is reported by the agent daily. The report shows the arrival of the car, contents, the reason for the delay, if any, and, if the delay is chargeable to the shipper, the car demurrage accrued and the amount of free time and occasion therefor; the departure of the car, contents and destination, and the number and kind of cars wanted for loading. With this as a basis, it is possible to know whether empty cars are moving in the same direction as the preponderance of loaded movements, and whether such empty cars can be pressed into service. It is possible to know whether the loaded cars are being loaded to their capacity and, if not, whether this is due to the space capacity of the car being out of proportion to the weight capacity with respect to the particular commodity to be moved. It is not wise to supply cars freely to a shipper, who, in order to save a few cents in the proper stowing of his goods, will not load above the minimum weight, while another shipper is suffering for want of cars and is willing to use them to their capacity. Careful supervision and judicious distribution of cars is something the obstinate shipper can appreciate, if he feels the effects thereof. It is possible to know whether the car of large space capacity is being used unwisely for heavy commodities, and thereby reducing the ability to move the more bulky commodities, since it is wasteful to use a furniture car for pig-iron.

It is possible also to watch the delays, that the car service, train service, and yard service be in proper relation. A car deteriorates through age as well as use. An engine deteriorates chiefly through use. It is not economy that the equipment, which is perishable in nature and revenue producing in capacity, should be idle, through delay, to save capital expenditures in power. The amount of time cars are in yards waiting switching to their proper position, or waiting to be moved by trains, should be calculated. It costs no more to move a car to-day than it does to-morrow. If the car is not moved to-day, our revenue earning power is reduced in times of car shortage, the day's operations are hindered and made more expensive, the shipper waiting for the loaded or empty car has been inconvenienced, and the car itself has deteriorated. The only saving to offset this has been in the capital expenditure for the engine. This, of course, provided the delay was chargeable to a shortage of power, it being assumed that the available power has been used with the greatest efficiency. It is but seldom that delays can be properly chargeable to shortage of track room. The usual failure is that the available track room is not used sufficiently. The delay which is not chargeable to railway detention can be assessed and checked with this report as a basis, and this may be done better in the headquarters office of the transportation department than in the demurrage bureaus, and, in fact, can only be done properly in the railway offices.

The duplication of the work and the very evident weakness of the checking by the bureau naturally conduce to create a lack of sympathy in the agents. The arrival and departure of the cars, as reported by the agents, can be checked by the car service officer against the arrival and departure as reported by the train conductors, and the full time of the cars accounted for, properly charging the delays against the offending interest. Demurrage bureaus, though expensive, have been necessary, but not at present, since it is now discriminatory and illegal not to enforce the letter of the law in car demurrage, and, since the benefits of prompt loading and unloading have been so demonstrated to the shipper as well as to the railroad that, irrespective of the action of the competitor, we must in our own interest see that the rules are enforced. The reasons for the continued existence of the bureaus are not apparent.

As a daily car report gives the arrival and departure of all cars, with the contents and destination, this furnishes the means of supervising the schedules and loading of merchandise cars from the various freight houses. Careful attention should be paid to this, as this traffic constitutes the highest class freight, delay to which causes much inconvenience to patrons since it includes the daily supply of merchandise for the retailer. It is in the handling of this class of traffic that the claims for damage and loss are most likely to occur. The schedule should be prepared with a view to furnishing prompt delivery with the minimum of handling en route. The contents should not only be safely stowed in the car and so loaded as to be accessible at destination without re-handling, but fully loaded, so that as few cars as possible may be engaged in the service. It is proverbial that freight house tracks are of limited capacity and are [illegible] must not be overburdened with unnecessary car haulage.

The daily examination of these reports will disclose to what points straight cars should be loaded, and if a straight car is running too light, the freight traffic department's attention and efforts can be particularly directed towards securing additional business for the weak car. A check of the arrivals can be made to show whether schedule time is being maintained and whether the loading for one point is spread through too many cars, requiring greater concentration at starting point or en route. A merchandise schedule can, and should be so maintained that a freight solicitor can quote it with the reliance one ordinarily accords to a passenger train schedule. The symbol or manifest fast freight system of supervision can be extended to the l.c.l. movement, following the shipments through from starting point to destination. The car service man can appreciate what a relief this would be in eliminating complaints and reducing special requests to "please locate, rush and trace to destination shipment, etc."

The way-freight crew should load way-freight into the pick-up cars with the same system and with as much care and precision as does the freight house foreman at a large distributing centre. If this is done, much unnecessary transfer work at junction points will be avoided if the schedule for loading placed in the hands of the way-freight conductor is given careful supervision and adjustment from time to time, as the conditions require. Calculate where the greater tonnage to certain destinations originates, and start the pick-up car from that point, transferring and loading into it en route from the less important stations. Under such conditions, a greater part of the pick-up cars on way freights should not require re-handling at the terminal of the run, but might be immediately switched into their trains for forwarding.

In order to perfect this handling of merchandise, the staff handling "Over and short" reports, the tracers for l.c.l. delayed shipments, and the freight claims agent's forces in general (as distinct from the freight claims auditor's forces) should be assigned to the transportation department, in order that that department being at fault may be promptly and fully put into a position to correct the fault, since it has the authority to do so.

The symbol or manifest system, as applied to carload business, provides for the handling of special commodities in regularly scheduled trains of fast speed, and each car in each train is under direct supervision of the headquarters staff through a telegraph record of each movement it makes from the time it starts until it arrives at destination, each car being identified by its own code number. In this respect, transportation has reached a marked degree of efficiency.

With respect to train service; efficiency requires a faster movement of certain traffic, and this naturally concerns the higher classes which furnish the better revenue. The actual difference in the cost of furnishing such service, as compared with the most economical performance, should be carefully established and the information given to the traffic department, which makes the rates, and which requests that certain commodities be placed in the manifest schedules. The individual train expense, apart from the general operation, is made up of the two main items of wages and coal. The wages cost and the fuel [illegible] from this the cost per thousand equivalent gross ton miles arrived at.

[illegible] nage handled most economically should

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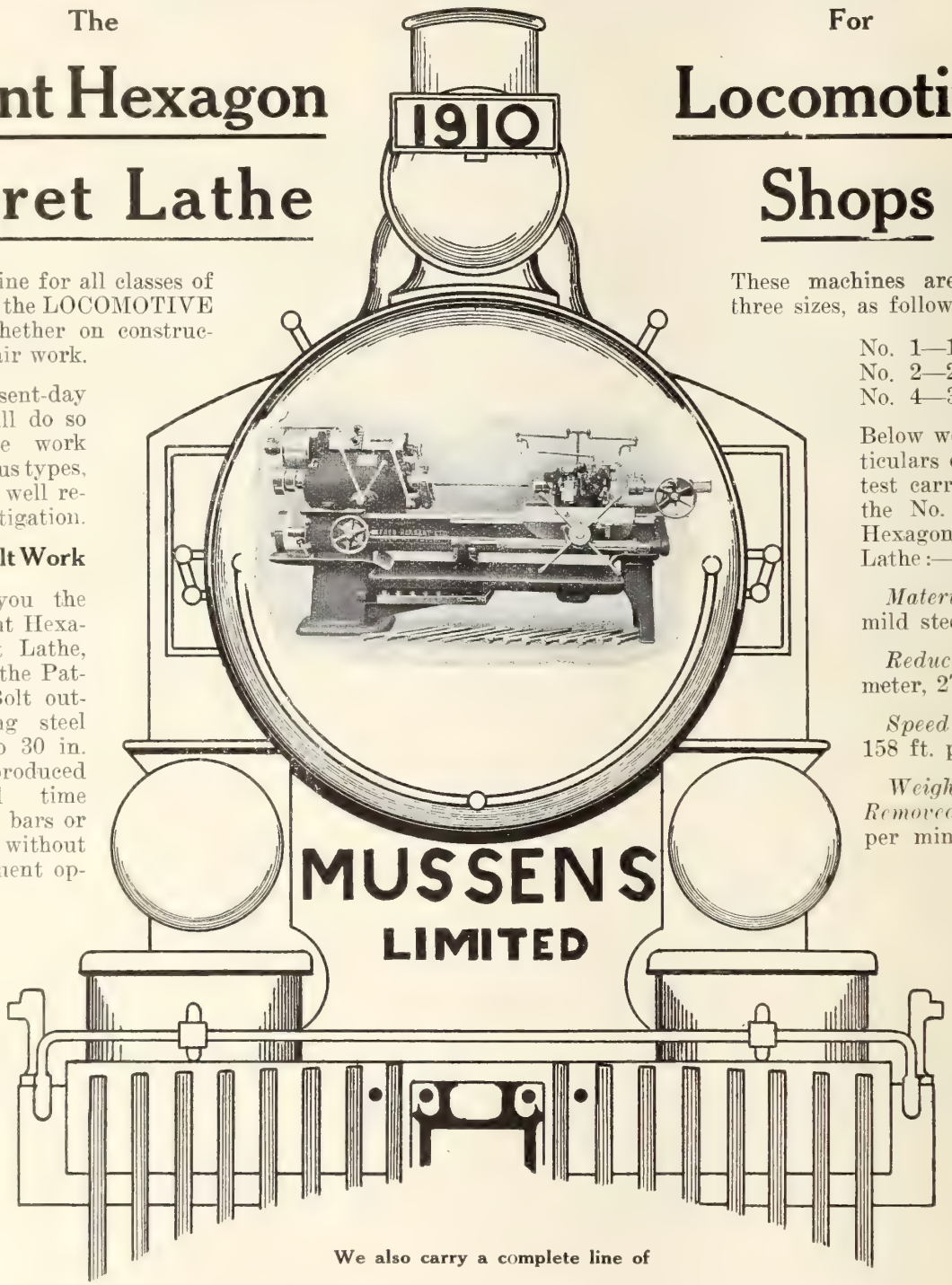

For **Locomotive Shops**

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No. 1—1½" x 21"
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No. 4—3½" x 42"

Below we give particulars of a recent test carried out on the No. 2 Patent Hexagon Turret Lathe:—

Material—30-ton mild steel.

Reduction in diameter, 2" to ¾".

Speed of Work—158 ft. per minute.

Weight of Metal Removed—7¾ lbs. per minute.

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be the rating of the engine. Variations from this standard cost per thousand ton miles in the daily performance of all engines on the division should be charged against the various causes contributing thereto. The standard cost per thousand ton miles applied to the loading of the engine, will give the standard for the trip.

If a train has been run light on account of maintaining a fast freight schedule, or if the train has been run light on account of failure of the engine, or on account of weather conditions, or due to the preponderance of traffic in one direction, necessitating a return movement with less than a full load, or from whatever cause "the ratio of the results obtained to the power expended" has been reduced, the actual waste in dollars and cents from each cause is known, and intelligent endeavor can then be applied to overcome the weakness. There are, of course, certain expenses which may be considered relatively as fixed expenses which do not diminish responsive to a fluctuation in the volume of business, but a goodly proportion of the expenses of operation of any railway are these immediately and directly controllable expenses, and the simplicity of the theory, the ease with which the actual results may be determined, and the deductions to be drawn from these results are so apparent that it would seem almost as inexcusable to operate without this measure of efficiency as it would be to operate a locomotive without a water gauge. If we do not watch our costs and know the reasons why, instead of guessing, trouble may be expected.

The practical tonnage rating for an engine being the tonnage which can be handled over a trip with the least expense in dollars and cents per thousand ton miles moved, it naturally follows that this most economical tonnage is the easiest on coal consumption, and is a tonnage which does not produce excessive locomotive repair bills. It also follows that it is a tonnage which does not occasion congestion of main line tracks by freight trains stalling on grades, and which does not cause congestion of yards by keeping an engine unduly long on the road between terminals, and unduly long in the shops when in terminals. The light tonnage for fast schedule, under such conditions, will not be called for by the traffic department more than is necessary, and a scrutiny of the commodities moving under fast schedule will be sure to have attention. Excessively heavy tonnage, with resultant leaky flues, increased coal consumption, overtime for crews, congestion of tracks and terminals, and delays to traffic, will be guarded against. There is in the utilization of power a still more important factor than economy. In contending against a heavy run of business beyond the ordinary ability of your power to move considerations of economy must give way to the demand for volume of movement. The test of efficiency then becomes the greatest ton miles moved per engine day instead of the ton miles moved per dollar. This in theory and practice has been well worked out by the Committee on Conducting Freight Transportation of the Association of Transportation and Car Accounting Officers and was well explained at the annual meeting in June, 1909, in Montreal. The value of these figures in educating a chief dispatcher in the use of his power cannot be over-estimated. From such figures, a chief dispatcher ascertains how best to accomplish results when the power does not seem adequate to the business offering, as it demonstrates how much tonnage can be moved in a given time, at various rates of speed and various tonnage loadings.

Fuel is a transportation department expense. The cost of the fuel in Canada is 1-6 of the total cost of operation. There is no one factor in transportation expenses more subject to control, and in which efficiency is more to be desired, than in the handling and use of the coal. It is too important an item of expense to be under divided authority. The ordering of the coal forward from the mines, the supplying of cars to the mines, the checking of the receipt on arrival, the distribution to coaling stations, the responsibility for an adequate supply being at each coaling station, the unloading into coal chutes, the delivery to the engines, the stocking or lifting of reserve or storage coal, the under or overloading of the engines with train tonnage, the education and supervision of the fireman and engineer in the use of coal, comparative performance records of each engine and each engineer and fireman, the accounting to the auditor and charging out the coal to the various purposes for which it has been used—the whole handling of the matter, subsequent to the contracting for purchase, should be in the hands of the transportation department, and their recommendation should prevail in the selection of the mines and veins, and as to the quality and character of coal to be purchased.

Following are extracts from an article on "Two great needs of American railway organizations," published in a U. S. railway paper in Feb.: The tendency is toward the establishment of larger railway systems. This makes ever more pressing two great needs of American railway organizations. One is the adoption of means for the development of increasing numbers of broad executives. The other is the decentralization of management. On the railway of 100 miles the same man may be general manager, traffic manager, and several other things, and get a wide variety of experience. A railway of 1,000 miles long requires a specialist at the head of every department. The management of a railway system of 10,000 miles must carry specialization of the functions of its officers yet farther. Because it can do so, and get or develop the best specialists, is one of the main reasons why it can be more economically and efficiently operated than ten railways of 1,000 miles each. But specialization can be carried too far; and on American railways it very commonly is. Special branches and departments must be well co-ordinated to produce the best results. That they may be so co-ordinated there must be convergence of authority over them somewhere. The only way afforded by the railway business to produce men who are big enough to be not merely freight or passenger men, but real traffic managers, not merely transportation, mechanical or engineering experts, but real general managers, is to give numerous men the opportunity to get a broader experience than can be gained in any special branch, and then to select for the higher executive offices those who best avail themselves of the opportunity, regardless of their special line. Excessive centralization seriously interferes with the establishment and maintenance of satisfactory and salutary relations between the railways and the public. Of course, subordinate officers would, in each case, exercise their authority only in furtherance of a general policy laid down by their superiors, and would be held strictly responsible for the use or abuse of their enlarged discretion. Becoming experienced in assuming larger responsibility and exercising larger authority, they would be better fitted for promotion to higher positions; and the business of the road would be transacted with more dispatch and efficiency, and more satisfaction to the public.' "

The writer then comments, as tending to produce the desired results, on the "unit system" of organization, explained by Major Hine, and which is being tried in the operating and maintenance departments of the Harriman Lines. There are some good things in this "unit system" idea, but I doubt that the Hine system will be extended over any considerable number of railways, although it is already being tried on many divisions of the Union Pacific, Southern Pacific, and O.R. and N. companies. This is, however, indicative of the feeling which many share, that the present organization of our subordinate official staff is not producing the results that are to be desired. To what extent this may be due to a defect in our system, or to a misdirected economy, it might be difficult to estimate.

The growth of our large systems is the result of the thought and energy of our strongest men, and this development has been accompanied by increased harmony, co-operation, and specialized effort, to the advantage of railroad operation and net profits. The marked development in this respect has been in recent years. The strong men responsible for the operations of these large systems to-day, acquired their experience under somewhat different conditions than are likely to prevail in the future. The fear is prevalent that the railway officer of the future will not have that personal experience of the whole railway operation that comes from active participation in the daily work of the track, train, and station. The large systems are so thoroughly departmentalized, and the work so assigned to specialists, not only in the staff offices at headquarters but out on the line, that the opportunity for acquiring experience in the various phases of railway operation is not as free as in the past. But it is also to be noticed that the evil ferment in the press, parliament, and the public concerning railways is of recent growth, and is co-incident with the elimination of the local railways with their staffs of local officers who had a personal acquaintance and sympathy with the local people.

It is a well known fact that where the conditions otherwise are equal, the local railway has a greater traffic securing strength than has the large system between two common points. The public support the local railway, both with their business and with their sympathy, from the double feeling of a more intimate acquaintance and a recognition that their desires and needs, in transportation matters, are in harmony, whereas, with a lack of personal acquaintance and due to the distance of the headquarters from the extremities of the larger system, there is not only created a mutual condition of estrangement, but a fear of conflict in politics, which breeds discontent and agitation. There should be some means of re-establishing the relations between the large system and its patrons that is so much a factor in the strength of the smaller system. If we are in the business of manufacturing and selling transportation, we should know our market and our customers as we know our processes.

It is the practice on all railways—prevailing, of course, on the larger systems to a larger extent—that when the staff officer finds his contact with the public—or, it may be, with the employes—insufficient to bring forth the results desired, he supplements his efforts by appointing a travelling representative to strengthen the organization at the weak spot, and this has developed to the extent that we have travelling freight agents, travelling passenger agents, travelling car service agents, travelling auditors, travelling tariff inspectors, travelling baggage inspectors, claims agents, lost freight agents, weighing inspectors, etc., etc., all of whom are designed to bring the departmental head in contact with the man on the ground that his

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policies may have proper adjustment and may prevail. The net result is inefficiency. The staff officer, the agent, and the public remain to too great an extent unacquainted, both personally and in knowledge or understanding. It is well that someone with a comprehensive acquaintance with the various departments and departmental heads, and policies, should be in personal touch with the customers or patrons, and one who in the local mind officially and broadly represents "the system." For a patron to direct a question or a complaint to an employe under present conditions partakes too much of the nature of shying the ring at the board of walking-sticks at the fair—the opening (for an intelligent reply) appears amply sufficient, but it does not seem ever to strike the right head. "I do not know," or "try the other department" is too frequently the answer.

As a possible solution of some of the difficulties, as a possible means of strengthening the present organizations where we are confessedly weak, and as a possible means of providing for the education of the railway officer of the future, I would suggest the elimination of the departmental travelling inspectors and travelling agents, or, rather, the "hop, skip and jump" features of the present travelling man who only has time now to touch the spots that protrude, and I suggest substituting therefor a line officer bearing some such title as "general agent," or "district agent," equipped by broad experience and thorough training, and who will be, within his limited territory, a direct representative of each of the departmental heads, with a personal acquaintance, not only with the departmental head, but with the individual shippers, and an intimate acquaintance with every employe within his jurisdiction.

This does not contemplate disturbing the present position and jurisdiction of, and the relations between, the superintendent, the district passenger agent, the division freight agent, and the staff officers of the various departments, nor does it contemplate disturbing the responsibilities and duties of the general agent at the large terminal, but, rather, the strengthening of these. As the superintendent should be in his purview, if not in authority, a general manager within his district and yet he carries out the policies of the staff officers at headquarters and their organizations, so under the superintendent, and assisting him in the co-relation of the departments, and assisting him in the selection, education, and supervision of the station staff, should be the "division agent" in charge of the relations with the public and of the station staff within his smaller territory and outside of the larger terminals; competent to educate, discipline and develop the station forces; thoroughly versed in all features of station work; competent to inform the superintendent of the individual needs of the stations in facilities or men; responsible for the promotion of the company's interests in securing traffic, both freight and passenger, and seeing that the same is given proper care and dispatch at the stations; that the facilities furnished are efficiently used; that the personnel of the station staff is of a proper moral character to appreciate the duties entrusted to them; that in their relations with the public the station staff is courteous, intelligent, and solicitous of the company's interests. With such a staff of subordinate officers covering, for example, let us say, 100 to 150 miles with some 20 stations, we could safely eliminate the travelling man, who perforce spends his time and energy in car seats and hotel chairs seeking or waiting the opportunity for a momentary interview with the distant or elusive stranger, hoping if he should perchance find his man at the end of the trip, that he may find to an intimate acquaintance, but in the blind chance of fickle fortune. The departmental head under such an organization as is suggested could depend upon having a local representative close to the scene of action, close to the ground, him kindly disposed, not as unto or due with a thorough local acquaintance, a live wire, a salesman, in constant and sympathetic contact with the manufacturer of transportation and the consumer of the goods.

In a recent paper describing the apprentice system in the G.T.R. mechanical department appeared the following statements, which apply to the case in point: "The problem of supplying the demand for thoroughly trained mechanics has, for some years, caused much anxiety, and the G.T.R. some years ago endeavored to fill the breach and pioneered a movement which has since been copied on a minor scale by all the great railways of Canada and the U. S., as well as the largest manufacturing firms in both these countries, namely, the technical training of their apprentices. The master mechanic is constantly in touch with each boy's progress and standing, and, if necessary, he calls a boy up and in a kindly manner points out to him the necessity of applying himself more consistently. This has been the means of supplying the company with skilled mechanics in the most satisfactory manner. The first requisite in employing an apprentice is to know that he is morally, physically, and mentally capable."

If it is essential that the mechanic, who is handling materials, should be carefully selected and then trained to give efficient service, is it not as essential that the agent, who is not only in charge of the material property of the company, but is the custodian of its accounts, is its legal representative, the representative of the whole railroad organization in the public eye, and who is, in the final outcome, the conserver of its traffic resources; who represents directly the departments of traffic, audit, treasury, car service, telegraph, etc., should benefit by the adoption of some method of selection and of education better than we have at present, and of supervision other than in response to complaints filed. The travelling men of to-day supplement the work of the agent but inefficiently.

The local agent is neither born nor made, he falls into his job. Too often he is made to feel by his superior officers and their travelling representatives that every man's hand is against him. Too much criticism and complaint and too little assitance and education from these departmental experts comes his way. But the public are with him. As a rule, they respect and like him. Let us encourage him to do still better work by selection, education, intelligent supervision, by hope of advancement through the channels suggested, by recognition and sympathy from this suggested superior officer, "the division agent," who will know what the local agent is up against and how well he is doing. "The division agent" is necessary to supplement the work of the local agent. The local agent is tied to his station; too often to the right of way, the shipper has to come to him. The departmental officer rarely sees the local agent, the agent cannot go to him. The "division agent" would be foot-free; he can go to the shipper, he can go over on the competitor's ground and take observations, he can go to the staff officer and report or ask for information or advice. The feasibility of this proposed change of methods will depend upon the willingness of the various departments to join in co-ordination of effort, and will, of course, depend for its efficiency on the number and character of men employed and their training.

An experimental examination into the conditions on our own system develops that we are employing on local work some 40 departmental travelling men, and, if in this calculation we deducted a sufficient number to leave undisturbed, of the present organization, enough staff to cover all of the large terminals, there would still be men and money ample to supply a district officer for each 100 to 150 miles of track dependent upon the importance of the stations. The field from which these general agents might be drawn would be the present travelling forces, the station agents, the headquarters offices, first, however, taking the candidate for promotion and placing him in each of the departments he is to represent and in contact with the head of the department a sufficient length of time to establish a thorough familiarity with the department's work, aims, theories, and personnel. With such a staff of subordinate officers to draw from there would be fine material, well trained, ready for promotion to the higher official positions in any of the departments of operation. In fact, education and development through this channel should be an essential factor in the preparation of the future officer.

The foregoing paper was read before the Canadian Railway Club recently.

Michigan Central Rd. Pension Fund.

The Michigan Central Rd. put into effect at the beginning of this year, a pension fund for the benefit of its employes. The management of the fund is in charge of a committee styled the Board of Pensions, consisting of eight persons appointed annually by the president. The Board shall appoint a chairman and a secretary, and shall have power to make rules, subject to the approval of the president and directors, for the government of the department. It shall have power to determine the eligibility of employes to receive pensions, and to authorize the payment of pensions as provided by the rules. All employes are to be retired at 70 years of age, and those of them as shall have been continuously in the service for 10 years immediately preceding their retirement shall be pensioned. Any employes after 20 years' continuous service who are unfit for duty may be retired and be pensioned, but in case they are less than 70 years of age a medical examination will be necessary before they will be permitted to retire. The basis upon which the pension allowance is to be computed is for each year of continuous service, 1% of the monthly average pay received for the 10 years next preceding retirement. The directors reserve themselves the right to adopt a lower basis of pensions, if at any time the present basis creates demands in excess of $56,000 a year, which is to be the maximum amount to be expended in pensions in any one year. The pension allowances will be paid monthly, but may be withheld or discontinued in the case of gross misconduct.

The persons who are entitled to pensions may have been in the employ of any of the railroads now amalgamated with, controlled or operated by the M.C.R., when they were independent; or employes on any of the so-called New York Central Lines, which has or may adopt a similar pension plan. A pensioned employe may engage in another business, but shall not re-enter the company's service; pensions may not be assigned. The rules also define continuous service; the manner in which service shall be computed; reserves various rights to the company, and provides for their revision.

The C.P.R. during 1909 handled 8,397,910 pieces of baggage, an increase of 659,189 over 1908. There was also an increase of about 50,000 in the number of parcels checked.

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Alberta and Great Waterways Ry.—Pending the completion of the investigation by the judicial commission appointed by the Alberta Legislature into the circumstances surrounding the granting of the charter, the survey parties have been recalled. Construction, however, is reported to be progressing on the first 50 miles from Edmonton, and several contracts for clearing the right of way are said to have been let. The A. and G.W.R. Co. in order to secure a Dominion charter, acquired that of the Athabasca Ry., and an action has been instituted in connection with the transfer of this, by certain Toronto interests. (Feb., pg. 99.)

Alberta Central Ry.—We are advised that the press report that the C.P.R. has secured control of this company's charter is incorrect. It is, however, stated by interested parties that the A.C.R. promoters have an understanding that the C.P.R. will, when the line is built, lease and operate the line. The Board of Railway Commissioners has approved of the location from Red Deer to Rocky Mountain House.

The Minister of Railways has approved of the route maps for this projected railway from Red Deer, Alta., westerly to the Rocky Mountains. J. T. Moore, President, and J. G. MacGregor, Chief Engineer, were in Ottawa recently in connection with the matter. They stated that construction would be gone on with this year.

Algoma Central and Hudson Bay Ry.—The time for receiving tenders for the construction of the extension of the line between Hawk Lake Jct. and Hobon, Ont., on the C.P.R. transcontinental line was extended to April 30. The work tendered for includes clearing, grading and bridge work, and the extension of about 31 miles. This line will connect up the company's Michipicoten branch with the C.P.R., and it is intended in the future to complete the construction of the main line from the present track-end near Pangissin to Hawk Lake Jct. Grading had been practically completed between Pangissin and the Montreal River, prior to the reconstruction of the company in 1903. (Mar., pg. 185.)

The Dominion Parliament has extended the time within which the company's authorized lines may be built, and has increased the amount of bonds which may be issued, including securities already issued, to $40,000 a mile.

Arnprior and Pontiac Ry.—A company with this title was incorporated by the Dominion Parliament in 1909, to construct a railway from between Quyon and Campbell's Bay, Que., on the Pontiac Pacific Junction Ry. (Ottawa and Northwestern Ry.) southerly to Fitzroy Harbor, Ont., crossing the Ottawa River at Portage du Fort; thence via Arnprior to High Falls on the Kingston and Pembroke Ry.; and from Fitzroy Harbor to Britannia on the C.P.R., and to South March on the G.T.R. The company has power to generate and dispose of electric power. The provisional directors are A. H. N. Bruce, R. Bruce, J. G. Gibson, Ottawa; J. Bell, Arnprior, Ont.; H. Kedey, Fitzroy Harbor. (June, 1909, pg. 413.)

Athabasca Ry.—See Alberta and Great Waterways Ry.

Bay of Quinte Ry.—The Dominion Parliament has extended the time for the construction of branch lines authorized in 1896, and for the Bridgewater-Actinolite line, subsequently authorized. (Mar., pg. 185).

British Columbia and Alaska Ry.—The British Columbia Legislature has incorporated a company with this title, to construct a railway from Lytton, following the Fraser River Valley through Lillooet to Fort George, thence by the Stuart River valley via Fort Connelly to North Tacla Lake and thence to Teslin Lake on the northern boundary of the province; or, in the alternative by the most feasible route between Lytton and Teslin Lake; also from a point on the line to Vancouver, with branch lines, except that no branch shall be constructed, by the route now adopted by the Howe Sound, Pemberton Valley and Northern Ry., provided that nothing shall prevent the company from constructing its branch to Vancouver along the south side of the Anderson and Seaton Lakes, and via the Lillooet Lake and River. The provisional directors are J. Wolkenstein, New York; R. Smailes, Seattle, Wash.; H. B. Robertson, Victoria B.C. (Mar., pg. 185.)

A press report from Victoria, states that two parties have been organized in Seattle, Wash., for the survey of this projected railway. The parties, it is reported will make a start in May.

British Columbia and Manitoba Ry.—See Northern Empire Ry.

British Columbia Central Ry.—The British Columbia Legislature has incorporated a company with this title to construct a railway from Lillooet northerly by way of the Fraser River valley or other feasible route to Fort George, B.C. The provisional directors are:—J. C. Keith, A. McEvoy, J. C. Gill, Vancouver, B.C. (Mar., pg. 185.)

B.C. Mainland and Coast Industrial Co.—The British Columbia Legislature has authorized the company to build a railway or tramway from its works near Prince Rupert to the shore of the south-west of Kaien Island, to build a wharf there; and to build railways from its mines to its works. (Mar., pg. 185.)

The Cabano Ry. Co. was incorporated by the Dominion Parliament in 1909 with power to build a railway from Long Lake, Que., on the National Transcontinental Ry., through Temiscouta County to Cabano, Que. The provisional directors are:—D. Fraser, D. Fraser, jr., Plaster Rock, N.B.; A. Fraser, R. England, Cabano, Que.; W. Hayes, Notre Dame du Lac, Que. (Feb., 1909, pg. 101.)

Calgary and Fernie Ry.—The Dominion Parliament has granted an extension of time for the construction of this projected railway. (Feb., pg. 109).

Cariboo, Barkerville and Willow River Ry.—The British Columbia Legislature has incorporated a company with this title to build a railway from near Eagle Lake, on the projected line of the G.T. Pacific Ry., thence following the watershed of the Willow River to Barkerville on the Cariboo Road, with branch lines not to exceed 10 miles in any single instance. The provisional directors are:—W. F. Dunphy, W. V. Marshall, Pincher Creek, Alta.; B. A. Laselle, Barkerville, B.C. (Mar., pg. 185.)

Chibougamau District, Que.—In reply to questions in the Quebec Legislature, April 10, it was stated that the Government will send a survey party into the Chibougamau district during the summer, and if the conditions warrant it a railway will be built into it, either directly by the Government, or by a company, aided by a subsidy.

The Minister of Mines and Fisheries stated in the Legislature, April 10, that engineers will go into the Chibougamau district as soon as circumstances will permit. If the country is, "as we are told it is." he added, "the Government will build a railway to it, or we will get one built, if we don't do it ourselves. The nearest railway point is at Roberval, on the Quebec and Lake St. John Ry., and 170 miles from the Chibougamau district.

Chicago, Milwaukee and St. Paul Rd.—Winnipeg city authorities stated April 8, that this company had not filed plans of a route into the city, nor had any correspondence on the subject been then received. The statement was made on account of the circulation of a report that the company had, through intermediary agencies, acquired land for a right of way within the city limits, and was negotiating for terminal facilities. At present the nearest point of contact from Winnipeg with the C.,M. and S.P. Rd. is at Fargo, N.D., but surveys have been made this season for an extension of the line now terminating at Harlem, to Valley City, N.D. A Minneapolis, Minn., report states that this latter line will be extended north into Canadian territory. (April, pg. 271.)

Comox Logging and Ry. Co.—The British Columbia Legislature has incorporated a company with this title with power among other things to build a railway from Comox Harbor, 750 ft. east from the south-easterly corner of lot 82, north-westerly to the south side of Lower Campbell Lake, with branches not to exceed 10 miles in any one case, none of the lines to enter upon lot 48, Sayward district. The railway is to be used only as a private railway in conjunction with its general logging and manufacturing business, and the company has no power to carry on express, freight or passenger business. The company may purchase or lease the rights of the Comox and Campbell Lake Tramway Co., and can enter into agreements with any other railway or tramway company for running rights or to make connection. The provisional directors are:—A. D. McRae and R. J. McRae, Vancouver. (Mar., pg. 185.)

Diamond Coal Co.—The Alberta Legislature has amended the company's powers in certain particulars, so that it may take over and operate the Diamond Ry. (See Diamond Ry. and Coal Co., Jan., pg. 19).

Dominion Atlantic Ry.—The Dominion Parliament has extended the time for the construction of the projected North Mountain Division. (Mar., pg. 185).

Eastern Townships Ry.—An extension of time for construction has been granted by the Dominion Parliament. (Jan., pg. 19).

Edmonton, Dunvegan and British Columbia Ry.—An extension of time has been granted by the Dominion Parliament for the construction of this projected railway. (Mar., pg. 185).

Erie, London and Tillsonburg Ry.—The Dominion Parliament has granted an extension of time for the construction of this projected railway. (Mar., pg. 185).

Fort Erie and Buffalo Bridge Co.—A company with this title was incorporated by the Dominion Parliament in 1909, with power to construct a bridge for railway and general traffic across the Niagara River with the necessary approaches from Fort Erie, Ont., to Buffalo, N.Y., subject to the necessary authority being obtained for the construction of the bridge from the Legislature of the State of New York. The provisional directors are:—D. McGillivray, Port Colborne, Ont.; W. E. Phin, Welland, Ont.; J. Battle, Thorold, Ont.; S. Casparis, Columbus, Ohio; D. Hyman, Buffalo, N.Y.; W. S. Hartuppe, Pittsburg, Pa.

Fraser River Lumber Co.—Press reports state that this company has let a contract to W. A. Gilley, New Westminster, B.C., to build a logging railway of 3.5 miles from Comox, to its timber limits. The contract includes the construction of a loading place and booming pond for logs at Comox.

Fredericton and Grand Lake Ry. and Coal Co.—A company with this title [illegible]

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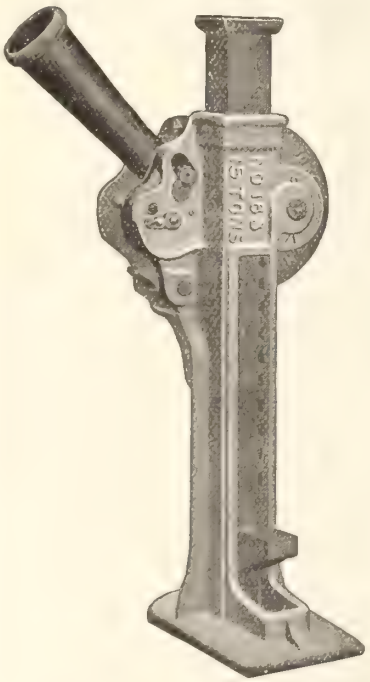

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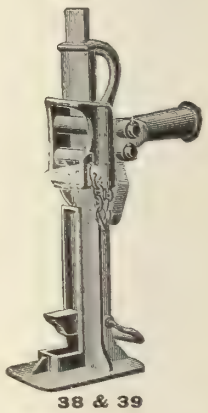

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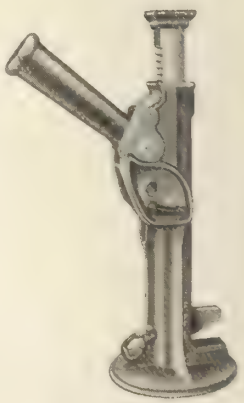

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been incorporated by the New Brunswick Legislature to build in connection with its collieries a railway from Grand Lake to Fredericton.

Graham Island Ry.—The British Columbia Legislature has declared that the Graham Island Ry. Co. has been since Mar. 12, 1909, a body corporate and politic, with all the rights and privileges conferred by chap. 54 of the Statutes of 1909. This act provided for the construction of a railway on Graham Island. (Mar., pg. 185.) See also Island Valley Ry. and Queen Charlotte Island Ry.

Great Northern Mining Co.—At a meeting of shareholders at Eastern Harbor, N.S., Mar. 26, a resolution was passed authorizing the directors to apply for a charter authorizing the building of a line from the company's mill at Cheticamp to Eastern Harbor. The projected railway will be about 2.5 miles long. A preliminary survey has been made, and a route selected through an undulating country presenting no construction difficulties. The G.N. Mining Co. manufactures gypsum products, its mines and mills being at Cheticamp. The officers are:—President, P. J. L. Fiset, M.D.; Vice President, M. Fiset, M.D.; Managing Director, M. V. Grandin, M.E.; Secretary, P. Leclerc. (April, pg. 271.)

Hartland and Miramichi Ry.—The New Brunswick Legislature has incorporated a company with this title to build a railway from Hartland on the St. John River, to the Miramichi River.

Howe Sound and Northern Ry.—The British Columbia Legislature has changed the name of the Howe Sound, Pemberton Valley and Northern Ry. by striking out the words, "Pemberton Valley," leaving it as above. Sec. 3 of the act of 1907, provided for the construction of a line to Anderson Lake, and the present act authorizes an extension to Lillooet; and the extension of the line from the starting point near Newport, at the head of Howe Sound, to Vancouver, there to connect with any intermediate points. The adopted route of this projected railway is set out in the act incorporating the British Columbia and Alaska Ry. as follows:—Starting from the head waters of Howe Sound; thence north-easterly along the valleys of the Squamish and Cheakamus rivers to Green Lake; thence by way of Green River, Pemberton Meadows, and Pemberton Portage to Anderson Lake, thence along the north shore of Anderson Lake and Seaton Lake to Lillooet. (Feb., pg. 109.)

Howe Sound, Pemberton Valley and Northern Ry.—See Howe Sound and Northern Ry.

Hudson's Bay and Pacific Ry.—It appears from an interview with G. Attwood at Prince Albert, Sask., that the railway with which he is connected is the Hudson's Bay and Pacific Ry., and not the Prince Albert and Hudson Bay Ry. as first reported. This company was incorporated by the Dominion Parliament in 1896, Admiral Markham, together with other London, Eng., men being the provisional directors, with power to build a railway from Fort Churchill to Prince Albert, Edmonton and Lake Athabasca, about 1,600 miles. Surveys were made for the line by J. W. Tyrrel, C.E., Hamilton, Ont., in 1900-01, the route followed from Prince Albert to Fort Churchill being an almost direct one passing through Split Lake. During the winter of 1909, further surveys were made by A. H. May, and now Mr. Attwood has taken charge of the work. He states that he is organizing parties, obtaining supplies and equipment, and that the final surveys will be started early in May. A company has been formed in London, Eng., with the title of the Hudsons Bay and Pacific Ry. and Development Co. to finance the construction. Tenders have been asked for, and J. A. Taylor & Co., of New York, have submitted prices, but, Mr. Attwood added, the contract has not yet been awarded. The company's plans are said to be that as soon as the survey parties have got out about 50 miles from Prince Albert, construction will be started. Mr. Attwood further stated that J. G. F. Greville and Herbert Spicer of London are interested in the company, the latter owning over 50% of the stock. H. Spicer is connected with the family of which Spicer Bros., one of the most extensive paper makers in Great Britain, is the representative in the mercantile world. (See Prince Albert and Hudson Bay Ry., Mar., pg. 187). (July, 1909, pg. 477).

Intercolonial Ry.—We are advised that a contract has been let to P. G. Kirk, Antigonish, N.S., to build a line between George's River and Sydney Mines, N.S., 9.09 miles.

The advertisement asking for tenders for building a diversion of the line at Chatham, N.B., has been withdrawn, and a new one is being inserted.

The Minister of Railways, stated in the House of Commons, April 4, that the Department had under consideration the question of developing water power at Riviere du Loup, Que., in order to supply electrical energy for use in the railway shops there.

A proposition is under consideration in Truro, N.S., with a view of asking the Dominion Government to build a branch line from Truro to Bruce or Tatamagouche, and establish a car ferry service thence to Charlottetown, P.E.I. (Mar., pg. 185).

International Ry. of New Brunswick.—A train service has been in operation on the first 55 miles of this railway, from Campbellton, N.B., since Jan. 2, and up to the end of March, 4,213 passengers and 23,000 tons of freight had been carried. It was expected to start tracklaying on the remaining portion of the line a few days after we were advised, April 6, and to have the line completed to St. Leonards, on the St. John River, in June. (Feb., pg. 109).

Island Valley Ry.—The British Columbia Legislature has incorporated a company with this title to build a railway from Queen Charlotte townsite on Skidegate Inlet, Graham Island, westerly to the Hound River, thence northerly along the valley of that river and its tributaries, and the Yakoun River to the mouth of the latter river on Masset Inlet. The provisional directors are:—S. J. Castleman, W. Y. Corry and W. Henderson. (Mar., pg. 185.) See also Graham Island Ry.

Kamloops and Yellowhead Pass Ry.—The Dominion Parliament has extended the time within which this projected railway may be built. (Jan., pg. 19).

Kettle Valley Lines.—The British Columbia Legislature has confirmed the agreement made Feb. 28, between the B.C. Government and the Kettle Valley Ry. Co. The agreement provides that in consideration of the company constructing without subsidy a line from Midway to Penticton, the Government will grant a subsidy to extend the line from Penticton to a junction with the Nicola, Kamloops and Similkameen Ry., near Nicola, 150 miles. The amount of the subsidy is to be $5,000 a mile in cash or in the Province's 3% inscribed stock, payment to be made for the first section of 10 miles as soon as the second section has been completed, and so until the whole has been completed. The lines to be constructed from Penticton to Midway, and from Grand Forks to Franklin Camp are to be exempt from taxation for 10 years after the completion of the line to Nicola. The Government is to grant a free right of way through provincial lands, and to grant the use of public lands adjacent to the right of way for the procuring of stone, timber, gravel and other material which may be necessary for the construction of the line. Construction is to be started within four months, and to be completed within four years after the ratification of the agreement. The line referred to from Grand Forks to Franklin Camp, a distance of just over 30 miles, extends up the North Fork of the Kettle River. Some little construction has been done on it.

The act confirming the agreement provides that independent valuators shall appraise the grade, or actually constructed line, between Midway and Rock Creek, of the Midway and Vernon Ry., constructed prior to 1909, breaking it as part of, or to be part of a completely constructed line, and the amount of such appraisement shall be paid to the credit of the valuators, who shall apportion it among the contractors who did work, or the merchants who supplied goods, during the construction of the Midway-Rock Creek section. During 1910, the company shall complete 25 miles of line; 50 miles during 1911; a further 50 miles in 1912, and the remainder of the lines within the four years mentioned in the agreement.

In connection with the carrying out of the agreement, an act has been passed repealing the provisions of chap. 45 of the Statutes of 1902 granting aid, or authorizing the grant of aid to the Midway and Vernon Ry. (April, pg. 271.)

A press report states that a contract has been let to W. P. Tierney & Co., for building a 10 mile section up the north fork of the Kettle River, from Grand Forks, B.C.; and that tenders will be asked at an early date for the construction of the Midway-Penticton line, and for other sections of the proposed extensions to be constructed under the agreement with the Government.

Lacombe and Brazeau Ry.—The Alberta Legislature has incorporated a company with this title to build a railway from Lacombe, north-westerly to the Brazeau River coal fields.

Liverpool and Milton Tramway Co.—The act incorporating this company has been amended by the Nova Scotia Legislature. The amending act gives power to extend the line to Bear River, passing through Greenfield. The extension proposed, it was stated in the Legislature, would pass through a level country, presenting few difficulties in the way of construction. The Government was asked to make a survey of the route to ascertain the probable cost of a line, with a view of making a contract with a company for its construction by means of a guarantee of bonds. (May, 1909, pg. 357.)

The London and North-Western Ry. was incorporated in 1909 by the Dominion Parliament to build a railway from London to Sarnia, Ont., and from London to Grand Bend, Ont., passing through Ailsa Craig and Parkhill, or either of them. The provisional directors are:—D. A. Stewart, T. E. Pound, J. Hall, London, Ont.; A. J. Stoner, Fernhill, Ont.; T. G. Turnbull, Komoka, Ont.; J. C. Knapton, Parkhill, Ont.; D. Milne, Sarnia, Ont. (Mar., 1909, pg. 173.)

Manitoulin and North Shore Ry.—An extension of time within which the company may construct its authorized railways has been granted by the Dominion Parliament. (Mar., pg. 187.)

Menzies Bay Ry.—The British Columbia Legislature has incorporated a company with this title to build a railway from Menzies Bay, Vancouver Island, either north or south of Trout Lake, approximately to the junction of Salmon River and Memekay River; also from Menzies Bay where the Quinsan River touches the south-east corner of lot 81 near the 50th parallel of north latitude. The provisional directors are:—J. H. McDonald, A. Charleson, J. T. de Pencier. (Mar., pg. 187.)

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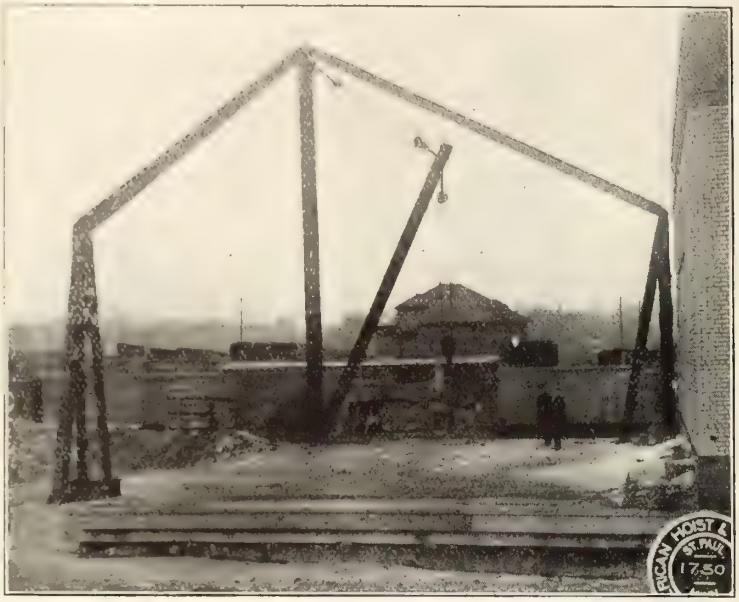

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THE ELECTRIC HEADLIGHT

The following letter was received under date of May 8, 1908, from Mr. J. W. Cleary, Travelling Engineer Pyle-National Electric Headlight Co.:

"I learn from_____the Master Mechanic here, that an engineer running between_____ and_____discovered a broken rail with the Pyle-National Electric Headlight and made the stop without ditching his train. One or two pairs of wheels got off, but that was a small affair to what it would have been where a foot of the rail was broken off. Also an engineer running east of here found some cars shoved out on the main line. He saw them with the 'Electric' and made the stop without hitting them."

PYLE-NATIONAL ELECTRIC HEADLIGHT CO.

MONADNOCK, CHICAGO

Midway and Vernon Ry.—See Kettle Valley Lines.

Northern Empire Ry.—The Dominion Parliament has granted an extension of time for construction.

A Lethbridge paper gives the officers of the company as follows:—President, D. L. McKinnon, Sudbury, Ont.; First Vice President, M. J. Fagan, Ottawa; Secretary-Treasurer, C. Brown, Ottawa. Among the moving spirits in the company, it is said, are, J. E. Lerter, of Chicago, Ill., and Lord Arthur Somerset, London, Eng., but it is reported that as the line will connect with the Great Northern Ry., south of Cardston, Alta., J. J. Hill's interests are really behind the company. The company also owns the charter of the British Columbia, and Manitoba Ry., and the two companies have power to construct somewhere in the vicinity of 2,000 miles of line. (Feb., pg. 111.)

Northern Vancouver Island Ry.—The British Columbia Legislature has incorporated a company with this title to build a railway from Hardy Bay or Port McNeill, or some point between them, or some other point convenient thereto on the east coast of Vancouver Island, to Coal Harbor on the west arm of Quatsino Sound, or to Rupert arm, Quatsino Sound, or to some other convenient point on Quatsino Sound, with branch lines, not exceeding 10 miles in any one instance. The provisional directors are:—J. H. McGregor, W. B. Garrard, H. W. R. Moore, H. B. Robertson, Victoria, B.C.; J. N. Britton, Seattle, Wash. (Mar., pg. 187).

The Ottawa, Brockville and St. Lawrence Ry. Co. has been granted by the Dominion Parliament an extension of time for the construction of its projected railway. (Nov., 1909, pg. 829.)

Ottawa, Montreal and Eastern Ry.—The Dominion Parliament has incorporated a company with this title to build a railway from Lake Megantic, via Montreal, to Ottawa, and other points. (Mar., pg. 187.)

Ottawa, Rideau Valley and Brockville Ry.—The Dominion Parliament has incorporated a company with this title. to build a railway from Ottawa to Brockville, and a branch from Ottawa to Hull, Que., west of the Gatineau River. The company is given power to operate a steam ferry from Brockville across the St. Lawrence River to Morristown, N.Y. The provisional directors are:—A. McDiarmid, R. E. Elliott, Montreal; W. C. Maclaren, J. H. Gilmour, Brockville, Ont.; G. E. Kidd, D. H. McLean, Ottawa; F. A. Heney, E. W. Clarke, Nepean tp., Ont.

Pacific Ry.—The British Columbia Legislature has incorporated a company with this title to build a railway from the point where the Salmon River crosses the International boundary between British Columbia and Alaska, following the Salmon River to its source, with branch lines not exceeding 10 miles in any single instance. The provisional directors are: E. P. Davis, D. G. Marshall, C. B. Macnell, J. S. W. Pugh, Vancouver. (See Pacific and North Western Ry., Feb., pg. 111).

Pine Pass Ry.—The Dominion Parliament has incorporated a company to build a railway from Edmonton, Alta., via Pine Pass to Fort George, B.C. (Jan., pg. 23.)

Port Moody, Indian River and Northern Ry.—The British Columbia Legislature has incorporated a company with this title to build a railway from Port Moody to the north shore of Burrard Inlet, thence westerly to the westerly side line of lot 256, thence westerly or north-westerly to the eastern shore of the north arm of Burrard Inlet, and along the easterly shore line to the mouth of Mesliloet or Indian River, at the head of the north arm. The provisional directors are:—C. T. Dunbar, F. J. Henderson, J. H. McWatters, Vancouver, B.C. (Mar., pg. 187).

The Prince Albert and Hudson Bay Ry. Co. was incorporated at the 1909 session of the Dominion Parliament, with power to construct a railway from Prince Albert across the Saskatchewan River, north-easterly to the mouth of Nelson River, on Hullson Bay, or to York Factory. The provisional directors are:—H. C. Hamelin, G. Russell, P. D. Tyreman, F. W. Halliday, Prince Albert, Sask., F. Eugen, Saskatoon, Sask. (April., pg. 271).

Queen Charlotte Island Ry.—The British Columbia Legislature has incorporated a company with this title to build a railway from lot 15A on Skidegate Inlet, north-westerly to Stewart or Kundes Bays, Masset Inlet, with branches to Masset Harbor, and Rennell Sound. The provisional directors are:—H. R. Bellamy, A. Mours, E. W. Maclean, R. C. Brown and J. L. Kerr. (See Graham Island Ry., Mar., pg. 185; see also Island Valley Ry.)

St. John and Quebec Ry.—The New Brunswick Legislature has incorporated a company with this title to build a railway from St. John along the St. John River alley to the Quebec-N.B. boundary.

St. John River Valley.—The New Brunswick Legislature has authorized the Government to make a survey for a railway from Grand Falls, on the National Transcontinental Ry., via Centerville, Lakeville, Woodstock, Fredericton and Gagetown to St. John, or to the C.P.R. near Westfield; the line from Woodstock to be on the west side of the St. John River, and to have estimates prepared as to the cost of building such a line. The Government is authorized to guarantee the principal and interest of the bonds of any company prepared to build the line to the amount of $25,000 a mile, and to take a first mortgage of the line as security. No guarantee of bonds shall be made until the Dominion Government shall have granted a subsidy at the usual rate, and shall have authorized the making of a contract between the two Governments for the leasing of the line and its maintenance as part of the Government railway system, 99 years. The line shall be constructed in a first class manner with gradients of 0.4%, laid with 80 lb. steel, and provided with masonry and concrete culverts, steel bridges with concrete piers and abutments.

The Government is also authorized to guarantee the payment of the principal and interest of the first mortgage bonds of any company building a railway from Andover via Centreville, and the same route as in the first mentioned line to St. John or to the C.P.R., to the extent of $25,000 a mile. The line to be constructed shall be of the same standard as the I.C.R. in the province, the tracks to be laid with 70 lb. steel, and the bridges to be of steel and concrete. Construction to commence as soon as a contract is entered into, the line is to be completed by 1914. (April, pg. 273).

The St. Maurice and Eastern Ry. Co. was incorporated at the 1909 session of the Dominion Parliament to build a railway from near St. Stanislas or St. Prosper, westerly crossing the Batiscan River, and the St. Maurice River, to and through Shawinigan Falls, Que.; or alternatively from the above line 10 miles east of Shawinigan Falls, north-westerly to a crossing of the St. Maurice River between Shawinigan Falls and Grand Mere, thence to Shawinigan Falls, Que. It is declared that the line is to cross the Canadian Northern Quebec Ry. near St. Stanidas, and the St. Maurice Valley Ry. near Shawinigan Falls. The provisional directors are:—J. Bourgeois, Shawinigan Falls, Que.; R. B. McDannough, Three Rivers, Que.; J. L. Rintoul, J. A. Walls, F. P. Kaelin, Montreal. (June, 1909, pg. 415).

Saskatchewan Central Ry.—The Dominion Parliament has incorporated a company with this title to build railways in Saskatchewan, between points given on pg. 23 of our Jan. issue. (Mar., pg. 187.)

Southampton Ry.—The New Brunswick Legislature has incorporated a company with this title to build a railway in York County, N.B., connecting with the C.P.R. (Feb., pg. 111.)

Temiskaming and Northern Ontario Ry.—Tenders are under consideration for the building abutments for a bridge at mileage 48.91; and for the substructure for a steel bridge across the Wabis River at mileage 119.13. Neither of these are large works.

The Commission has under consideration plans for the elimination of the curvature on the original portion of the line between North Bay and New Liskeard, Ont., 113 miles. The intention, as expressed in the annual report of the Commission, is to carry out the work of improvement until all curves exceeding three degrees have been eliminated. The report adds:—"Further surveys are now in hand covering proposed improvements of main line out of North Bay. Present gradient is 1.46 compensated—northerly directions. Preliminary reconnaissance to the west has been made, which points out that we have every reason to believe a line can be located, not exceeding gradient .75. Increased traffic warrants these surveys—opening up of north country—its possibilities in minerals, pulpwood, timber, et al—the connections at Cochrane (junction point of National Transcontinental Ry., and G.T. Pacific Railway)—the possibility of additional branches. Agricultural future, which after all is the mainstay, not alone of railway, but of the people. Agricultural prospects are so pronounced that we are warranted in assuming that largely increased traffic will arise therefrom ere the lapse of many years. These in themselves demand the re-alignment of the very heavy grades out of North Bay, even though the cost should exceed $1,500,000. The sum though large can readily be absorbed, as the prospective increase of traffic appears to be within measurable distance, hence would warrant the re-alignment of railway in due course. Curvature—First Division of railway (say North Bay to New Liskeard, 113 miles), exceeding 50% of mileage (curvature in miles 50.2). Our efforts continue to be directed to improve; a very large amount of work in that direction has been done during the year, and, as traffic conditions warrant, improvements and betterments will continue, on similar lines."

Additional siding accommodation has been laid down at Cochrane; work has been restarted on the station (to be used jointly with the National Transcontinental Ry.); and it is proposed to expend considerable money during the current year upon improvements in and around the station, yard and townsite.

Engineers have located a route for the proposed branch line from Charlton to Elk Lake and Gowganda, 49.5 miles. On the first 19 miles to Elk Lake the maximum gradient will be 0.8% and the the maximum curvature three degrees, while on the section to Gowganda the maximum gradient will be 0.8% and the maximum curvature five degrees. Location plans have been prepared for a spur line of 7.25 miles from Cochrane to Frederick House River; and for the extension of the main line northerly from Cochrane. On this extension track is reported to have been laid. We were advised April 13, that it has not been decided whether any construction will be done on these lines this year.
pg. 273).

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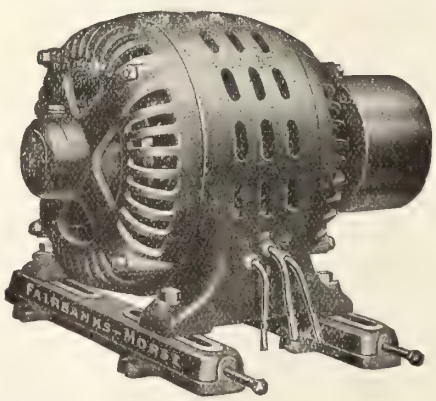

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THE CANADIAN FAIRBANKS CO., Limited

FAIRBANKS SCALES — FAIRBANKS-MORSE GAS ENGINES.

Montreal Toronto St. John, N.B. Winnipeg Calgary Vancouver

Vancouver and Nicola Valley Ry.—The British Columbia Legislature has ratified and confirmed the act incorporating the company, passed in 1908, and extending the time for the construction of the line, for three years for starting work, and for eight years for its completion, from the passing of the amending act. (Mar., pg. 187).

Vancouver, Westminster and Yukon Ry.—The Dominion Parliament has granted an extension of time for the construction of the company's authorized lines. (Dec., 1909, pg. 887.)

The provisions asking for power to construct a bridge across Burrard Inlet were struck out by the House of Commons, although approved by the Railway Committee. (Dec., 1909, pg. 887).

Victoria and Barkley Sound Ry.—A company with this title was incorporated at the 1909 session of the Dominion Parliament, with power to build a railway from Victoria, by way of Otter Point and San Juan, to near Sarita River on Barkley Sound, with a branch from between Metchosin and Sooke to Beecher Bay, on Vancouver Island, B.C. The company is authorized to operate a steam ferry service in connection with its railway between Beecher Bay, or other convenient point, on the Strait of Juan de Fuca, to a point in the United States. The provisional directors are:—W. K. Houston, H. H. Jones, W. E. Laird, C. L. Betterton, Victoria, B.C.; J. M. Hawthorne, Seattle, Wash. (Aug., 1909, pg. 577).

White Pass and Yukon Ry.—We are advised that it is expected to complete the ore track to the Pueblo mine early in the current season. The extension involves the construction of about five miles of track, and is a continuation of the branch, started in 1908, but on which construction was suspended owing to the fall in the price of copper. The work on the extension is light in character, and involves no engineering difficulties. (See British Yukon Ry., July, 1909, pg. 475).

Canadian Northern Ry. Earnings, Etc.

Gross earnings, working expenses, net profits, increases or decreases from 1908-09, from July 1, 1909:

	Earnings.	Expenses.	Net Earnings.	Net Increase or Decrease.
July	$ 843,500	$613,900	$229,600	$26,700+
Aug.	807,100	602,700	204,400	18,300+
Sept.	1,076,800	765,300	311,500	60,400+
Oct.	1,384,200	903,500	480,700	60,600+
Nov.	1,517,600	970,100	547,500	134,000+
Dec.	1,140,300	825,900	314,400	19,300+
Jan.	792,200	669,700	122,500	22,200+
Feb.	698,900	567,400	131,500	38,100+
	$8,280,500	$5,918,500	$2,362,000	$410,400+
Inc.	$ 1,616,600	$1,206,200	$410,400	.....

Approximate earnings for Mar. $934,100, and for two weeks ended Apr. 14, $503,100, against $738,700 and $358,300 for same periods 1909.

C.P.R. Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits, increases or decreases over 1908-9, from July 1, 1909:

	Earnings.	Expenses.	Net Profits.	Net Increase or Decrease
July	7,140,029.93	4,660,159.20	2,479,870.73	205,297.48+
Aug.	7,426,984.62	4,462,926.75	2,964,057.87	385,159.16+
Sept.	8,323,178.03	4,891,288.86	3,431,889.17	1,317,281.40+
Oct.	9,744,596.87	5,358,299.68	4,386,297.19	1,731,030.48+
Nov.	9,075,963.93	5,383,625.98	3,692,337.95	1,471,258.60+
Dec.	8,214,758.01	5,099,334.94	3,115,423.10	918,671.53+
Jan.	6,104,426.90	4,787,830.51	1,316,596.39	926,846.56+
Feb.	5,992,052.14	4,505,032.40	1,487,019.24	724,874.46+
	$62,021,990.46	$39,148,498.82	$22,873,491.64	$7,680,419.67+
Inc.	$11,582,264.68	$3,901,845.01	$7,680,419.67	.....

Approximate earnings for Mar., $7,667,000, and for two weeks ended Apr. 14, $3,776,000, against $6,441,000 and $3,045,000 for same periods 1909.

DULUTH SOUTH SHORE AND ATLANTIC RY.—Operating revenue for Feb. $71,707.93; expenses, $58,921.33; net revenue, $41,781.60; and $195,629.73 operating revenue, $141,000; expenses, $111,614.99 net revenue for Feb. 1909. Aggregate operating revenue for eight months ended Feb. 28, $2,144,772.38; expenses, $1,473,882.20; net revenue, $670,890.18, against $1,776,445.76 aggregate operating revenue; $1,303,625.92 expenses; $472,819.84 net revenue for same period 1908-09. Approximate earnings for Mar., $279,102, and for two weeks ended Apr. 14, $124,540, against $216,747 and $98,898 for same periods 1909.

MINERAL RANGE RD.—Operating revenue for Feb., $63,208.13; expenses, $60,874.36; net revenue, $2,333.77, against $60,742.35 operating revenue; $59,882.77 expenses; $859.58 net revenue for Feb., 1909. Aggregate operating revenue for eight months ended Feb. 28, $571,670.35; expenses, 489,294.32; net revenue, $82,376.03, against $551,255.01 aggregate operating revenue; $458,574.85 expenses; $92,680.16 net revenue for same period 1908-09. Approximate earnings for Mar., $69,779, and for two weeks ended Apr. 14, $27,155, against $68,647 and $28,685 for same periods 1909.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RY.—Operating revenue for Feb., $843,090.22; expenses and taxes, $654,679.38; net revenue, $188,410.84, against $776,653.05 operating revenue; $583,731.44 expenses and taxes; $192,921.61 net revenue for Feb., 1909. Aggregate operating revenue for eight months ended Feb. 28, $10,648,617.24; expenses and taxes, $5,909,942.37; net revenue, $4,738,942.37, against $8,578,093.88 aggregate operating revenue; $5,316,970.60 expenses and taxes; $3,261,123.28 net revenue for same period 1908-09. Approximate earnings for Mar., $1,880,360, and for two weeks ended Apr. 14, $874,651, against $1,576,818 and $717,268 for same periods 1909.

CHICAGO DIVISION.—Operating revenue for Feb., $652,753.80; expenses and taxes, $472,371.36; net revenue, $180,382.44, against $535,919.59 operating revenue; $443,238.24 expenses and taxes; $92,681.35 net revenue for Feb., 1909. Aggregate operating revenue for eight months ended Feb. 28, $5,653,263.08; expenses and taxes, $3,999,685.86; net revenue, $653,577.22, against $5,002,885.31 aggregate operating revenue; $3,605,930.55 expenses and taxes; $1,396,954.76 net revenue for same period 1908-09.

Grand Trunk Ry. Earnings, Expenses, Etc.

The following figures show the earnings of the G.T.R., C.A.R., G.T. Western Ry., and D.G.H. and M. Ry., separately, for Feb., as compared with Feb., 1909:—

GRAND TRUNK RAILWAY.

	1910.	1909.
Earnings	$2,248,000	$1,964,900
Expenses	1,866,000	1,643,800
	$382,000	$321,100

CANADA ATLANTIC RAILWAY.

	1910.	1909.
Earnings	$116,000	$106,700
Expenses	111,000	120,800
	$5,000	*$14,100

GRAND TRUNK WESTERN RY.

	1910.	1909.
Earnings	$461,000	$351,900
Expenses	372,000	321,700
	$89,000	$30,200

DETROIT, GRAND HAVEN AND MILWAUKEE RY.

	1910.	1909.
Earnings	$140,000	$105,900
Expenses	118,000	101,500
	$22,000	$4,400

*Deficit.

TRAFFIC RECEIPTS FOR THE SYSTEM

Aggregate from Jan. 1 to Mar. 31:—

	1910.	1909.	Increase.
Grand Trunk	£1,545,426	£1,310,610	£234,816
Atlantic	87,164	71,702	15,462
G.T. Western	310,519	258,354	51,805
D.G.H. & M.	93,958	72,485	21,473
Totals	£2,036,707	£1,713,151	£323,556

Approximate earnings for Mar., $3,793,257, and for two weeks ended Apr. 14, $1,643,783 against $3,157,251 and $1,462,946 for same perior 1909.

G.T. Pacific Ry. and Prince Rupert.—The British Columbia Legislature has incorporated as a city Prince Rupert, the Pacific coast terminal of the G.T. Pacific Ry. Section 23 declares that the G.T.P. Ry. shall continue to have the first right to use the water of branch no. 1 of Hays Creek for the purposes of its railways and steamships not exceeding 40 miners inches. Section 26 gives the company a continuance of its easement for its pipe line as shown on the registered plan of the townsite, subject to the regulations of the city council with reference to entering upon, breaking up, interfering with and restoring the city streets.

Canadian Westinghouse Co., Ltd.

Following is the annual report for the year 1909:—The net profits as a result of operations for 1909 were $498,379.94 an increase of 6% over 1908. From the year's profits, quarterly dividends at the rate of 6% per annum have been paid, amounting to $261,540.33; $70,000.00 has been added to the general reserve for depreciation of plant and property, which account now totals $300,000.00; in addition to complete absorption as expense items, of all maintenance and replacement charges during the year, $62,460.56 has been written off items included in property and plant account which are not directly productive from a manufacturing standpoint, and $104,379.05 has been carried forward to the credit of profit and loss account, which shows the company's unapportioned surplus on Dec. 31, 1909, to be $536,103.87.

In respect of the physical activities of the company the year 1909 has been the reverse of its predecessor. While in 1908 the process was one of continuous and severe contraction of activity, in the year just ended a gradual and accumulative resumption has taken place to approximately normal conditions in quantity of output. The condition of keen competition in prices and deliveries, both foreign and domestic, has experienced no abatement; in fact, has magnified during the year, making it a matter for very close attention in both the present and future conduct of the company's affairs. All departments, sales, engineering and manufacturing, have responded ably to the call laid upon them by this situation, and the result accomplished by the total of net profits realized is a measure of successful effort.

In the work of the past year your company has amply maintained its advanced position in the engineering and manufacturing fields. Many important engineering undertakings have been reduced to practical calculation and realization in recent development of Canadian resources, and your company has had its usual large share in the resulting orders for electrical apparatus. Incidentally, the distinction rests with your company of having manufactured during the past year, the only transforming and switching apparatus yet produced in Canada for operation in connection with lines transmitting electrical energy at a pressure of 110,000 volts, the highest transmission voltage yet attempted in any part of the world. Also, as an item in the year's manufacture, is included the largest generator yet built for Canadian installation, and which embodies the highest refinement of electrical and mechanical structure.

Sales during the year were the largest in the history of the company, about doubling those of 1908, and considerably greater than in 1906, our previously largest year, when much higher prices for apparatus were obtained. The cost of manufacturing has appreciably reduced during the year, and is an evidence of the continued efficiency of the plant and its manufacturing organization.

The company has during the year [illegible] in Winnipeg. A suitable site on Portage Ave. East, one block from the principal commercial centre, was secured and a building erected, adequate for our present needs and of sufficient capacity to take care of, for some years, the constantly increasing business of the Northwest, for which Winnipeg is the main distributing point.

The Niagara Falls, Ont., city council passed a resolution, April 11, requesting the Michigan Central Rd. to [illegible] section of its line between Niagara Falls and Niagara on the Lake, 12 miles.

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OFFICE AND WORK

ESPLANADE STREET EAST, TORONTO

How to Improve the Roadbed.

By E. Desharnais, Roadmaster C. P. R., Medicine Hat, Alta.

Section ballasting should be done with material which is not too coarse. Roadbed should have a sub-grade according to height of dumps. In some places the sub-grade should be 18 to 20 ft. to retain ballast, as all big dumps settle for years after grade is completed, and if we give only 16 ft. sub-grade on big dumps and the dumps settle down 1 to 2 ft. in a couple of years, then we are obliged to haul ballast to lift the dumps to the grade and the result is that we have no shoulder to keep ballast firm.

Second applications of ballast for shoulder, especially on big dumps, never make strong shoulders, grass will not grow in ballast as well as in the dirt, when the frost comes out of the dump. I have seen many cases where ballast rolls down because there is nothing to hold it down to the dump and old ballast. I have never seen good grass grow in ballast. I think all big dumps should be built according to the height and a few feet allowed for settling down. Draining is one of the most important, if not the most important, thing in connection with the subject of which I am treating.

The division should be ballasted every six years, especially where there is heavy traffic, and if it is possible, ballast should not be too coarse, and each division should not have more than 25 miles of ballasting to do each year. This should be done as soon as the frost is out of the ground, or as quickly after as possible, in order to have the roadbed as solid as possible before the frost sets in in the fall. After the track has been lifted and put in good line, all track should be trimmed and the ties well filled with ballast. The ballast should be sloped from the rail to the ends of the ties, to only one inch below the top of the ties. My experience of trimming ballast in this way is that it will save the life of ties, because where ties are filled and a good shoulder is made we will have better track in all seasons of the year. The way we trim track to-day, we cannot judge the life of the ties, as the sun affects the ends of the ties too much and causes the ends to split, which allows the wet and dirt to get into the heart of the ties and causes them to rot quicker. I think we have changed more ties since we started the new standard way of trimming track than before this came into effect. It is more difficult to keep our track in good line by not filling up the end of the ties, especially on curves, and where the track heaves, and more expense is incurred in handling ballast. No matter how deep ballast is trimmed to the end of the ties, water never runs from the centre of the track to the ends of the ties. Even if the water does run from the centre to end of ties it does not improve the track, because it leaves the centre part of the roadbed too hard and makes the outside, especially near the rail, too soft, causing the track to go out of level. I have noticed this when riding an engine after three or four days of wet weather, especially where the track has been trimmed rather deep down the ties.

With the weight of rolling stock and the speed run, our system of changing ties cannot be improved upon at present. All our ties are inspected before they come out; after our old ties are taken out of the track they are piled up in such a way that they can be inspected by anyone, and they have been inspected from time to time, and I have found very few cases where ties have been taken out that should have been in the track any longer. I think if we abide by reports made by Mr. Dixon we will have no end of trouble with our trackmen, because, where the trackmen are lifting track is where they find the bad ties, and in many cases the tie will not be marked by the inspector, and will require to be taken out the same day, and there will be no tie to take its place, as we distribute ties according to the marking of the inspector. If we cannot trust our section foremen after long experience, to mark the ties in the spring, we should not trust them in the fall to find out how many ties are required for next year. My opinion is, if a foreman works on a section every day in the year, he is able to tell where the bad ties are, better than any inspector who may come along once a year over the division. I do not see how a man is able to test ties by sounding or looking at the top. The greatest trouble with ties to-day is, rotting underneath the tie, and breaking under the rail, and in many cases the tie may be sound in the centre, also at the ends, and may look to the inspector as good as new. We must lift the line and gauge our track to know where the bad ties are. We have also to consider the speed of the trains on certain parts of the road. I approve of tie plates being put on all ties on tangents as well as curves, and they should be put in before the frost is in the ground. If they are put in after the ties are frozen solid, it is liable to cause more broken rails. I also think tie plates would save the life of the ties a couple of years at least.

Especially on a new roadbed, all steel should be laid before the frost is in the ground. If steel is laid on a frozen roadbed all the loose ties should be blocked before any engine is allowed to run over the steel. No matter what kind of roadbed you may have you will always find loose ties, and if an engine is run over the steel without blocking, you will have bad track until the steel is changed. I know by experience that an engine running over steel without the ties being blocked will cause a large number of surface bent rails, and these rails cannot be straightened out, which will cause bad gauge as long as this steel remains in the track. The track will also spread in winter and you will never have smooth track. More expense is also incurred in trying to keep the track in good surface.

Where roadbed is over muskeg I would recommend 10 ft. ties with 56 lb. steel, to make a guard rail to be placed on the end of the ties with slot in each side and well spiked, to prevent the ties from bunching, and also to keep the main line rails from creeping and help to keep better line. I do not approve of cinders being used for lifting track on the main line, but when you come to muskeg, or soft places as may be found in cuts, etc., I think cinders are the best material to use, unless you have a very short soft place in the roadbed, which should be dug out a couple of feet under the ties and filled with crushed stone, and ties tamped with good ballast, and drained at that place to take the water out of the hole. If this is done, I do not think there will be any further trouble with that spot.

Each roadmaster having charge of a division should start a gang with 10 men, and place his best liner in charge of them, and line his division from one end to the other about the first of July after the heavy rain is over. Section foremen should have all their ties in by that time and most of the track up in good surface, but, as a rule, track is in poor line. This is due to the fact that every section foreman is not able to line track properly on account of his gang being too small to throw the track to line in many places, but by having a good gang to line track, especially at switches, you will have better riding track and switches, as it is impossible for a small section gang to line switches. Some foremen may be good trackmen, but may not be able to line track as well as others.

Shims should be supplied one year ahead of the time they will be required, and piled in a shed so that they will dry out without being exposed to the sun. In this way it will keep them from warping and cracking. Using green timber shims placed under the rail is the cause in many cases of spreading track. In places where a man is shimming from one-quarter of an inch up, four to six braces should be placed in each rail length. If we only shim one side of the track a brace should be placed on both sides, I mean a brace on each end of the tie. If you put a brace on one side only, the side the brace is on, when the spring comes, a loose tie in the ballast will cause a spread track on account of there being only one spike to hold the rail where there is no brace, and, the braced side will pull the tie from the rail where there is no brace. All braces should have a hole bored through the brace to put one spike in to prevent the brace from moving sideways, two spikes should be used to a brace, one at the end and the other in the hole, on light shimming. On shimming over two inches three spikes will be better on each brace. In a country like Alberta we should be supplied with two inch hardwood plank, four inches wide, so the sectionman can cut his braces to suit his shimming. A brace should not be more than 10 inches long. This would be economy to the company, as these braces will last from three to four years, and also save section foremen cutting new ties every year, the brace from ties being too soft, and the plank making a much better brace.

All shims over 1½ ins. should have a shimming spike every second tie from 2 ins. and upward. Shims 2 ft. long should be used and shimming spikes should also be used in every tie. No shimming should be done without level board.

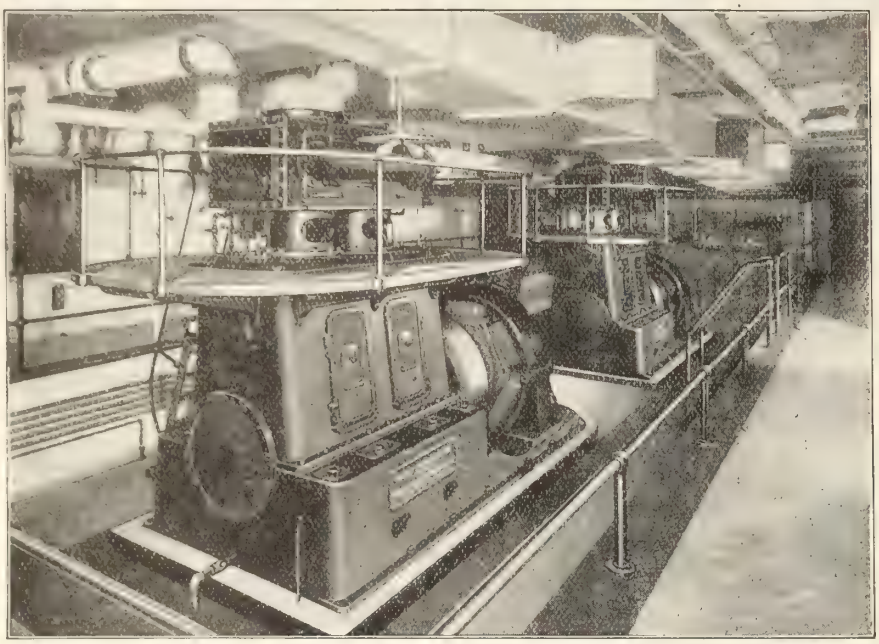
In some cases I have found the stakes set up by the engineers, especially on lifting track, have been put in very loosely, having been adjusted by the engineer, either by driving down or pulling up, after being put in ground. I think a good way of setting stakes for lifting track would be to drive the stake in the ground solid, the stake being long enough to be cut to adjust, and the stake not be adjusted by driving down or pulling up.

The foregoing paper was read before the Western Canada Railway Club recently.

The New York Railroad Club's committee on electrification, after a year's study of the subject, reports that no general information is available on the basis of which steam railways as a whole would be justified in electrifying terminals or main lines solely on the ground of economy. They consider that more attention should be given to the possibility of electrification in connection with heavy grades, and that it is necessary to proceed with caution in attempting the electrification of large freight terminals, which necessarily involve the traffic of a number of different roads.

The Board of Railway Commissioners has received an application from the C.P.R. for formal approval of the uniform bill of lading in use in the United States with respect to shipments from U. S. points to points in Canada, and from U. S. points through Canada to U. S. points, on the ground that doubt exists as to whether Canadian railway companies would have the protection of the U. S. bill of lading in the event of loss or damage affecting such traffic while in transit within Canada. The Board will discuss the situation fully with the railway companies subject to jurisdiction at the traffic sittings to be held in Ottawa on May 17.

HAS COST NOTHING FOR REPAIRS



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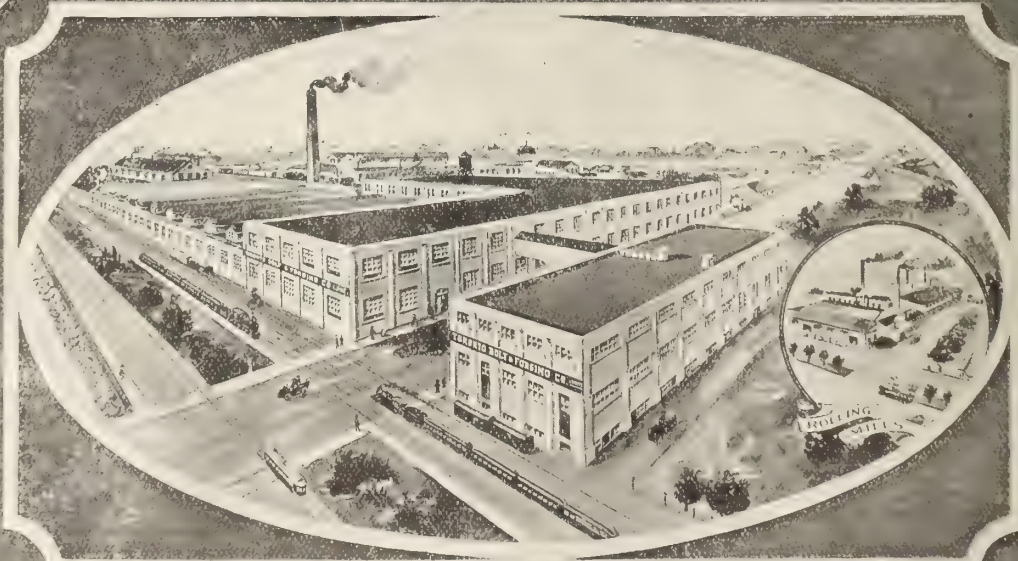


TORONTO BOLT AND FORGING CO. LIMITED
TORONTO, CANADA.

An Item in the Maintenance of Locomotive Boilers.

By George Twist, Locomotive Foreman C.P.R., Minnedosa, Man.

A great deal has been said about the trouble experienced in keeping locomotive boilers free from mud and scale, particularly in bad water districts. Boiler compounds of various kinds have been used, but the experiments in this direction cannot be said to have been successful. The water has been treated at the supply tanks, but has usually resulted in making no difference whatever, or else has caused boilers to foam so badly as to necessitate the washing out of the boiler each trip or the changing of water at stations where treatment is not necessary. Various designs of blow-off cocks or valves have been tried, some with part success, others resulting in complete failure. However, we still seem to be far away from the solution of the difficulty. In spite of the fact that the trouble has always existed, we still find ourselves with blow-off arrangements, the same in number, design and location as 15 years ago. The water legs of boilers seem to be the only places which have received attention in this respect. In the last few years it has been thought desirable to provide ports in the bottom of the barrel, which would suggest that we are alive to the fact that this part of the boiler requires most careful washing out. Then why not apply blow-off arrangements whereby this portion of the boiler may be cleared of a large proportion of this mud? Provision has been made for the more thorough washing out of boilers by providing additional holes for the purpose. Good washout tools have also been designed and provided. Have the same ideas been followed out in the effort to keep boilers free from mud when under steam? I think not. Very few designs of blow-off arrangements make them practical for use when an engine is running, a time which is a good one, and I think, a proper one, to blow out the superfluous muddy water, as at this time the water is in better circulation than when the engine is standing idle.

So much for our present arrangements for keeping our boilers free from mud and scale. Let us now consider whether a little different design of boiler could not be used for our bad water districts. Is it better to have engine failures, necessitating the removal of part or the whole set of tubes, or is it worth while to depart from the hard and fast rule which seems to prevail of having our tubes spaced so very close together? Undoubtedly, by spacing them further apart we would lose a little heating surface. But this would be overcome in a short time after the boiler has been in service by the fact of having little or no scale for the heat to penetrate. We would be able to wash the scale to the bottom of the barrel, which is now impossible to do, and with blow-off arrangements in the barrel we would be able to keep scale away from the tubes to a much greater extent than we can at present. Scale which lodges between tubes has a tendency and undoubtedly does gather other scale and mud, and in all cases in my experience of tubes being what is termed mud blocked, the examination of scale shows that the accumulation has been built there, not by the formation of scale, but by the gathering together of separate pieces of scale, the same being bound together and forming a solid cake around the tubes and causing them to leak. The only remedy then is to take out and renew the set or part set of tubes, which costs considerably, especially when the same performance is necessary every three or four months. I think the enormous expense of maintaining our boilers could be considerably curtailed by starting out on the principle of designing boilers to suit bad water districts and the systematic installation of good reliable blow-off arrangements, together with enforced regulations to those responsible for using same. I would suggest that you invite others interested to give their experiences and suggestions.

[Editor's Note.—We hope that others will follow Mr. Twist's example and write us on this important subject.]

Reid Newfoundland Ry. Construction.

The Newfoundland Legislature has confirmed a contract between the Government and the Reid Newfoundland Co., for the construction of branch lines as follows:—From near Duffs on the West End branch, to Trepassey by way of the southern shore, 70 miles; from Broad Cove, on the Carbonear branch, via Heart's Content to Grates Cove, 70 miles; from between Come-by-Chance and Northern Bight, on the trans-island line, to Fortune Bay, 40 miles; from Shoal Harbor, on the trans-island line, to Bonavista, 70 miles; from Howley or Bay of Islands, on the trans-island line, to Bonne Bay, 30 miles. The contract provides that the lines are to follow the routes laid down by the Government, and are to be in all respects equal to the work of the railway constructed for the Government by the late Sir Robert G. Reid, under the contract of May 16, 1893. The right of way, station grounds, borrow pits and ballast pits are to be provided by the Government as required, and the company may take all necessary lumber for construction purposes from Crown Lands. The rate of wages paid on the work is not to be less than $1.50 a day, and no work is to be done on Sundays. During the construction the contractor may carry such freight and passengers as may offer at rates not in excess of those charged on the existing lines. The Government agrees to pay, upon the completion of each five mile section of the lines a subsidy of $15,000 a mile, and to admit free of duty the rails, fish-plates, fish-bolts and spikes necessary. The contractor also agrees to manufacture in the colony all the rolling stock necessary for the operation of the branch lines, all material and fittings being admitted duty free. The stations and other buildings are to be erected by the contractor, to whom the Government will pay the par value.

A second contract provides for the operation of these branch lines from the period of completion of each of them, until July 31, 1951, at least one passenger or mixed train being run in either direction daily, Sundays excepted, and as many additional through local passenger or freight trains as traffic may require. Mail and mail cars are to be carried as required at the rate of $69.50 a mile a year. For such operation the company is granted 4,000 acres of land for each mile of branch lines to be constructed; such land to be granted upon the completion of each branch line. The existing clauses of the contract of 1898 and 1901, and the acts confirming them are to apply to these contracts unless specifically excepted.

The branch from Shoal Harbor to Bonavista, 70 miles, is under construction and is expected to be completed early in 1911. The contract calls for the construction of 50 miles each year until the whole mileage is completed.

Winnipeg press reports state that negotiations between the C.P.R. and its mechanics of the Western Lines, came to a conclusion Apr. 17, when the employes accepted the terms as laid down by the company, which are the same as were agreed to at the conclusion of the 1908 strike.

Recent New Brunswick Legislation.

The New Brunswick Legislature, which was prorogued Mar. 26, passed the following acts affecting transportation interests:—

Eastern Electric and Development Co.—Investing in the company the powers and franchises of the Sackville Electric Light and Telephone Co.

Fredericton and Grand Lake Coal and Ry. Co.—Incorporation.

Fredericton Street Ry.—Incorporation.

Hartland and Miramichi Ry.—Incorporation.

International Ry. Co. of New Brunswick.—Amending company's powers.

Imperial Dry Dock Co. of St. John.—Amending acts relating to the construction of a dock.

Moncton.—Authorizing city to issue debentures, to make agreements with respect to construction of electric railway, etc.

Moncton Electric Ry., Heat and Power Co.—Amending 9 Edward VII., chap. 69.

New Brunswick Coal and Ry. Co.—Amending acts.

New Brunswick Ry.—Amending 33 Vict., chap. 49.

New Brunswick Railway Act.—Amending chap. 91, Consolidated Statutes of 1903.

Northern New Brunswick and Seaboard Ry.—Authorizing Gloucester municipality to grant $25,000 to provide a right of way for the railway, and to procure and complete shipping facilities in some port in Gloucester county.

St. John and Quebec Ry.—Incorporation.

St. John Drydock.—To aid the construction of a dry dock.

St. John River Ry.—To aid the construction of a railway along the St. John River Valley.

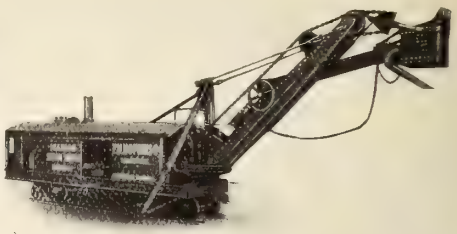
Tobique and Campbellton Ry.—Amending acts authorizing construction of the railway, and extending time for construction.

Wireless Telegraphy.—H. LaV. Twining, B.A., of the Physics and Engineering Department of the Polytechnic High School, Los Angeles, Cal., has rendered a valuable service to amateur electricians and the students in technical schools by the publication of a little volume on "Wireless Telegraphy and High Frequency Electricity." It aims at supplying in a clear and concise manner such information as will enable anyone to design and manufacture high potential transformers for wireless or high frequency work. The first chapters deal entirely with the construction of the transformer and other apparatus, and are followed by detailed instructions for its installation and operation; and, in conclusion some theoretical information is given. There are 11 full page half-tone illustrations, and 86 cuts illustrating the text, but what gives the work a particular interest is the table at the end giving data for the construction of 14 sizes of transformers from 100 watt to 5 kilowatt. In the preface, the author refers to the help given him by the boys of the school in the experiment work.

Railway Guarantees in British Columbia.—The B.C. Government under the authority of the Shuswap Ry. Guarantee Act, 1890, and the Nakusp and Slocan Ry. Aid Act, 1894, has to make provision for paying interest on the bonds of these railways in excess of earnings; and under authority of the Victoria and Sidney Ry. Subsidy Act, 1892, for paying interest on its bonds. The amount estimated to be required to provide for these payments for the year ending Mar. 31, 1911, is $10,000.

The C.P.R., it has been announced will put on a motor car service on the [illegible] branches May 1. The service will be operated from Brandon, Man.

"MARION" STEAM SHOVELS



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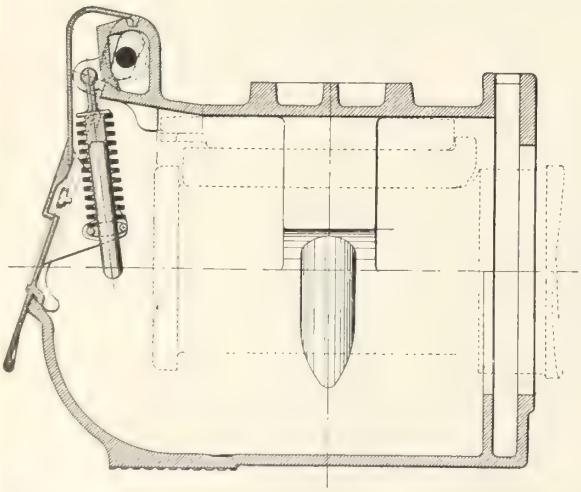

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Railway Freight Statistics.

During the year ended June 30, 1909, Canadian railways carried 66,830,019 tons of freight, against 63,071,107 tons in the previous year. Of the total tonnage relating to commodities 36,075,101 tons were reported as originating on the lines, and 30,754,918 tons as having been received from connecting lines. The following table shows the grand totals of the various classes of freight carried, whether originating on the various lines, or received from connecting lines:

NAME OF RAILWAY.	Tonnage Originating on Road	Tonnage received from connecting roads & other carriers.	Total freight tonnage
Alberta Railway and Irrigation Co.	96,901	54,084	150,985
Algoma Central and Hudson Bay	361,950	983	362,933
Atlantic and Lake Superior	16,238	21,781	38,019
Atlantic, Quebec and Western	3,975	9,295	13,270
Bay of Quinte	92,403	49,372	141,775
Bedlington and Nelson	2,053	447	2,500
Bessemer and Barry's Bay	18,864	2,505	21,369
Brandon, Saskatchewan and Hudson Bay	58,995	13,663	72,658
British Yukon	1,754	22,199	23,953
Brockville, Westport and Northwestern	7,579	14,334	21,913
Canada Southern	621,135	5,334,116	5,955,251
Can. Gov. Railways—			
Intercolonial	3,157,187	395,552	3,552,739
Prince Edward Island	103,143	8,297	111,440
Canadian Northern	2,284,300	674,502	2,958,802
Can. Northern Ontario	175,051	26,245	201,296
Can. Northern Quebec	196,405	289,414	485,819
Canadian Pacific	11,617,107	4,084,169	15,701,276
Cape Breton	2,327	1,108	3,435
Caraquet	19,775	5,018	24,793
Carillon and Grenville	15	40	55
Central Ontario	139,596	91,835	231,431
Crow's Nest Southern	115,437	127,055	242,492
Cumberland Railway & Coal Co.	360,294	18,137	378,431
Dominion Atlantic	252,287	82,301	334,588
Elgin and Havelock	12,250	2,913	15,163
Eastern British Columbia	19,079	18	19,079
Grand Trunk	5,441,495	9,077,196	14,518,691
Grand Trunk (Canada Atlantic)	563,629	1,694,958	2,258,587
Halifax and Southwest'n	165,555	19,508	185,063
Hampton & St. Martins	11,035	5,071	16,106
Hereford	120,933	8,049	128,982
Inverness Railway and Coal Co	265,106	9,994	275,100
Irondale, Bancroft and Ottawa	28,575	3,457	32,032
Kaslo and Slocan	11,414	231	11,645
Kent Northern	3,909	4,140	8,049
Kettle River Valley	2,355	..	2,355
Kingston and Pembroke	69,061	30,421	99,482
Klondike Mines	6,093	.....	6,093
Liverpool and Milton	43,773	798	44,571
London & Port Stanley	166,333	296,843	463,176
Lotbiniere & Megantic	46,176	5,851	52,027
Manitoulin and North Shore	225,445	1,207	226,652
Maritime Coal and Railway Co.	125,097	4,335	129,432
Massawippi Valley	125,238	279,732	404,970
Midland Ry. of Manitoba	31,776	63,426	95,202
Moncton and Buctouche	28,540	....	28,540
Montreal and Atlantic	119,024	880,810	999,834
Montreal and Province Line	11,950	51,148	63,098
Montreal and Vermont Junction	7,055	1,001,660	1,008,715
Morrissey, Fernie and Michel	377,788	15,102	392,890
Napierville Junction Ry.	2,125	160,757	162,882
Nelson and Fort Shepard	28,898	12,814	41,712
New Brunswick Coal and Railway Co.	46,695	19,193	65,888
New Brunswick & Prince Edward Island	26,210	8,603	34,813
New Brunswick South'n	11,618	512	12,130
New Westminster Southern	34,510	51,352	85,862
North Shore	6,762	35	6,797
Nosbonsing & Nipissing	16,310	....	16,310
Nova Scotia Steel and Coal Co.	5,816	1,137	6,953
Orford Mountain	30,111	5,882	35,993
Ottawa and New York	34,754	90,846	125,600
Pere Marquette (in Canada)	965,579	1,453,392	2,418,971
Philipsburg Railway & Quarry Co.	8,329	5,124	13,453
Princeton Branch of Washington Co. Ry.	.....	150,545	150,545
Quebec Central	466,098	128,529	594,627
Quebec & Lake St. John	210,615	109,854	320,469
Quebec Ry., Light & Power Co.	101,465	5,680	107,145
Quebec, Montreal and Southern	45,332	190,414	235,746
Red Mountain	49,055	33,887	82,942
Rutland and Noyan	36	139,362	139,398
Salisbury and Harvey	38,419	5,242	43,661
Schomberg and Aurora	.....	..	.....
Stanstead, Shefford and Chambly	18,726	1,033,753	1,082,479
St. Clair Tunnel	.....	...	.....
St. Lawrence and Adirondack	5,933	574,656	580,589
Sydney and Louisburg (Dominion Coal Co.)	3,341,308	115,155	3,456,463
Spokane and British Columbia Ry.	4,163	111	4,274
Temiscouata	116,866	19,509	136,375
Temiskaming & Northern Ontario	337,305	197,937	535,242
Thousand Islands	14,612	15,900	30,512
Toronto, Hamilton and Buffalo	96,422	1,137,881	1,234,303
Vancouver, Victoria and Eastern	699,053	228,883	927,936
Victoria & Sidney, B.C.	20,542	9,461	30,003
Victoria Terminal and Ferry Co.	1,240	28,702	29,942
Wabash Railway Co., in Canada	1,225,487	.....	1,225,487
Wellington Colliery Co.	324,738	4,083	328,821
York and Carleton	6,514	2,407	8,921
Totals	36,075,101	30,754,918	66,830,019

C.P.R. Hotel Improvements.

The alterations, improvements and additions being made, or which it is proposed to go on with during the year at the various C.P.R. hotels in Western Canada are as follows:—

Banff Springs Hotel.—Work will shortly be started on an extension which will provide 30 additional rooms for guests. Besides this addition a new bathing pool, 60 by 120 ft., is being constructed, with private bath rooms and dressing rooms attached. The estimated cost of these improvements is $80,000. This is really the beginning of the very extensive improvements contemplated.

Glacier House.—The construction of a new power plant and laundry building is being proceeded with, the estimated cost being $12,800.

Sicamous Hotel.—In addition to the construction of a new power plant an extension, providing 25 additional rooms for guests and 10 new bath rooms, is being built. The estimated cost of the improvements is $32,000.

Empress Hotel, Victoria.—An addition, six stories high, is being built. It will add 67 rooms for the accommodation of guests, with an additional 53 bath rooms. The contractor is L. Skene, Victoria, and the estimated cost of the work is $136,000.

The work in each case is being done under the superintendence of the company's architect, W. S. Painter.

The Railway Committee of the House of Commons, April 7, threw out the bill introduced by A. C. Macdonnell, M.P., in respect to the granting of commutation tickets by railway companies. The object of the bill was to provide that the granting of a commutation fare could not be revoked except by the consent of the Board of Railway Commissioners, and that when one railway granted reduced rates from a central to an outside point, all other railways must do so within the same radius.

Great Northern Ry. Lines in Canada.

Midland Ry. of Manitoba.—The Winnipeg City Council has refused to adopt the plans submitted by the company for an entrance into the city, and has referred the whole matter back to the railway committee for further consideration. The principal objection to the plans was that they only provided for the erection of a freight shed, whereas the city had been led to expect that a passenger station would be provided.

At a joint meeting of the Winnipeg City Council railway committee and a number of ratepayers with L. C. Gilman, a proposition was submitted to the company that opposition to the entrance of the line, on the plans presented, would be withdrawn if provision be made for operating the line in the city by electricity. Mr. Gilman said the matter would be considered by the officials at St. Paul, Minn.

Brandon, Saskatchewan and Hudson's Bay Ry.—The Dominion Parliament has granted an extension of time for building the remaining portion of the company's projected railway.

Penticton Ry.—A company with this title has been incorporated by the British Columbia Legislature to build a railway from Penticton to the International boundary in the vicinity of Osoyoos Lake. The provisional directors are:—A. H. MacNeill, J. H. Kennedy, and E. B. Howes.

J. H. Kennedy, Chief Engineer V.V. and E. Ry., was in Oroville, Wash., April 3, for the purpose of going over the route surveyed for this projected line by —. Russell. The line is to connect with the V.V. and E. Ry. at Penticton.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—Work on the roundhouse and other divisional buildings at Princeton, B.C., the present end of track, is reported to be proceeding rapidly. Sixty acres have been reserved for yard and other purposes.

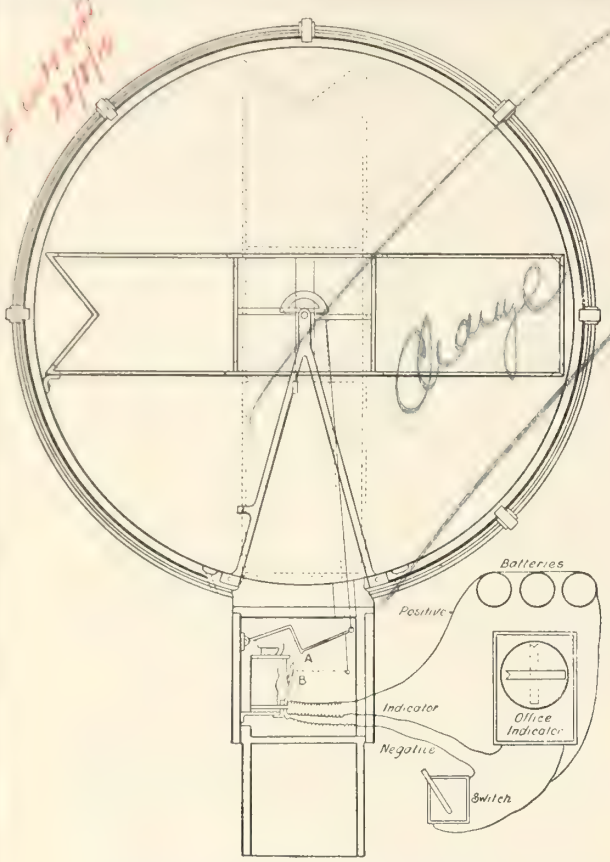
J. H. Kennedy, Chief Engineer, arrived at Keremeos, April 5, from a trip of inspection of the construction going on between Abbotsford and Hope.

An agreement was finally made April 12, between the company and the Vancouver City Council with respect to location of the proposed terminals for the Great Northern Ry. lines at the head of False Creek. The corporation assigns to the company its right to the bed of False Creek, between certain defined points, which is to be filled in by the company, and there is to be erected thereon, freight and passenger stations and terminals within five years, to cost not less than $1,500,000. A union passenger station is to be constructed near Gore Ave., and the company releases to the corporation certain riparian rights in the bed of False Creek, east of Westminster Ave. The agreement has to be approved by the ratepayers before becoming operative.

The Provincial Engineer has written to the mayor of New Westminister, B.C., stating that the Government will not permit the Great Northern Ry., to erect a station on the grounds leased at the north end of the Fraser River bridge, until it agrees to allow the station to be used by any other railway company, which may make an arrangement with the Government to operate trains over the bridge. (April, pg. 275).

The C.P.R. is reported to have ordered 100,000 tons of steel rails from the Algoma Steel Co., Sault Ste. Marie, Ont.

Sir C. Rivers Wilson, ex-President G.T.R., speaking at the Crystal Palace Engineering School, London, Eng., April 12, said there was room for thousands of competent engineers in Canada.



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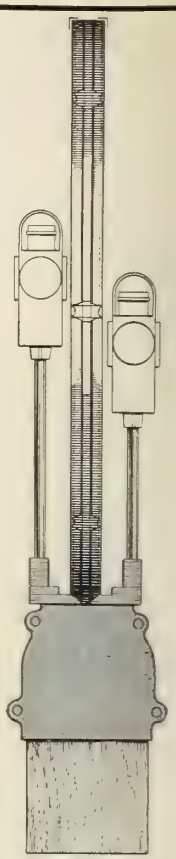

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Orders by the Railway Commissioners.

Beginning with June, 1904, we have published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed our paper have a continuous record of the Board's proceedings. No other paper has done this.

The dates given of orders, immediately following the numbers, are those on which the hearing took place and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the date assigned to them.

9972. Mar. 22.—Rescinding order 7075, May 25, 1909, authorizing G.T.R. to build across highway, undergrade, between secs. 27 and 28, tp. 37, range 18, w. 3 m., West Saskatchewan District.

9973. Mar. 22.—Amending order 8685, Nov. 5, 1909, in regard to removal of C.P.R. tracks from McPhillips St. Winnipeg.

9974, 9975. Mar. 22.—Authorizing C.P.R. to build four spurs for North Pacific Lumber Co., New Westminster, B.C.; and one for Norcross Bros. Co., Iberville, Que.

9976. Mar. 18.—Ordering G.T.R. within 60 days to install electric bell at crossing just south of Concord station, Ont.

9977. Mar. 23.—Approving Alberta Central Ry. location from Red Deer to Rocky Mountain House, Alta.

9978. Mar. 23.—Approving Dominion Atlantic Ry. location from its junction at Centreville, N.B., to 300 ft. west of Turner Road.

9979. Mar. 22.—Authorizing Dickson Bridge Works Co. to construct two five-ton hoisting cranes across G.T.R. branch line to Northumberland Paper and Electric Co., Campbellford, Ont.

9980. Mar. 22.—Authorizing C.P.R. to open for traffic its Lacombe Branch extension from Stettler to Castor, Alta.

9981. Mar. 23.—Authorizing A. C. Beatty, M.D., Garden Hill, Ont., to place wires across G.T.R. between lots 12 and 13, con. 8, Hope tp., Ont.

9982. Mar. 23.—Authorizing Consolidated Telephone Co. to place wires across C.P.R. near Bath, N.B.

9983. Mar. 22.—Authorizing Manitoba Government Telephones to place wires across C.P.R. near Hartney station.

9984. Mar. 24.—Authorizing Princeton and Drumbo Telephone Co. to place wires across G.T.R. at Eastwood, Ont.

9985 to 9989. Mar. 22-26.—Ordering that C.P.R. be relieved from providing further protection at crossings, at mileage 7.8, between lots 20 and 21, con. 5, York tp.; between lots 12 and 13, con. 12, Sydenham tp.; at mileage 54.3, Owen Sound branch, Grey co.; and at mileage 13.7, Guelph and Goderich branch, Guelph tp., and that G.T.R. be similarly relieved in respect of crossing two miles west of Glencoe, Ont., it appearing from inspections by the Board's Engineering and Operating Department, that the views are excellent, and proper signboards and whistling posts provided.

9990. Mar. 26.—Authorizing Trenton Electric and Water Co. to place wires across Bell Telephone Co. wires at Belleville, Ont.

9991. Mar. 22.—Authorizing Bell Telephone Co. to place wires across G.T.R. at Elgin St. Brantford, Ont.

9992. Mar. 26.—Authorizing H. E. Beach to place wires across C.P.R. at Honeydale station, N.B.

9993. Mar. 21.—Authorizing Trenton Electric and Water Co. to place wires across G.T.R. at Belleville, Ont.

9994, 9995. Mar. 26.—Authorizing Bell Telephone Co. to place wires across C.P.R. at Daniel St., Arnprior, and across P.M.R. at Park Ave. and Whitehall St., Chatham, Ont.

9996. Mar. 22.—Authorizing G.T.P.R. to take certain lands in Edmonton, Alta., for constructing connecting tracks and Y for transfer of cars, water station and coaling plant for passenger trains, repair tracks, warehouses and other buildings and facilities necessary for traffic.

9997. Mar. 23.—Adding town of Napanee and Bay of Quinte Ry. as parties to the application re protection by G.T.R. at Centre St., Napanee, Ont.

9998. Mar. 23.—Ordering C.N.O.R. to divert road between lot 12, con. 4, and lot 13, con. 3, Scarboro tp.

9999. Mar. 23.—Approving G.T.R. plans for shelter sheds.

10000. Mar. 23.—Ordering C.P.R. to install, within 60 days, electric bell at Zorra St., Beachville, Ont.

10001. Mar. 26.—Approving Windsor, Essex and Lake Shore Rapid Ry. by-law authorizing W. T. Piggott, Managing Director, to prepare tariffs of tolls.

10002. Mar. 26.—Authorizing C.P.R. to build spur for Davenport Coal Co., Burmis, Alta.

10003. Mar. 26.—Authorizing C.P.R. to build its Regina, Saskatoon and North Saskatchewan branch across highways between mileage 0 and 14.7.

10004. Mar. 29.—Approving C.N.O.R. plan of subway on Massey Farm, lot 35, Con. B, Scarboro tp.

10005. Mar. 22.—Dismissing Elder Dempster & Co.'s application for order directing C.P.R. and G.T.R. to apply established export basis covering general merchandise shipped from Eastern Canada to Montreal, St. John, N.B., and Halifax, N.S., for export to Vancouver, Victoria and other B.C. points.

10006. Mar. 11.—Ordering C.P.R. to build highway crossing over Graham-Grinton Road, 1½ miles south of Armstrong, B.C.

10007. Mar. 26.—Authorizing C.P.R. to cross highways with its Snowflake extension and spur to International boundary from mileage 9.2 to 15.9, Man.

10008. Mar. 26.—Authorizing C.P.R. to build its Virden-McAuley branch across highways between mileage 0 and 14, Man.

10009. Mar. 26.—Authorizing C.P.R. to build across all highways on its Teulon extension from mileage 56.55 to 73.88, from Rugby Jct., Man.

10010. Mar. 21.—Ordering that C.P.R., G.N.W., and Canadian Northern Telegraph Companies file, not later than Apr. 12, new tariffs covering telegraphic services to newspapers.

10011. Mar. 29.—Amending order 9854, Mar. 11, relieving G.T.R. from providing further protection at crossing one mile south of Caldwell, Ont., and G.T.R. application to amend same by striking out the words Caldwell and Grey and substituting Colwell Jct. and Simcoe.

10012. Mar. 29.—Authorizing Bell Telephone Co. to place wires across London & Port Stanley Ry. at Ottawa Ave., London, Ont.

10013. Mar. 29.—Ordering G.T.R. to install within 60 days an electric bell at its crossing of Canfield St., Belleville, Ont.

10014. Mar. 29.—Authorizing Hamilton Powder Co. to ship by railway in its present packages, which do not in all respects comply with the requirements of order 7881, Aug. 27, 1909, explosives now on hand in its magazines at Nanaimo, Vancouver, Cranbrook and Nelson, B.C.

10015. Mar. 30.—Authorizing C.P.R. to build branch near Marysville station on lot 2377, group 1, Kootenay District, B.C.

10016. Mar. 30.—Approving Essex Terminal Ry. Standard Freight Tariff, C.R.C. 37.

10017. Mar. 26.—Authorizing C.P.R. to build across and to divert highways on its Lethbridge-Aldersyde branch from mileage 0 to 28, Alta.

10018. Mar. 30.—Authorizing G.T.R. to build spur to I. J. Rank's premises, Hagersville, Ont.

10019. Mar. 30.—Approving agreement between Woodbridge and Vaughan Telephone Co., Bell Telephone Co. and Union Telephone Co.

10020. Mar. 30.—Authorizing C.N.O.R. to divert and cross overhead road between lots 20 and 21, con. 2, Scarboro tp., station 499-50.

10021. Mar. 31.—Authorizing C.N.O.R. to build across public road between lots 18 and 19, con. 4, Pickering tp.

10022. Mar. 25.—Ordering that cost of operating and maintaining gates at M.C.R. crossing just west of Comber station, Ont., be paid, 10% by the township and balance by the company.

10023. Mar. 30.—Ordering that G.T.R. be relieved from providing further protection at crossing 1½ miles south of Lacolle Jct., Que., it appearing from inspection made by the Board's Engineer and Operating Department, that view is excellent and that signboards and whistling posts are properly placed.

10024. Mar. 22.—Adding Peel county and Toronto tp., as parties in matter of protection at G.T.R. crossings at Port Credit, Ont.

10025. Mar. 22.—Adding Oxford county as party in matter of protection at G.T.R. crossing just east of Beachville station, Ont.

10026. Apr. 1.—Approving C.N.R. location through tps. 5-6, r. 11-18, w. 2 m., Sask., mileage 95.58 to 147.14, from junction at Maryfield

10027. Mar. 31.—Authorizing C.P.R. to build spur to H. N. Sereth's premises at mileage 15.04, east of Cranbrook, B.C.

10028. Mar. 26.—Authorizing C.P.R. to build across all highways on its Weyburn-Lethbridge branch from mileage 0 to 26.2.

10029. Mar. 31.—Authorizing Montreal & Atlantic Ry. (C.P.R.) to divert highway crossing in Sweetsburg, Que.

10030. Mar. 24.—Rescinding order 9782, Feb. 21, 1910, in connection with Bell Telephone Co.'s refusal to connect with West Williams Telephone Co. at Parkhill, Ont.

10031. Mar. 31.—Authorizing G.T.R. to build bridge carrying farm crossing at lot 2, con. 1, Fullerton tp., Ont.

10032. Mar. 31.—Amending order of Railway Committee of the Privy Council respecting interlocking, derailing and signal system at intersection of G.T.R. with C.P.R., four miles west of Chatham, Ont., by approving the addition of a four lever section to the original interlocking machine.

10033. Mar. 31.—Approving stress sheet for bridges 17, 18, and 20, being highway crossings adjoining Soulanges canal, Que.

10034. Mar. 31.—Ordering the G.T.R. within 60 days to install electrical bell at crossing just west of Rockwood station, Ont.

10035, 10036. Mar. 31.—Authorizing J. A. Coleman, Winger, Ont., to lay gas pipe under G.T.R. 4½ miles west of Marshville, and under M.C.R., at Montague station.

10037. Mar. 31.—Authorizing Canadian Niagara Power Co. to place wires over International bridge and G.T.R., at Bridgeburg, Ont.

10038. Mar. 31.—Authorizing C.P.R. to build spur for P. Burns & Co., between Golden and Morrow Aves., Toronto.

10039. April 1.—Authorizing Chatsworth Rural Telephone Co. to place wires across C.P.R. near Chatsworth station, Ont.

10040. April 1.—Authorizing Saskatechewan Public Works Department to build highway over C.P.R. Pasqua branch, by extending Rouleau St. southerly, at Wilcox, Sask.

10041. April 1.—Amending order of Railway Committee of the Privy Council, Sept. 10, 1895, in connection with interlocking, derailing and signal system at intersection of G.T.R. Air Line with C.P.R., east of Tillsonburg Air Line station, by providing for addition of two levers to original interlocking machine installed, so as to permit of each derail being operated by a separate lever, C.P.R. to pay G.T.R. cost and maintenance.

10042. April 2.—Authorizing C.P.R. to build branch line in block 165, Saskatoon, Sask.

10043. Mar. 29.—Amending Standard Conditions and Specifications for Wire Crossings, by inserting "or copper-clad steel wire" after "copper wire" at end of third line sub-clause (Na) in clause N.

10044. April 2.—Authorizing city of Toronto to place power cables under G.T.R. on Pacific Ave.

10045. Mar. 22.—Refusing G.T.R. application for approval of location of semaphore, wire fences and works on its Northern Division between Old Yonge St. and Yonge St. near Holland Landing, Ont., with leave to parties interested to renew application upon usual notice.

10046. Mar. 22.—Rescinding order 7706, Aug. 3, as amended by order 8079, Sept. 14, 1909, authorizing G.T.R. to build spur to Davis & Doty's premises, Oakville, Ont.

10047. Mar. 22.—Relieving C.P.R. from providing further protection at crossing on Dundas St., Lambton, Ont., it appearing from inspection made by the Board's Engineer and Operating Department, that views are excellent and that signboard and whistling posts are properly placed.

10048. Mar. 22.—Rescinding order 8055, Sept. 13, 1909, authorizing G.T.R. to build spur to Shields & Hilmer's premises, Oakville, Ont.

10049, 10050. April 1 and 2.—Relieving G.T.R. from providing further protection at crossings at second highway east of station at Upton Road, Que., and 1¼ miles south of Moorefield station, Ont., it appearing from inspections made by the Board's Engineer and Operating Department that the views are excellent and that signboards and whistling posts are properly placed.

10051. April 2.—Authorizing C.P.R. to build spur line at mileage 27.62, Woodstock section, for Hon. J. K. Fleming, Woodstock, N.B.

10052. Apr. 2.—Approving G.T.P.R. road diversion in s. w. sec. 1, tp. 44, r. 4, w. 4 m., North Alberta District.

10053. Apr. 2.—Ordering G.T.R. to install within 60 days an electric bell at crossing just east of Maxville station, Ont

10054. Apr. 1.—Relieving C.P.R. from providing further protection at the crossing at mileage 27.5, Teeswater branch, Arthur tp., Ont., it appearing from inspection made by the Board's Engineer and Operating Department, that views are excellent and that signboards and whistling posts are properly placed.

10055. Mar. 22.—Ordering M.C.R. to provide protection at Tillson Ave. crossing, Tillsonburg, Ont.

10056, 10057. Apr. 2.—Authorizing Bell Telephone Co. to place wires across G.T.R. at Daniel and John Sts., Arnprior, Ont.

10058. Apr. 2.—Authorizing J. Sidey, to place wires across G.T.R. just north of Garden Hill, Ont.

10059, 10060. Apr. 2.—Authorizing Ontario Power Co. to place wires over G.T.R. on Welland and King Sts., Port Colborne, Ont

10061. Apr. 1.—Relieving G.T.R. from providing further protection at crossing of second highway east of Stanfield station, Que., it appearing from inspection made by the Board's Engineer and Operating Department, that views are excellent and that signboard and whistling posts are properly placed.

10062. Apr. 5.—Authorizing G.T.R. to construct spur lines from its Northern Division, south of Bloor St., Toronto, to Fairbanks Morse Canadian Mfg. Co.'s premises.

10063. Apr. 5.—Ordering G.T.R., within 60 days to install electric bell at Laggan Road crossing, Alexandria, Ont.

10064. Apr. 5.—Extending until July 31, time within which C.P.R. may construct spur for city of Winnipeg, near Birdshill station.

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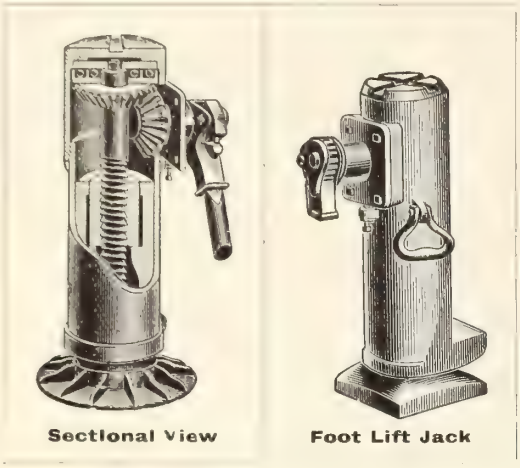

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10065, 10066. Apr. 4 and 5.—Authorizing C.N.O.R. to cross highway between lots 8 and 9, con. 3, and between lots 14 and 15, con. 4, Hope tp.

10067. Apr. 5.—Authorizing Dr. A. C. Beatty, Garden Hill, Ont., to place wires across C.N.O.R. in Hope tp.

10068 to 10072. Apr. 5.—Authorizing Bell Telephone Co. to place wires across C.P.R. at five points in Ontario and Quebec.

10073. Mar. 25.—Refusing E. N. Richards' application for order directing G.T.R. to provide farm crossing at lot 102, con. 1, Sandwich East tp., Ont.

10074. Apr. 5.—Amending order 8627, Oct. 21, 1909, by substituting "Railway" for "Applicant" where it appears in lines 7 and 11 of preamble in first and second paragraphs of operative part and in conditions 2 and 10; and by adding "Railway" before "Company" where the latter appears in conditions 3, 4, sub-section 3 of conditions 4, 5, 7, 8 and 9.

10075. Apr. 6.—Ordering G.T.R., within 60 days to install electric bell at crossing just east of Breslau station, Ont.

10076. Mar. 15.—Refusing application of P. C. Larkin Co., Toronto, for lower rating in the Canadian Classification for packet tea, boxed, than for bulk tea, boxed.

10077. Mar. 22.—Ordering G.T.R., within 60 days to put approaches at crossing allowance for road between con. 7 and 8, Esquesing tp., on both sides in condition to comply with Board's General Regulations Affecting Highway Crossings of Jan. 26, 1909.

10078. Apr. 6.—Authorizing Metcalfe Rural Telephone Assoc. to place wires across O. & N.Y.R. at Edwards station, between Osgoode and Gloucester tps., Ont.

10079 to 10081. Apr. 6 and 7.—Authorizing Canadian Niagara Power Co. to place wires across Bell Telephone Co.'s wires at three points in Ontario.

10082. Apr. 6.—Ordering G.T.R., within 60 days to install electric bell at first crossing east of Mallorytown, Ont.

10083. Apr. 5.—Relieving G.T.R. from providing further protection at crossing 1½ miles east of St. Basile le Grand station, Que.

10084. Apr. 6.—Approving Alberta Ry. and Irrigation Co.'s by-law respecting spitting in cars stations, etc.

10085. Apr. 5.—Authorizing Ontario Hydro-Electric Power Commission to place transmission lines across Niagara, St. Catharines and Toronto Ry. in Thorold tp.

10086. Apr. 7.—Ordering C.N.Q.R. to provide farm crossing for M. Francoeur, St. Jerome parish.

10087. Apr. 7.—Ordering G.T.R. to install within 60 days, electric bell at first highway crossing west of Norval station, Ont.

10088. Apr. 5.—Authorizing C.N.O.R. to build across public road between lot 25, con. 2, and lot 25, con. 3, Pickering tp.

10089. Apr. 5.—Relieving G.T.R. from providing further protection at crossing at Third Line north of Stottsville, Que.

10090. Apr. 7.—Amending order 9973, Mar. 22, 1910, by striking out "November" in second line of operative part and substituting "February."

10091. Apr. 7.—Approving C.N.O.R. plan of standard crossing over highways, frame, trestle and beam span.

10092, 10093. Apr. 5.—Relieving G.T.R. from providing further protection at crossing west of St. Madelene, Que., and crossing third, east of Upton station, Que.

10094. Apr. 5.—Authorizing C.N.O.R. to build across road between cons. 2 and 3, Hope tp., station 392-19.

10095. Apr. 6.—Relieving C.P.R. from providing further protection at crossing immediately east of Mountain Grove station, Ont.

10096. Apr. 7.—Approving C.N.O.R. plan of standard crossing over highways, pile, trestle and beam span.

10097, 10098. Apr. 7.—Relieving G.T.R. from providing further protection at crossings three miles west of Stamford, and just east of Walsh, Ont.

10099. Apr. 6.—Approving protection provided by G.T.R. at crossings at Cherry St., Spadina Ave., High Park Entrance East, Humber Bay and Swansea, Toronto; Shoebottom's crossing, about 4 miles west of St. Marys Jct.; Queen St., Brampton; first crossing west of Burlington Jct.; first crossing east of Paris Jct; first crossing east of Wyoming; Plank Road, Sarnia, Ont.

10100. Mar. 15.—Amending order 6147, Jan. 21, 1909, which fixes a stop-over charge of 25c. per car a day for the first 48 hrs., and car service toll thereafter, on western grain and grain products in car loads consigned to Cartier and Sarnia Tunnel, Ont., by striking out "25 cents" in the 13th line of operative part and substituting "$1."

10101 to 10103. Apr. 7.—Relieving G.T.R. from providing further protection at the crossings at mileage 113.75, east of New Sarum and east of Wainfleet station, and just east of Sherkston station, Ont.

10104 to 10116. Apr. 9.—Authorizing Ontario Hydro-Electric Power Commission to place telephone and relay wires across various railways at 13 points.

Railway Rolling Stock Notes.

The G.T.R. has received six mogul locomotives from the Canadian Locomotive Co., Kingston, Ont.

The Michigan Central Rd., has received one hump switching, and 10 consolidation locomotives from the Montreal Locomotive Works.

The Portland Canal Short Line Ry has bought two locomotives in the U.S. for construction work and has ordered one combination passenger car and caboose and 23 flat cars from the Canadian Car and Foundry Co.

The Canadian Northern Ry., between Mar. 15 and Apr. 15, received the following additions to rolling stock, 25 cabooses, 30 flat cars from the Crossen Car Mfg. Co., Cobourg, Ont., and 125 box cars from the Canadian Car and Foundry Co., Montreal.

The 10 consolidation locomotives which the C.P.R. is having built at the Montreal Locomotive Works, some details of which we gave in our April issue, are, we are advised, similar in all respects to the locomotive described and illustrated on pgs. 165-175 of our March issue.

The 1,000 steel frame box cars which the C.P.R. has ordered from the Canadian Car and Foundry Co., Montreal, are to be exact duplicates of the cars described and illustrated in our Jan. issue, except that Farlow draft gear will be used in place of the M.C.B. twin springs.

The C.P.R., between Mar. 18 and Apr. 13, received the following additions to rolling stock:—six D-10 locomotives, four baggage and express cars, one mail and express car, 67 wooden box cars, five vans, and one pile driver from its Angus shops, Montreal; 249 steel frame box cars from the Canadian Car and Foundry Co., Montreal, and one 3-ton travelling derrick from England.

The C.P.R., between Mar. 18 and Apr. 13, ordered rolling stock, as follows:—two first class cars, 76 wooden box cars, 203 refrigerator cars, 50 palace horse cars, 14 stock cars, 25 flat cars, five vans and one ballast car, at its Angus shops, Montreal; 1,000 steel frame box cars from the Canadian Car and Foundry Co., Montreal, and one 75-ton wrecking crane in the U. S.

The Temiskaming and Northern Ontario Ry., has ordered three parlor-cafe cars from the Canadian Car and Foundry Co., Montreal, which it is said are the first all steel under-frame passenger cars to be built in Canada, and of which the following are the chief particulars:

Length over vestibule buffer plates	80′ 3¾″
Length over side sill angles	7′ 3½″
Width over side sill angles	9′ 8½″
Width over wide side sills	9′ 10⅝″
Width overall at eaves	10′ 3¼″
Width at deck opening between deck sills	5′ 6″
Height from rail to under side of side sill angles	3′ 7½″
Height from rail to top of roof boards	14′ 1½″
Distance centre to centre of trucks	51′ 10″
Truck wheel base	11′ 0″
Underframe, posts and carlins	Structural steel
Couplers	Tower steel
Platforms	Standard steel
Heating	Gold combination steam and hot water
Lighting	Pintsch gas
Air brakes	Westing house LN 1812, with LB triple supplementary reservoir and slack adjuster
Trucks	All steel, 6 wheel
Wheels, diar.	36″
Journals	5″ by 9″
Journal bearings	Canadian Bronze Co.
Brake shoes	Amerian steel back

Following are the chief particulars of the 11 ten-wheel locomotives, class D-10, which the C.P.R. is building at its Angus shops, Montreal, as mentioned in our April issue:

Weight on drivers	141,000 lbs.
Weight, total	190,000 lbs
Cylinders, diar and stroke	21½″ by 28″
Drivers, diar	63″
Boiler, type	Radial stayed wagon top
Boiler pressure	180 lbs.
Heating surface, tubes	2,263 sq. ft.
Heating surface, superheater	408 sq. ft.
Heating surface, firebox	190 sq. ft.
Tubes, no. and diar	24-5[illegible]″ 211-2″
Tubes, length	14′ 6″
Firebox	100⅞″ by 69¾″
Grate area	49 sq. ft.
Capacity, water	5,000 gals.
Capacity, coal	10 tons
Air brakes	Westinghouse ET 6
Brake shoes	C.P.R. standard
Brake beams	Simplex diamond, inside hung
Couplers	Tower
Headlight	Pyle National Electric
Journal bearings	C.P.R. standard
Lubricators	Detroit 5-feed
Springs	C.P.R. crucible steel
Wheel tires	Crucible steel
Wheel centres	Cast steel
Tractive effort	34,400 lbs.

The Minneapolis, St. Paul and Sault Ste. Marie Ry., has recently received four Pacific type and four consolidation locomotives from the American Locomotive Co., of which the following are the chief particulars.—

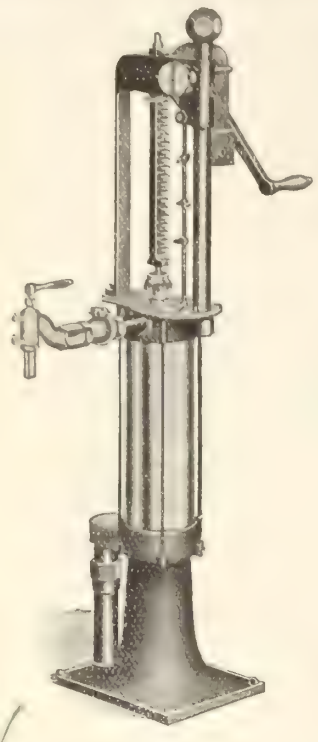
	Pacific	Consolidation.
Tractive power	30,800 lb.	40,000 lb.
Wheel base, driving	12′ 0″	17′ 0″
Wheel base, total	32′ 2″	26′ 0″
Wheel base, total engine and tender	59′ 10¼″	57′ 1¼″
Weight on drivers	145,000 lbs.	192,500 lbs.
Weight, total	217,000 lbs.	220,000 lbs.
Weight, engine and tender	343,000 lbs.	347,000 lbs.
Heating surface, tubes	2,695 sq. ft.	2,971 sq. ft.
Heating surface, firebox	181 sq. ft.	187 sq. ft.
Grate area	47 sq. ft.	52.7 sq. ft.
Driving journals, main	10″ by 12″	10″ by 12″
Driving journals, others	9″ by 12″	9″ by 12″
Engine truck journals	6″ by 10″	6″ by 12″
Tender truck journals	5½″ by 10″	5½″ by 10″
Boiler, type	Extended wagon top.	
Boiler, diar.	70″	76¼″
Boiler, pressure	160 lbs.	160 lbs.
Firebox	96⅛″ by 70¼″	108⅛″ by 70¼″
Tubes, no. & diar.	217-2″ 24-5¼″	290-2″ 30-5¼″
Tubes, length	18′ 6″	15′ 6″
Brakes	Westinghouse	American.
Capacity, water	6,500 gals.	6,500 gals.
Capacity, coal	10 tons.	10 tons.
Wheels, driving	69″	63″
Wheels, material	Cast steel.	Cast steel.
Wheels, engine truck	33″	33″
Wheels, trailer	46″	—
Wheels, tender	33″	33″

Following are the chief particulars of the 10 Pacific type locomotives which the G.T.R. is building at its Point St. Charles shops, Montreal, as mentioned in our April issue:—

Tractive power	31,559 lbs.
Weight in working order	210,000 lbs.
Weight on drivers	139,000 lbs.
Weight, engine and tender	353,300 lbs.
Wheel base, driving	13′ 4″
Wheel base, total engine	33′ 2″
Wheel base, engine and tender	62′ 3½″
Length overall	72′ 3″
Cylinders, diar and stroke	22″ by 28″
Driving wheels	73″
Driving wheel centres	Cast steel
Boiler, type	Wagon top with wide firebox
Boiler pressure	200 lbs.
Boiler, diar	66″
Tubes, no. and diar	309—2″
Tubes, length	20′ 6″
Heating surface, tubes	3,340 sq. ft.
Heating surface, firebox	169 sq. ft.
Grate area	50.62 sq. ft.
Tender, total weight	143,300 lbs.
Capacity, water	7,000 gals.
Capacity, coal	10 tons
Brakes	Westinghouse ET

Weight on drivers ÷ tractive effort = 4.1.
Total Weight ÷ tractive effort = 5.5.
Tractive effort x diar. of drivers ÷ heating surface = 96.1.
Heating surface ÷ grate area = 46.1.
Heating surface firebox ÷ heating surface without superheater = 11.9.
Weight on drivers ÷ total heating surface = 52.8.
Total weight ÷ heating surface = 84.
Heating surface ÷ vol. cylinders = 175.

An agreement was reported to have been reached Apr. [illegible] between the Temiskaming and Northern Ontario Ry. Commission and the G.T.R., for the use by the latter of the T. and N.O. Ry. terminal at North Bay, for 21 years, the Commissioners reserving the right to make similar agreements with the C.P.R. and the C.N.R. The Commission proposes to build a short [illegible] between North Bay and [illegible] Jct., [illegible] miles, so as to secure a connection with the G.T.R. independent of the C.P.R.



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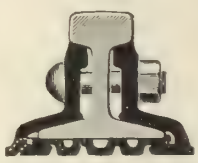

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Canadian Northern Ry. Construction, Etc.

W. Mackenzie, President, in a recent interview in London, Eng., stated that in Ontario the company's line from Toronto to Ottawa, will be finished as far as Trenton, Ont., about 100 miles, by the fall; and progress would be made with the line from Toronto in the opposite direction. On the northern section the end of steel is about 60 miles beyond Sudbury. On the Western prairies about 600 miles in all will be added to the company's lines. Construction will be gone on with on the line from Edmonton to the Yellowhead Pass, 240 miles. This year will also see the beginning of the new line of 500 miles across British Columbia, from the Yellowhead Pass to Vancouver. Further progress would be made with the line to Hudson Bay, and he confidently expected that the line would be in operation within three years.

Canadian Northern Quebec Ry.—The Quebec city council decided, April 15, to serve a notarial protest on the company calling on it to reimburse the city for the $200,000 voted to the Great Northern Ry. (one of the companies taken over) upon certain conditions which, it is claimed, are not being observed. One condition was the location of the company's workshops in the city. The question has been discussed on several occasions, but no definite understanding can be reached.

G. Tombs, General Freight and Passenger Agent, is reported to have said in Montreal, April 14, the matter of a new terminal there had been under consideration for some time, but as it was an undertaking of considerable magnitude, a decision could not be arrived at in too great haste. There were a good many developments going on in connection with railway matters in the city, and it was impossible to say what would be the outcome.

Canadian Northern Ontario Ry.—A start has been made in tracklaying on the line now under construction between Toronto and Ottawa—the contractor for the first section of which is Angus Sinclair. The tracklaying was done in the vicinity of Trenton, at the point of crossing the Central Ontario Ry. The connection has been made for the purpose of bringing in ties. Track had also been laid from points on the old Midland Ry. of the G.T.R., about a mile north of Scarboro Jct., in order to bring supplies to the construction gangs. Rapid progress is being made with the grading from the Don Valley, and through Scarboro tp. A steam shovel is at work just east of the Kennedy Road, where there is a big cutting, the earth from which is being used on an adjoining farm where there is a big fill. At the point where the line will run under the G.T.R. at Scarboro Junction, 20 ft. below the G.T.R. tracks, there are several gangs at work, as it is a point where the supplies, etc., are brought in off the G.T.R. Grading is also well advanced in Pickering and Whitby tps., as well as in Durham county, and right through to Trenton. All along the route, in addition to the regular gangs of men, the sub-contractors have taken on all the farmers' teams that could be hired, in order to push forward the work as rapidly as possible. Culvert and bridge work is light, and generally speaking the work is easy. It is expected that a contract for a further section of the line easterly from Trenton will be let at an early date. A Trenton press report states that L. D. Barchfield has been securing options on land for right of way into Belleville, Ont.

With reference to matters in Toronto, the reports as to the intentions, not only of the C.N.O.R., but also of the other companies, are as wild as they are numerous and contradictory. The recent large purchases of property, together with the unsatisfactory conditions generally, point to the fact that the whole railway situation in Toronto is likely to undergo a change. What the outcome will be it is impossible to tell, the only thing that is certain is that the Mackenzie, Mann & Co. interests will not be satisfied with having to take the subordinate position they have to do in the present Union Station.

Referring to the location of the company's shops in Toronto, D. D. Mann, Vice President, said, April 14, that shops would be built in Toronto, but whether in the Ashbridge Bay district or not he would not say. No progress had been made in the negotiations with the city council on the subject. The Riverdale Business Mens' Association passed a resolution, April 12, asking the city council to grant the company the right of way asked for on the east side of the Don, so that the shops could be located in the Ashbridge Bay district.

The party, of which G. F. Hanning was in charge, completed its survey of the route of the proposed line from Toronto to Buffalo, along the right of way of the Toronto and Niagara Power Co., as far as Niagara Falls, April 8. From the point where the power line crosses the Niagara Falls town boundary the route will diverge and pass through the centre of the city to the river about 300 feet north of the upper steel arch bridge. Surveys have been made for the erection of a bridge there.

Ontario and Ottawa Ry.—The Dominion Parliament incorporated a company with this title, with the powers, etc., mentioned in our March issue, pg. 183.

James Bay and Eastern Ry.—The bill referred to in our March issue, pg. 183, for the incorporation of a company with this title, has been passed by the Senate.

Canadian Northern Ry.—In an interview at Port Arthur, April 9, General Manager McLeod is reported to have stated that the company intended to do a large amount of work during the summer, not only on the main line, but also on the Duluth extension. The work on the Slate River-Kashabowie division will be completed in about two months; this will cut down the gradients out of Port Arthur very materially, and will shorten the line between Port Arthur and Kashabowie. Some of the bridges will also be rebuilt. Long sidings are being built along the line between Port Arthur and Winnipeg, about every four miles, and as soon as the necessity arises these can be coupled up and a second track provided. So far as Port Arthur itself was concerned additions would be made to the terminals; stalls added to the existing roundhouse; the yards rearranged and new tracks laid down, and a new freight shed will be built on the dock as soon as the rail business was over.

The bridge at Rainy Lake was so badly damaged at the break-up of ice, that it was considered unsafe, April 3, and traffic was diverted over the C.P.R. pending the strengthening of the structure. The erection of a steel bridge is under consideration, but so many interests are involved that the plans have not been finally decided on. The matter is under the consideration of the Dominion Government, the bridge being across a navigable channel.

We are advised that the Dominion Bridge Co. expects to commence the erection of the steel work of the new bridge over the Red River at Winnipeg as soon as the spring floods are over. The manufacture of the steel is well forward at the company's works, Lachine, Que.

Plans for the construction of a transfer railway in Brandon, Man., have been under discussion between the company's officials and the city council, and an offer was made to construct such a line with certain industrial spurs provided, it was allowed to operate a street railway over the lines so constructed. The council passed a resolution, April 4, asking the company to go ahead with construction, offering to provide a right of way, to arrange for a connection with the C.P.R., but expressing the opinion that the city should own the plant required for the operation of the street railway lines.

In our last issue, in referring to the company's construction programme for this year, we spoke of "the Rossburn branch, from Neepawa, Man., which is intended to connect with the main line at Dauphin, Sask." Canora should have been mentioned instead of Dauphin, which is in Manitoba.

In an interview recently at Winnipeg, R. J. Mackenzie stated that the construction programme for the year in Manitoba, Saskatchewan and Alberta, would include work on the following lines:—The extension of the Oak Point line northerly; the extension of the Rossburn branch to a connection with the line to Edmonton near Tiny, Sask., the extension of the Thunderhill branch; the continuation of the Maryfield extension towards Lethbridge, Alta.; the continuation of the Goose Lake line towards Edmonton; the extension of the line from Prince Albert towards Battleford; the continuation of the line from Vegreville to Calgary, the construction proposed being from Stettler to Calgary, Alta.; and the extension of the Edmonton and Slave Ry., now ending at Morinville, northwesterly towards Athabasca Landing. Work was started on several of these lines last year, and the contractors have still some work in hand on them to go on with.

We are officially advised that contracts have been let as follows:—For the completion of the Vegreville-Calgary line and a further extension of about 15 miles on the Saskatoon-Calgary line to the Northern Construction Co., Winnipeg; for a further extension of 50 miles on the Maryfield line, and for a branch running northwesterly from Maryfield towards Moose Jaw, 50 miles, to the Cowan Construction Co., Winnipeg.

Tracklaying is reported to be completed for 40 miles on the Vegreville-Calgary line, and is being proceeded with. The telegraph line is being strung, and the work generally is being pushed. Surveys are reported to have been completed by a party working under J. G. Mackenzie, for a line from Strathcona to Camerose, on the Vegreville-Calgary line, about 45 miles, and a press report states that construction will be gone on with this year. It is also reported that surveys have been completed for a line from Strathcona, west of the Calgary and Edmonton Ry. as far as Pigeon Lake.

The surveys have been completed for the main line for a spur at the Yellowhead Pass, under the charge of —. Hughes; he having effected a junction with C. P. Harrington, who is in charge of the survey party working easterly from Kamloops, B.C.

Winnipeg Station.—A press dispatch from Winnipeg Apr. 21, says that the contract for the interior finishing of Fort Garry station, has been let to the general contractors for the erection of the buildings, to Lyall & Sons for about $300,000, which will make the total cost of the station building about $1,300,000. The work is to be completed by Oct. 1.

Saskatchewan Midland Ry.—Application is being made to the Board of Railway Commissioners to sanction an agreement amalgamating the S.M. Ry. with the C.N. Ry.

Edmonton and Slave Lake Ry.—The Dominion Parliament has granted an extension of time for the construction of this projected railway.

Canadian Northern Pacific Ry.—The British Columbia Legislature has incorporated a company with this title with power to build a railway from a connection with the Canadian Northern Ry. at the eastern boundary of the province to

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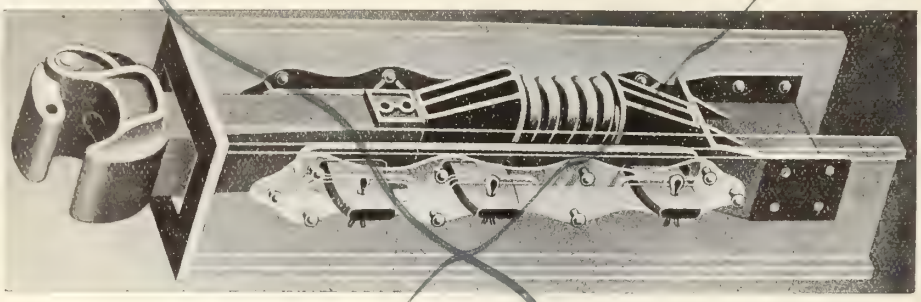

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New Westminster, thence to Vancouver, and also to English Bluff, south of the Fraser River, a distance of approximately 500 miles. The route to be followed is specifically described as being via the Yellowhead Pass, and the valleys of the North Thompson, South Thompson and Fraser rivers. The company is also authorized to construct a line from Victoria to Barkley Sound, about 100 miles; and such other lines as may be authorized by the Lieut.-Governor in council. The company is given the general powers usually conferred upon railways; its capital is fixed at $25,000,000, of which $10,000,000 may be preferred stock; and it may issue bonds or other securities to the amount of $60,000 a mile, exclusive of any bonds issued for terminal facilities, elevators, etc. The provisional directors are:—W. Mackenzie, D. D. Mann, D. B. Hanna, A. D. Davidson, Toronto, and R. J. Mackenzie, Winnipeg.

The Legislature has also confirmed an agreement with the Canadian Northern Ry. for the construction of the lines mentioned above. The second section of the act provides that the C.N. Pacific Ry. Co., when organized, can proceed to implement the agreement. In consideration of the construction of the lines as previously mentioned, the Government guarantees the company's bonds for $35,000 a mile at 4%, for 30 years, the total mileage not to exceed 600 miles, except under the following circumstances:—The company will endeavor to bring its line into Kamloops, either by diverting its main line so as to run through the city, or by the construction of a branch upon completion of this connection, the guarantee will be extended to cover the additional mileage occasioned by such construction. Among the covenants entered into by the company are the following:—to establish telegraph and telephone lines; to operate a car ferry service between English Bluff and Victoria; to build the lines to the standard of the C.N.R. between Winnipeg and Edmonton; to provide adequate rolling stock; to pay current rates of wages on constructions; to purchase supplies as far as possible in British Columbia; to begin construction not later than July 1, near New Westminster and Victoria, and to complete the same by July 1, 1914; to establish roundhouse, car repair shops, etc., for the Barkley Sound line within three miles of Victoria; and to maintain adequate terminal facilities at Vancouver and Victoria. The bonds guaranteed are to be disposed of and the money paid to a special account to the credit of the Finance Minister of the Province, on whose order it shall be paid from time to time to the comvany in proportion to the work done. In the event of the company purchasing any constructed line, the mileage so purchased to be calculated as constructed mileage for the issue of securities. It is agreed that neither the C.N. Pacific Ry. nor the C.N. Ry. shall make application to have these lines declared to be for the general advantage of Canada. This is for the purpose of carrying out section 8, which gives the B.C. Government power to regulate rates on these lines.

The surveys between Kamloops, B.C., and the boundary near the Yellowhead Pass have been completed, and good progress has been made with the surveys from Kamloops to New Westminster.

The first piece of construction to be undertaken, it is expected will be from New Westminster to English Bluff, from which point a car ferry service is to be maintained with Victoria. The company will, it is said, lay out a townsite on the south bank of the Fraser River opposite New Westminster. It is expected that the line from New Westminster easterly, to Hope will be under contract by June 1, and that soon afterwards construction will be started at Kamloops, gangs working therefrom north and south. On Vancouver Island it is expected that work will also ve started this year in building the line from Victoria to Quatsino Sound. The whole of these lines have to be completed, according to the agreement with the B.C. Government, by 1914.

Portland Canal Short Line.—The steel for this line is reported to have been delivered at Stewart, B.C., and it is said that construction is to be started at once. This proposed line starts from the Stewart townsite in Northern British Columbia, and will follow the Bear River valley for about 15 miles, to some mining properties which are being developed by D. D. Mann. W. H. Grant, of Mackenzie, Mann & Co.'s staff, Toronto, left April 12, for Stewart to act as Superintendent of Construction. He was accompanied by D. O. Lewis, and a regular staff. (April, pg. 285.)

Railway Commissioners' Traffic Orders.

Summaries of other traffic orders are given on another page under "Orders by Railway Commissioners":—

STOP OVER CHARGES "FOR ORDERS."

10100. Mar. 15.—The application of the C.P.R. and G.T.R., under section 29 of the Railway Act, for order amending the order 6147, Jan. 21, 1909, fixing a stop, 25c. per car a day for the first 48 hours, and the car service toll thereafter, on western grain and grain products, in car loads, consigned to Cartier and Sarnia Tunnel, Ont., "for orders." Upon hearing the application in the presence of representatives of the Dominion Millers' Association, the Canadian Manufacturers' Association, the Montreal Corn Exchange, the C.P.R., the G.T.R. and the M.C.R. companies, and the Canadian Freight Association. It is ordered that order 6147, be amended by striking out "25 cents" in the 15th line of the operative part of said order, and substituting therefor "$1."

THE MEXICAN ROUTE TO BRITISH COLUMBIA.

10005. Mar. 22.—The application of Elder Dempster & Co., under sec. 323 of the Railway Act, for order directing the C.P.R. and the G.T.R. to apply the established export basis covering general merchandise and commodities shipped from points in Eastern Canada to Montreal, Quebec, St. John, New Brunswick, Halifax, Nova Scotia for export to Vancouver, Victoria and other B.C. points, the said traffic to be forwarded from Montreal, St. John, and Halifax to Vancouver and other B.C. ports by the Elder Dempster Co.'s steamships to Puerto, Mexico, thence by the Tehuantepec National Ry. to Salina Cruz, Mexico, and thence by the Canadian Mexican Steamship Line to destination; it is ordered that the application be dismissed, without prejudice to the rights of any person interested to any relief the Board may deem proper upon a different set of facts being presented to it.

The Granting of Railway Charters.—A bill was introduced into the Senate, April 6, by Senator Davis, having for its object the transferring from Parliament to the Board of Railway Commissioners the power of granting charters for the construction of railways. He claimed that this would do away with the granting of charters to speculators who never intended constructing railways, but held them in order that they might be bought out. From 1900 to 1908, he stated, statistics showed that 65 companies, excluding the C.P.R., the G.T.R., the Canadian Northern Ry., and the National Transcontinental-G.T. Pacific Ry. had been chartered to construct 37,862 miles of railway, and of this mileage 163 had been constructed by 13 companies.

Trade and Supply Notes.

The matter which appears under this heading is compiled in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers to distinctly understand that we are not paid for the publication of any of this matter and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

The Dougall Varnish Co., Ltd., Montreal, has increased its capital stock from $150,000 to $200,000.

The Holden Co., Ltd., general railway and contractors' supplies, has removed its head office in Montreal from 302 St. James St., to 354 St. James St.

C. P. Williams has been appointed to represent the Chicago Railway Equipment Co. at 30 Church St., New York, vice E. G. Buchanan resigned.

The Dominion Iron and Steel Co., Sydney, N.S., is supplying the 100-lb. steel rails for the relaying of the G.T.R. double track between Napanee and Toronto, 193 miles.

Wallace Robb, son of W. E. Robb, Superintendent of Motive Power G.T.R., has been appointed sales manager for the Anchor Packing Co., for the province of Quebec, with headquarters in Montreal.

The Northern Engineering Works, crane builders, Detroit, Mich., have been placing orders for new tools and machinery, consisting largely of lathes, gear cutters and milling machines, etc., for several months past, and the machinery is now being installed.

The Dominion Wire Rope Co., Ltd., at its annual meeting in Montreal recently, re-elected the directors, the organization for the current year being as follows:—President, F. W. Fairman; Vice President and Managing Director, F. H. Hopkins; other directors, E. E. Fairman, G. P. Butters and C. W. Colby; Secretary-Treasurer, J. J. Rosevear.

Burton W. Mudge & Co., railroad supplies, Chicago, will, on May 1, remove their offices to temporary quarters in suite 1003, Peoples Gas Building, until such time as the southern portion of the same building is completed, when they will occupy offices overlooking Michigan Boulevard and Adams St.

In the third annual report of the New York State Public Service Commission, the locomotive boiler inspector states that amongst the list of defects of locomotive boilers 184 drilled tell-tale holes in staybolts were found stopped up and became a source of danger instead of an element of safety. The Falls Hollow Staybolt Co. claims that this danger could not possibly exist with the use of staybolts as the air currents through the entire stay would unfailingly prevent stoppage, and furthermore be a great advantage to combustion.

Recent Alberta Legislation

Among the acts passed at the first part of the current session of the Alberta Legislature, were the following:—

Alberta and Saskatchewan Ry.—Incorporation.

Canadian Pacific Ry. — Confirming agreement between the company and the City of Edmonton.

Diamond Coal Co.—Amending charter.

Lacombe and Blackfalds Ry. — Incorporation.

The Central Ontario Ry. Co. has been authorized by the Dominion Parliament to enter into agreements to amalgamate, etc., with various railway companies.

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C.P.R. Betterments, Construction, Etc.

Atlantic Division Improvements.—The betterments which it is proposed to carry out during the current year on the Atlantic Division, are said to include a new station at Woodstock, N.B., to cost about $20,000; addition to the station at McAdam Jct., N.B.; extension of the yard accommodation at St. Stephen, N.P.; and relaying the section from Watt Jct. to St. Andrews, N.B., with heavier rails.

Tobique and Campbellton Ry.—The New Brunswick Legislature has granted an extension of time for the construction of this projected railway.

Windsor St. Station Viaduct.—We are advised that the contract for the building of the viaduct at Windsor St. station, Montreal, has been let to the Bishop Construction Co., of that city.

Montreal Terminal Improvements.—Work has been commenced upon the improvements to the company's Place Viger terminals. The improvements are to be on a very extensive scale, and will not be completed for some considerable time. The works include a viaduct to carry the street railway tracks between Dalhousie Square and Sohmer Park, and the rearrangement of the freight yard. The freight sheds will be directly under the viaduct, and the yards on either side of it. There is nothing being done at present in reference to the additional trackage which press reports recently state was to be built from Dalhousie Square to Hochelaga.

Ottawa.—The east wing of the roundhouse near the Wellington St. Viaduct, was burned April 12, the damage being estimated at $12,000.

Cobourg, Lake Ontario and Western.—C.P.R. surveyors have been working for some time in the vicinity of Warkworth, Ont. The object of their work, local reports state, is the making of the final location surveys for the projected line through Cobourg.

Toronto.—D. McNicoll, Vice President, was in Toronto, April 15, and in an interview is reported to have said: "We have purchased some property a little back from the line of Yonge St., in North Toronto, and this will be utilized for improved freight accommodation in that district. A new passenger station is not just yet part of our programme, but we cannot say what the future will bring forth."

Tenders are under consideration for the erection of a new station at North Parkdale, Toronto. The plans provide for a structure having a frontage to the track of 100 ft. by 35 ft., with 24 ft. covered platform at either end. The waiting room will be 59 by 31 ft., adjoining which will be lavatories, baggage and express rooms, ticket office, etc. The structure will be of pressed brick.

Islington-Mimico Line.—It is said that the proposed branch from a point between the Humber River crossing and Islington, Ont., on the old Credit Valley Ry., to a junction with the G.T.R. near Mimico, about four miles will be built during the year. The object is to secure a direct connection with the C.P.R. tracks for its traffic coming over the G.T.R. from Hamilton.

Hamilton, Ont.—Reports state that three blocks of land north of the Toronto, Hamilton and Buffalo Ry., from McNab and Catharine Sts., have been purchased, and conveyed to a trust company for the purposes of the erection of a union station, etc., for the C.P.R. the T.H. and B., and the Canadian Northern Ry.

London, Ont.—Supt. McNeille stated April 14, that while a number of sidings would be built during the current year at various points between London and Windsor, Ont., nothing had been definitely settled with reference to the proposed improvements at the London yards and roundhouse.

Georgian Bay and Seaboard Ry.—A press report states that a contract is about to be let for the construction of a section of this line between the present easterly terminus at Coldwater Jct., and Orillia, Ont., the work to be completed by Nov. The Canadian Northern Ry., it is reported, will secure an entrance into Orillia from Atherly, over a portion of this line, and the station in Orillia will be a union one.

Fort William, Ont.—A press report states that the company will expend $200,000 on doubling the capacity of its coal storage plant at Fort William, Ont., and that the work is to be completed by Oct.

An addition, 128 by 70 ft. is to be built at the machine shop, and a lot of new machinery has been ordered. Tenders have been received for the building of the addition.

Western Lines Contracts.—Tenders have been received for the following works and contracts will be let at an early date:—station buildings at Stonewall and Yorkton, Man.; new freight car shops at Winnipeg; six stall additions to engine house at Ignace, Ont.; abutments for bridge 24.4 Souris section, Man.; construction of subway at McPhillips St. crossing, Winnipeg; ditching work along the line between Fort William, Ont. and Winnipeg; for excavating and back filling of trenches for 6 in. pipe lines between Chaplin and Forrest, Alta.; Macoun and Grassy Lake, Alta.; and Walsh, Alta.

Western Lines Construction.—In addition to the contracts reported let for construction on Western Lines mentioned in our April issue, we are officially advised of the following:—

The construction of a second track between Winnipeg and Portage la Prairie, Man., 50 miles, has been let to J. Hargrave & Co., Winnipeg.

The construction of a line from Tilston, Man., where the branch from Lander now terminates, for 24 miles westerly, has been let to P. Lamb, Winnipeg.

The extension from Outlook, on the Saskatchewan River for 93.5 miles, has been let to the J. D. McArthur Co., Winnipeg. It is the intention ultimately to connect up this branch with the Lacombe branch of the Calgary and Edmonton Ry., now having its easterly terminal at Castor, Alta. A description of the bridge which is to be built over the Saskatchewan River at Outlook, was given in our Mar. issue. Outlook is the present terminus of the branch from Moose Jaw.

The construction of 54 miles southeasterly from Macklin, on the Saskatoon-Wetaskiwin line, to a junction with the Moose Jaw-Lacombe line, has been let to Janse, McDonald & Timothy, of Vancouver. It is probable that next year an extension will be built east from Castor to connect with this year's construction between Outlook and Macklin, thus giving a through line between Moose Jaw and Lacombe.

Winnipeg Stock Yards.—Press reports state that the company will build larger stockyards at Winnipeg. The new yards, it was stated, April 14, by a city official, would occupy the whole of the balance of the company's property adjoining its present stockyards.

Winnipeg Beach Improvements.—The company proposes to lay a board walk along the beach nearer the water than the present one, and as soon as the Government breakwater is completed, to extend the pier and make it more attractive.

Bredenbury Terminals.—It is stated that a roundhouse and other terminal buildings will be built at Bredenbury, Sask., and that the work now done at Yorkton will be transferred there. Among the lines spoken of for future construction is one from Bredenbury to Esterhazy, on the Kirkella line. The company has also power to construct a line northerly from Bredenbury to Kamsack, Sask.

Regina-Prince Albert Line.—The Minister of Railways has approved of the plans for the location of a line from Regina to Prince Albert, Sask., about 129 miles, with the exception of 10 miles on each side of Howell.

Entrance to Edmonton, Alta.—The Alberta Legislature has confirmed an agreement between the company and the city council of Edmonton, with respect to the building of the company's line into the city.

Lethbridge Station Improvements.—A contract is reported to have been let to J. A. McDermid, Winnipeg, for building two wings, 40 ft. each at the Lethbridge, Alta., station, and rearranging the existing building.

Pacific Division Improvements.—A press report states that among the improvements to be carried out this season is the increasing of facilities at Field and Rogers Pass, and the carrying out of gradient reduction work between these two points.

Y.M.C.A. Building at Cranbrook.—The C.P.R. has decided to erect a suitable Y.M.C.A. building at Cranbrook, B.C. The building will be of frame, but otherwise it will compare very favorably with that recently opened at Kenora, Ont. It will be two stories high, with basement and attic, and will be 90 ft. by 36 ft. over all. In the basement, in addition to the heating and store room will be a billiard room and a bowling alley; on the ground floor, rotunda, diningroom, library, and lounging room, with kitchen, pantry, and Secretary's office; on the two upper floors there will be 26 bedrooms of different sizes, lavatories and bathrooms.

Phoenix Branch, B.C.—The new branch line to the Jackpot mine in the Wellington group is expected to be ready for operation early in May. There are two large trestle bridges on the spur, the first of which was completed April 9. The bridge is 168 ft. long, with a curvature of 15 degrees, and is 100 ft. high in the centre.

Kootenay Central Ry.—We are advised that the contract for the building of the proposed Kootenay Central Ry. from Fort Steele to Golden, B.C., has not yet been let. It appears to be possible that this work may not be gone on with this year.

Esquimalt and Nanaimo Ry.—A press report from Victoria, B.C., states that there is every probability of an arrangement being made for joint terminals at Alberni, for the use of the Canadian Northern and the Esquimalt and Nanaimo railways.

Tenders have been asked for the clearing of the right of way for the Comox extension between Union Bay and Oyster River, about 26 miles north of Comox.

Minneapolis, St. Paul and Sault Ste. Marie R'y.—A press report states that a block of land has been acquired on Lake Michigan, on the east side of Milwaukee, Wis., for terminal purposes.

The reconstruction of the old Wisconsin Central Rd. is being undertaken at a cost of about $3,000,000, the object being to reduce the distance between Chicago and St. Paul. It is stated that a cut-off will be built from Muckwonago to Portage, and that traffic will go over that line to Stevens Point, instead of via Fond du Lac, as at present. It is also proposed to run trains from Chicago into Minneapolis first, instead of St. Paul, as at present, so as to bring the two divisions together. Work on the Chicago division improvements has been started near Owen and, it is stated, will be

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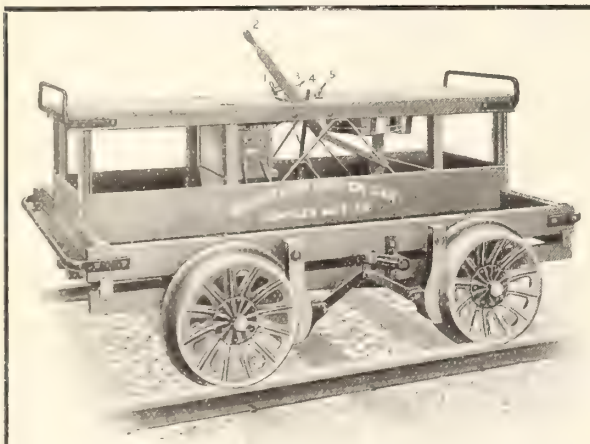

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pushed rapidly. A contract has been reported let to Lisk & Gifford Construction Co., Davenport, Ia., and work is now said to be in progress for grading a part of the cut-off of the Soo line between Withrow and New Richmond, Wis. This contract covers the portion of the road between Withrow and the St. Croix river, about eight miles. Construction is reported to have been resumed on the Thief River Falls Division towards Duluth, and contracts are reported let as follows:—Six miles of grading near Schley, Minn., C. E. Jamison; seventeen miles of grading, from Cass Lake narrows to the Mississippi River near Bemidji, Minn.; eight miles of grading from Mississippi River to west of Wilton, Minn., J. Moberg.

The courts have authorized the company to cross the Northern Pacific Ry. tracks at grade level for two years pending the erection of an overhead approach to the new station at Sixth Ave., W., Duluth, Minn. (April, pg. 293.)

A Railway to Hudson Bay.

The Minister of Railways said in the House of Commons, April 16, that the Government, after a most careful investigation of the whole plan had fully decided to proceed with the construction of a railway to Hudson Bay. The project had its difficulties, but these could be met. He did not entertain any fears as to the success of the undertaking. The engineers who had been making the surveys reported that there were no insurmountable obstacles in the way of construction. Survey parties had been in the field nearly two years and had reported very fully as to the physical condition of the country through which the road would run. Meterological records as to conditions in Hudson's Bay and Straits were available covering the last 50 years. Careful surveys had been made of the harbor at Port Nelson and Port Churchill. This summer the Government would send up a vessel to the Straits and Bay to make further investigation of navigation conditions throughout the summer and fall, as long as the Straits remain open.

The supplementary estimates submitted in the House of Commons Apr. 20, provide $500,000 to begin the construction of this line.

Recent Dominion Legislation.

The Dominion Parliament at its current session has passed the following acts affecting transportation interests:—

Algoma Central and Hudson Bay Ry.—Extending time for construction.

Bay of Quinte Ry.—Authorizing construction of branch line, and extending time for construction.

Calgary and Fernie Ry.—Amending act of incorporation.

Dominion Atlantic Ry.—Authorizing construction of branch line.

Erie, London and Tillsonburg Ry.—Extending time for construction.

Grand Trunk Ry.—Authorizing acquiring securities of certain other companies.

Montreal and Southern Counties Ry.—Extending time for construction.

Northern Empire Ry. — Extending time for construction.

Ottawa, Brockville and St. Lawrence Ry.—Extending time for construction.

Ottawa, Montreal and Eastern Ry.—Incorporation.

Pine Pass Ry.—Incorporation.

Richelieu and Ontario Navigation Co. Amending the company's acts.

Saskatchewan Central Ry.—Incorporation.

G. H. Kelly, son of M. Kelly, railway and general contractor, Winnipeg, was married there, April 12, to Miss F. M. A. Barrean.

G.T.R. Betterments, Construction, Etc.

Southern New England Rd.—The law giving this company power to construct a direct line through Rhode Island to Providence, was signed by the Governor of the State, April 13. The company is a subsidiary of the Central Vermont Ry., which is owned by the G.T.R.

E. H. Fitzhugh, First Vice President G.T.R., stated in Boston, Mass., April 14, that no time would be lost in making surveys for the new line. The company would apply to the Commissioners of Railroads for Massachusetts for a certificate of exigency for the portion of the projected line in that State, and construction work would be proceeded with in the two States simultaneously.

Quebec Terminals.—The G.T.R. which now has a terminal in Levis, Que., on the south side of the river, is desirous of obtaining terminal facilities in Quebec City. Several of the company's officials met the Quebec Harbor Commissioners, April 9, and discussed the matter. The company desires to secure the Atkinson wharf, G.T. wharf, East India wharf and Wellington wharf. The proposal is under consideration.

Lachine, Jacques Cartier and Maisonneuve Ry.—The plans of the company for the closing of certain streets in Montreal, the crossing of other streets, the building of tunnels, bridges, etc., were laid before the Quebec Legislature, April 7, in connection with the application for the ratification of the agreement with the city council.

Coteau Bridge.—The superstructure of the bridge across the St. Lawrence near Coteau, Que., is being renewed. The original superstructure was built in 1889 by the Dominion Bridge Co. for the Canada Atlantic Ry. (now part of the G.T.R.) and was designed for a uniform load of 3,000 ibs. per linear foot with provision for engine excess loads. The renewal is being made in order to meet conditions imposed by the heavier motive power and train loads in use on the G.T.R main line of this system, which it is contemplated to use also on this section of the line. The new superstructure has been designed for Cooper's E-50 class of loadings, specification of the American Railway Engineering and Maintenance of Way Association. The length of the new spans is similar to the old ones, as the new superstructure is being built on the old piers. The old swing or channel span of this bridge was heretofore operated by hand power, but the new one will be swung by steam power. The work is at present on this swing or channel span, and it will be completed in time for the opening of navigation down the river at this particular place. During the summer the remaining spans will be replaced. The swing bridge over the Soulanges canal in this locality is also being renewed for similar reasons to those mentioned in connection with the St. Lawrence bridge.

Kingston, Smiths Falls and Ottawa Ry.—The Dominion Parliament has granted an extension of time for the construction of this projected line. In an interview at Ottawa, April 9, W. Wainwright, Fourth Vice President G.T.R., said: "We have acquired the charter, and it is with the intention of building the line. Just when it will be done I am not in a position to state. Its construction is only a season's work, and when it is started it will be rushed to completion."

Port Hope Viaduct.—The superstructure of the viaduct carrying the line across the town of Port Hope, Ont., is being renewed. All masonry work in connection with the changes in the piers necessary in order to meet the new conditions has been finished. The new girders of the north main line are all in place and 14 of the total of 22 spans of the south track have the new girders in place also. Work is in progress on the erection of the remainder. This new superstructure is replacing that which was erected in 1892 and which was designed for a uniform load of 4,000 lbs per linear foot. The present bridge has been designed for Cooper's E-50 class of loadings, and the renewal has been made in order to meet the conditions required by the heavier motive power and train loads which this railway is using.

Toronto Union Station.—E. H. Fitzhugh, First Vice President G.T.R., stated April 2, that his company was ready to do its share in building a union station for Toronto. It had not been informed of any intention of the C.P.R. to leave the waterfront.

Block System.—E. H. Fitzhugh stated in an interview, April 2, that the company had under consideration plans for the installation of electric signals on the line between Toronto and Suspension Bridge. The signals would be installed at mile or half mile posts, and it was expected that more trains could be run over the line than is the case at present. The time tables show at present 100 freight and passenger trains a day over the line.

London Improvements.—C. M. Hays, President, together with a number of other officials, was in London, April 21, when the matter of the proposed improvements of the company's lines in the city was discussed.

Stratford Station, Etc.—The Mayor met E. H. Fitzhugh, First Vice President, and other G.T.R. officials, April 1, to discuss the plans for improvements there. The company asks that the city agree to the closing of a street, and build a subway at another street (estimated to cost $50,000), the company to build a modern two story station and office building, some additional building at the locomotive shops, and rearrange the tracks and yards, the estimated cost of the works being about $250,000. The matter is under consideration by the council. (April, pg. 289.)

Delaware and Hudson Co.

The annual report for the year 1909, states that the policy of the former management in expanding the company's railways by the purchase of the Quebec, Montreal and Southern Ry., and the policy of the present management in financing the same has been apparently justified. Previous to 1906, the D. and N.R. had extended no further than the International boundary. At that time the company bought the entire capital stock of the Q.,M. and S. Ry. in Canada, and certain electric railways and coal properties in the U. S. The purchase of the Q.,M. and S. Ry., which has now been extended as far as Fortierville, and was put in operation June 14, 1909, was largely a protective measure. The company's heavy coal haul is, of course, north, and it has needed traffic south to balance the loaded car mileage bound north. By the purchase of the Q.,M. and S. Ry. the management was able to protect the wood pulp industries located on its line and secure accordingly a considerable tonnage of lumber southbound. After reviewing the freight statistics the report states the securing of a grain tonnage amounting to 450,369 tons in 1909, as compared with 316,012 tons in 1908, is an indication that the company is able to justify its extension into the territory of the Canadian roads. Both the movement of the grain tonnage and lumber tonnage, which latter showed a considerable increase in 1909, is in the right direction, that is south. Although the revenue from freight traffic was 82% of the total revenue, passenger traffic important, because of the future possibilities of developing a considerable through traffic between New York and Quebec. The Q.,M. and S. Ry. is to be

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The following table shows the earnings and expenses in 1909 and 1908:—

	1909.	1908.
Mileage operated	814	814
Coal freight revenue	$8,311,179	$9,106,820
Merchandise freight revenue	7,691,617	6,162,181
Passenger revenue	2,834,628	2,693,672
Total operating revenue	19,525,859	18,500,731
Maintenance of way	1,334,546	1,417,319
Maintenance of equipment	2,598,566	2,219,543
Traffic	227,317	204,849
Transportation	6,821,392	6,528,112
Total operating expenses	11,458,480	10,811,721
Railway taxes	411,468	413,029
Operating income	7,655,912	7,275,982
Net earnings coal dept'm't	507,875	1,145,418
Gross corporate income	9,980,531	9,926,075
Net corporate income	5,194,840	5,254,458
Dividends	3,825,090	3,816,000
Surplus	1,369,750	1,338,458

Railway Finance, Meetings, Etc.

Alberta Ry. and Irrigation Co.—Approximate net profits from all sources, exclusive of land sales for Feb., $45,211, against $43,310 for Feb., 1909. Cumulative net profits for eight months ended Feb. 28, $342,896. Traffic receipts for Mar., $34,518 against $27,627 for Mar., 1909. Aggregate traffic earnings for nine months ended Mar. 31, $285,797.

Canadian Northern Ry.—A trust deed has been filed with the Secretary of State at Ottawa, made by the C.N.R. Co. to the British Empire Trust Co., the National Trust Co., and the Province of Saskatchewan, securing an issue of 30 year 4% bonds, guaranteed by the Province of Saskatchewan. The deed is supplementary to one made May 18, 1909.

A press report from Vancouver, B.C., April 6, states that Jas. Dunsmuir has acquired $4,000,000 of C.N.R. bonds.

Canadian Northern Ontario Ry.—The Dominion Parliament has authorized the company to enter into agreements for amalgamation or other purposes with the Central Ontario Ry., Bay of Quinte Ry., Irondale, Bancroft and Ottawa Ry., and some small mining railway in Central Ontario, as well as with several other railway companies, in other parts of Ontario which as yet have not done any construction. It is also provided "for the removal of doubt," that the company has had the power to and may consolidate the various issues of securities theretofore made, and to retire the originally issued stocks.

Dominion Atlantic Ry. Gross earnings for Mar., $85,600, against $75,725 for Mar., 1909. Gross earnings for nine months ended Mar. 31, $904,750, against $864,204 for same period 1908-09.

Esquimalt and Nanaimo Ry.—In 1904 the British Columbia Legislature passed an act entitled the Vancouver Island Settlers' Rights Act, with a view of settling the position of squatters and others on the lands granted in aid of the construction of the E. and N.R. The company claimed that it was entitled to compensation, and after protracted negotiations an agreement was entered into between the company and the Province, Oct. 21, 1909. The company is given the right to select 20,000 acres of unoccupied and unreserved crown lands on the Island, in rectangular blocks of not less than 640 acres. The lands are to be selected within three years, and are to be exempted from taxation for 10 years from the date of the issue of the crown grant. This agreement was confirmed at the last session of the Legislature.

Georgian Bay and Seaboard Ry.—The lease which the C.P.R. has of this line will run for 999 years from Jan. 1, and not for 99 years, as dated in our last issue.

Grand Trunk Pacific Branch Lines.—An issue of £1,270,500 of 4% bonds was placed on the London, Eng., market, April 6, at £98.10s. The issue is being made for the purpose of providing funds for the construction of branch lines.

North Shore Ry.—A receiver was appointed by the New York Courts, Mar. 28, for the Canadian Consolidated Mines. The company was incorporated, Mar., 1909, under the Laws of the State of Maine, with a capital of $5,000,000, as a holding company for a number of coal mining companies in New Brunswick and Nova Scotia. Of the stock there has been issued $4,890,000 of which Luella N. Von Hagen, owns $1,000,000. The indebtedness of the company is placed at $50,000, of which $19,500 is due on notes held by Luella N. Von Hagen, the petitioning creditor. D. P. Hays and D. Davis have been appointed receivers under bonds amounting to $75,000. The president of the company is H. Von Hagen.

Stock in the following companies is held by the company:—North Shore Ry. (formerly Beersville Ry., and Beersville Coal and Ry. Co.), Northern Coal Co., Kent Coal Co., Maritime Coal Co., in New Brunswick; Crown Coal Co., Great Northern Coal Co., in Nova Scotia, and one company in Maine.

Sydney and Louisburg Ry.—The Nova Scotia Legislature has incorporated a company with this title to construct, purchase or lease any railway in Cape Breton Island, N.S. The capital of the company is fixed at $1,000,000, and power is given to increase it to $5,000,000. The principal object of the company is to take over the existing railway between Sydney and Louisburg, with its branch lines to the Dominion Coal Co.'s mines, and its connections with the Dominion Iron and Steel Co.'s plant. The existing lines have a length of about 40 miles and are owned by the Dominion Coal Co. The provisional directors are J. H. Plummer, M. J. Butler, C. S. Cameron, D. H. McDougall, and R. F. McCourt, all of whom are connected with the Dominion Coal Co. or the Dominion Iron and Steel Co.

In the D.C. Co.'s annual report it is stated that the reason for obtaining this charter was that the directors were of the opinion that the railway could be more satisfactorily carried on by an independent company operating under the Provincial railway laws than by being directly operated by the company.

Quebec and Lake St. John Ry.—Total traffic earnings for Mar., $49,598.53, against $53,135.78 for Mar., 1909. Aggregate traffic earnings for three months ended Mar. 31, $119,592.54, against $136,456.02 for same period 1909. Mileage operated 280, against 285.4 in 1909. Earnings per mile for Mar., $177.24, against $186.18 for Mar., 1909, and for three months ended Mar. 31, $427.21, against $478.12 during the same period 1909.

Quebec and Lake St. John Ry.—Notice is given by the Q. and L. St. J.R. Bondholders' Protection Committee that a full majority of first mortgage and income bonds have been deposited to its order. The time for depositing bonds was extended to April 15 after which date bonds would be received on terms to be fixed by the committee.

Quebec Central Ry.—Gross earnings for Feb., $62,741.76; expenses $52,960.79; net earnings $9,780.97, against $60,892.11 gross earnings; $54,709.95 expenses; $6,182.16 net earnings for Feb., 1909. Aggregate gross earnings for eight months ended Feb. 28, $704,536.94; expenses $494,608.07; net earnings $209,928.87, against $667,669.66 aggregate gross earnings; $482,943.87 expenses; $184,725.79 net earnings for same period 1908-09.

Temiscouata Ry.—Profit on operation for Feb., $1,351, and for two months ended Feb. 28, $2,901.

National Transcontinental Railway.

A statement of the distances, mileages and the amount of work done onthe 21 contracts covering the 1804.84 miles from Moncton, N.B., to Winnipeg, Man., recently laid before the House of Commons, showed the total percentage of work done on the various contracts was 57.2%, made up as follows:—1,062.1 miles of grading completed; 728.1 miles of track laid; 439.8 miles of ballasting done; and 368 miles of telegraph lines completed, in addition to the bridge construction work.

The plans for the reconstruction of the bridge over the St. Lawrence River at Quebec have been on exhibition since Jan., and the specifications for the work are almost completed. It is expected that tenders for the superstructure will be invited in about a month.

In the evidence given by A. E. Doucet, District Engineer, April 18, before a House of Commons committee it was stated that after the grading of the 150 miles westerly from Quebec had practically been completed, the G.T.P.R. engineers insisted that the route must be changed, because the one under construction did not give the required gradient of 0.4%. The original cost of the 150 mile section was estimated at $5,297,857, and the actual cost to date, after reconstruction, was $11,219,828. Tenders were received to April 20, for the purchase of the five buildings at Matheson, Ont., owned by the Commission, and tenders will be received by May 2, for the erection complete of a station building at Lake Superior Jct., Ont.

A Montreal dispatch April 13, says the G.T.P.R. officials have a semi-official assurance that the section of the line between Cochrane, the junction with the Temiskaming and Northern Ontario Ry., and Lake Superior Jct., will be completed much earlier than was anticipated. As soon as this is done it will be possible for the G.T.R. to run trains through from Montreal and other points on its line to Winnipeg, Edmonton, etc., via Toronto, North Bay and the T. and N.O.R. to Cochrane.

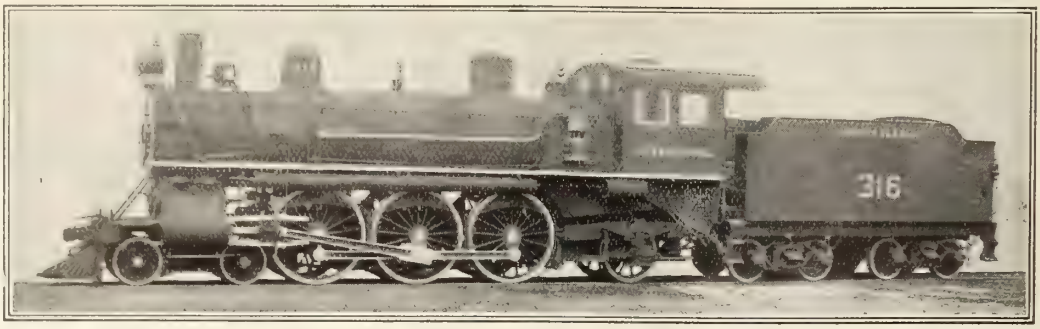
As a result of the recent decision of the Board of Railway Commissioners, there has been a change in the route of the line through St. Boniface, Man. The new route will leave the Springfield road near Mission Road and will proceed along lot 74 to within a mile of the city hall, where it will cross the C.P.R. Emerson line, and continue south-easterly to the Lombard St. bridge. This change will do away with dangerous crossings of other lines.

Rapid progress is being made with the construction of the shops near Winnipeg. The whole work is expected to be completed by the end of the year. We are advised that the date for the completion of the contracts for the equipment of the locomotive shops at Winnipeg, has been extended to Oct. 1.

Grand Trunk Pacific Ry.—In an interview in London, Eng., recently, C. M. Hays, President G.T.R., said: "We are well satisfied with the progress being made with the G.T.P.R. Before the next harvest is ready to be handled we shall be ready to carry heavy traffic right through from west of Edmonton to the steamships on the great lakes at Fort William, and it is safe to say that a regular service of passengers and freight trains will be running on the G.T.P. tracks to Prince Rupert in 1913."

Mail advices from Prince Rupert, received in Montreal, April 12, state that the work of laying out the new city is being rapidly proceeded with. Several wharves are being built, and the company is planning extensions to its wharf system. A contract for laying out the terminal yards has been let to D. J. Dempsey, who has also the contract for

(Continued on page ...)



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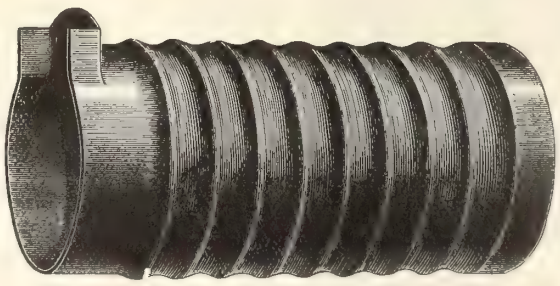

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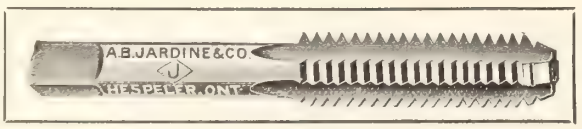

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(Continued from page 375.)

the tracklaying on the first 100 miles easterly..

Grand Trunk Pacific Branch Lines.—The two branch lines upon which the company is concentrating its energies are the one from Melville via Regina to the International boundary near Portal, Sask., and the other from Wainwright via Calgary to the International boundary near Coutts, Alta. On the first of these track was laid in 1909 from Melville to Balcarres, and grading is in progress an the 60 miles between Balcarres and Regina. A press report states that a contract has been let to the J. D McArthur Co., who are grading this 60 miles, to do the grading on the line from Regina to Portal. The Government has notified the company that this section of the line must pass through Weyburn, or the guarantee will not be affixed to the bonds. The line which the company proposes to construct to Hudson Bay also starts from Melville. The section to Yorkton, 25 miles, was completed in 1909, and a contract has been let for the grading of a further section to Canora. 30 miles. It is reported that contracts have been let to the J. D. McArthur Co. for a 50 mile line from Watrous to Prince Albert, Sask.; a 50 mile line from Biggar to Battleford. Work has been started by the J. D. McArthur Co., on the Lofield-Calgary line, upon which track was laid to Cameron, 26 miles, in 1909. The surveys for the line into Calgary have been completed, and plans showing the route into the city were filed April 1. The line passes through the Pitman estate about three miles east of Calgary, on the Blackfoot trail, and turning south meets the C.P.R. about a mile east of the railway bridge on the Bow River. The route keeps close to the C.P.R. until the city boundary is reached, whence it passes through the alliance and sub-diision and through east Calgary on Eighth St. (April, pg. 289.)

Geodetic Survey of Canada.

A return has been issued by order of the House of Commons giving copies of all correspondence, reports, documents and orders-in-council relating to the establishment of a Geodetic Service Bureau and the commencement of a Geodetic Survey in Canada. The documents include memorials from engineering and other bodies, reports from the Chief Astronomer, the Committee of Surveys, etc., dating from 1886. A Committee on Surveys was constituted under an Order-in-Council in 1906, and a report was prepared in 1907, but was not submitted to the Governor-in-Council until Feb., 1909. The report states that a comprehensive and reliable survey of the Dominion for the production of an accurate typographical map, based upon a network of triangulation and showing the natural and artificial features of the country, is of urgent necessity from the standpoint of economy, the extension of public undertakings and the development of the natural resources of the country. It was recommended by the committee that the survey should be made with the co-operation of the survey departments of the different provinces, that all the survey work should be under one central controlling authority, that all maps of surveys should be deposited in a central record office, which should have charge of the printing of all maps required. The committee pointed out that at present about $900,000 a year was expended by the different departments upon survey work, and it was calculated that by a unification as suggested at least $60,000 a year could be obtained, without any increased votes, for a triangulation survey. A map is issued showing that certain triangulation survey work has been done in Ontario and Quebec, practically along the St Lawrence River, and Lakes Ontario and Erie, from Quebec City to Windsor and Sarnia.

Nova Scotia Railways.

The Provincial Engineer for Nova Scotia, R. McColl, in reporting on the work of his department for the year ended Sept. 30, 1909, says there was very little railway work done. This apathy in the work of railway construction is not to be wondered at, as during the previous 10 years the railway mileage in the province increased rapidly. In 1998 there were 166 miles of subsidized railways coming under the jurisdiction of the Department; now there are 475 miles. The returns show a considerable decrease during the year, there being a falling off in traffic returns of about 8%. The principal decline was on the Sydney and Louisburg Ry., where there was a decrease of 16%; the Inverness and Richmond Ry. and Coal Co., a decrease of 11%; the Halifax and South Western Ry., a decrease of 4%. The Maritime Coal, Ry., and Power Co., showed an increase of 25%, and the Cumberland Coal and Ry. Co., an increase of 8%. The decrease is almost entirely attributed to the labor troubles in connection with the coal trade, so far as the Sydney and Louisburg Ry., and the Inverness and Richmond Ry. and Coal Co., are concerned; and the dulness of the lumber trade affecting the Halifax and South Western Ry.

There are 634 miles of railway owned by 11 companies under Provincial jurisdiction; the Intercolonial Ry., 467 miles and the Dominion Atlantic Ry., 221 miles, coming under Dominion jurisdiction. The total mileage of railways in the province is practically the same as in 1908, and with the exception of the construction of a branch of four miles from near Nictaux station on the Halifax and South Western Ry. to the Torbrook Iron mines, there is no new work in hand. There is one mile of railway in operation for every 343 of the population, against one mile for every 300 in the Dominion. Taking the average of the Nova Scotian railways the rate per mile for passengers appears to be slightly greater than on large railway systems, it is apparently considerably less than the average rates in Canada on the shorter lines. Over 4,000,000 tons of freight were carried at a cost of about $800,000 to the shipper. At least half of this freight could not have been moved by water. The returns show good profits on practically all the coal carrying lines, which are owned by the colliery companies. The construction of a railway for lumbering purposes by the Sable River Lumbering Co., connecting with the Halifax and South Western Ry., the reconstruction of the Liverpool and Milton Tramway and its connection with the H. and S.W. Ry., and the continued extension of the Davison Lumber Co.'s railway add greatly to the freight of the H. and S.W. Ry., these three lines being great feeders to this system, and providing a very large amount of freight. The Sable River Ry. turns over nearly 10%; the Liverpool and Milton Ry. nearly 15%, and the Davison Lumber Co. nearly 40% of the entire freight of the whole H. and S.W. Ry. It is expected that when the branch from Nictaux Falls to Torbrook has been completed it will provide an additional amount of freight much greater than the total amount now carried over the existing line. The 60 mile Inverness and Richmond Ry. hauls nearly double the tonnage, and its receipts for freight are nearly equal to those for the H. and S.W. Ry. The management of the different railways are to be commended for their efforts to have their employes guard against forest fires, and have welcomed the inspection of their locomotives by the Government.

The returns of accidents during the year show 18 casualties against 17. One passenger was killed by falling off a train, seven [illegible] were injured by a derailment; one employe was killed and four injured, and of those who were neither passengers or employes three were killed and two injured. There were no passengers killed or injured in the year 1907-08.

Michigan Central Ry. Report.

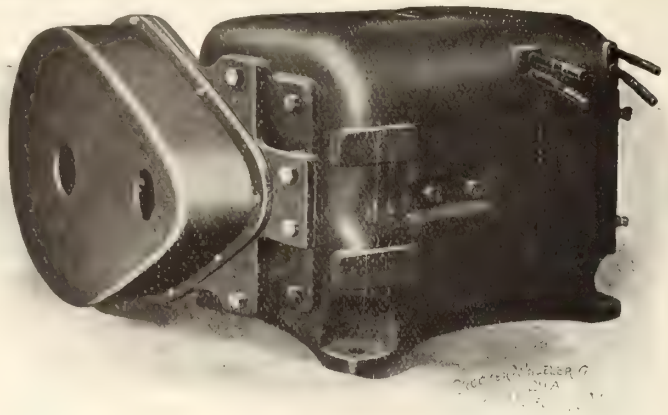
The directors report for the year 1909, covers the operation of the following mileage:—Main line 270.07 miles; proprietory lines, 345.05 miles; leased lines, 1,117.34 miles; lines operated under trackage rights, 14.00 miles; a total of 1,746.46 miles. The amount of capital stock authorized and outstanding was $18,738,000; the funded debt was $42,-159,000

The total operating income was $27,415,467.20, of which $18,267,530.44 was from freight, $6,655,698.85 from passengers, $1,244,745.14 from express, $409,212.23 from mails and from miscellaneous sources $840,280.54. The total operating expenses were $18,-499,528.24, leaving a net income from operation of $7,743,254.98, an increase of $1,429,610.70 over 1908. Other sources of income brought in $941,-480.65. The deductions from income, including the payment of a dividend of 6% on the capital stock, left a balance of $11,748,216.80 to be carried to profit and loss account. The statistical tables do not give details of the operations of the company's lines in Canada, but the following items of information are mentioned:—Accrued taxes in Canada, on value of real and personal property, $38,742.78; interest on 6% Canada Southern 1st mortgage bonds, $840,000; interest on 6% Canada Southern 2nd mortgage bonds, $300,000; interest on 4% Leamington and St. Clair mortgage bonds, $5,200; rental of Canada Southern Ry., $375,000. The company expended on capital account $1,942,436.93 on improvements to property of which $251,980.65 was for yards and sidings; $22,479.79 for stations and other structures, and $486,545.19 for roadway on the Canada Southern Ry., the remainder being expended on the U.S. lines. The stocks and bonds owned or acquired under lease include 78,100 shares of the Canada Southern Ry., value $7,810,000; 3,000 shares of the Detroit River Tunnel Co., value $3,000,000; 4,464 shares in the Toronto, Hamilton and Buffalo Ry., value $446,400; and bonds to the value of $357,000 of the latter company. The total face value of stocks and bonds owned or acquired is $22,114,529.17, valued in the books at $9,375,998.38.

The Fredericton Construction Co. has been incorporated under the New Brunswick Companies' Act, with a capital of $50,000 and offices at Fredericton, to carry on a general contracting and engineering business, to survey, lay out, construct and equip electric and steam railways; to construct wharves, terminal facilities, etc. The provisional directors are:—A. R. Slipp, R. B. Hanson, H. P. Robinson, J. Walker, H. W. Walker, Fredericton, N.B.

The Practical Engineer Pocket Book and diary for 1910, is the title of a very handy volume issued at one shilling in cloth, and 1s 6d in leather, by the Technical Publishing Co., 55 and 56 Chancery Lane, London, W.C., England. There are 684 pages of solid, practical information for those interested in the construction and operation of steam engines of all classes, together with a copious index.

Temiskaming and Northern Ontario Ry. [illegible] $829.75; expenditure $83,387.29; net earn-



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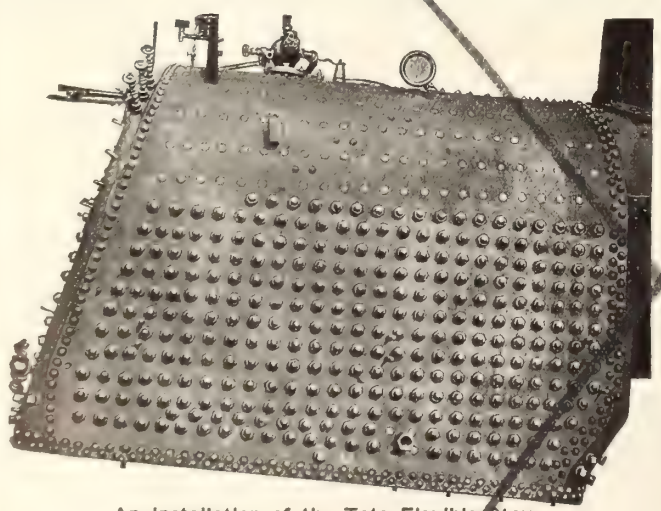

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MAINLY ABOUT PEOPLE.

Mrs. Osler, wife of E. B. Osler, M.P., director C.P.R., died in Toronto, April 5.

E. B. Osler, M.P., director C.P.R., has been elected Hon. President of the British Welcome League, Toronto.

Sir H. Montagu Allan, returned to Montreal, Apr. 10, after having spent some time in England.

Sir Wm. C. Van Horne, Chairman of the Board, C.P.R., has been elected a director of the Dominion Coal Co.

Sir Thomas G. Shaughnessy has been elected a Vice President of the Royal Colonial Institute, London, Eng.

W. Sutherland Taylor, ex-Treasurer C.P.R., and Mrs. Taylor, have left Montreal to spend the summer in Europe.

Jean Creighton, younger daughter of T. C. Matchett, C.P.R. ticket agent, Lindsay, Ont., died there, Apr. 20, aged 6.

J. Simson, who has been in the G.T.R. Freight Department for a number of years, died at Toronto recently, aged 76.

W. I. Gear, and the Misses Gear, Montreal, arrived in Montreal, Apr. 22, from Great Britain, where they spent a few weeks.

J. P. Mabee, Chief Railway Commissioner for Canada, has sold his house in Rosedale, Toronto, and removed to Ottawa.

W. R. McRae, Master Mechanic, Toronto Ry., has been reappointed Rector's Warden of Christ Church, Deer Park, Ont.

W. Whyte, Second Vice President C.P.R., returned to Winnipeg Apr. 13, from a six weeks' trip in the Southern States.

The Hamilton Steamboat Co.'s staff presented a travelling bag recently to Miss Abraham, on her retirement from the Secretaryship.

D. B. Hanna, Third Vice President Canadian Northern Ry. has obtained a city permit to erect a $28,000 house on Castle Frank Ave., Rosedale, Toronto.

J. L. Engelhart, Chairman Temiskaming and Northern Ontario Ry. Commission spent some ten days in New York at the end of April.

Gordon Jennings, C.E., of Chicoutimi, Que., son of the late W. T. Jennings, C.E., Toronto, was married in Toronto April 1, to Miss Muriel Millichamp.

R. J. Mackenzie, of Mackenzie, Mann & Co., Ltd., Winnipeg, and son of the President Canadian Northern Ry., was married at San Jose, Cal., recently.

E. A. Forster, solicitor for the Toronto Railway Employes Union and Benefit Society, died at Toronto, Apr. 9, after a lengthened illness.

Victor Anderson, son of Lt.-Col. Anderson, Chief Engineer, Marine Department, Ottawa, is to be married to Miss Bessie Gordon, of Montreal, early in June.

Miss E. M. V. Harris, daughter of A. H. Harris, Special Traffic Representative C.P.R., was married in Montreal, April 12, to the Rev. J. K. Tibbits, of Concord, N.H.

J. Dunsmuir, director C.P.R., and formerly Lieut-Governor of British Columbia, is reported to have purchased $4,000,000 of Canadian Northern Ry. bonds.

W. Mackenzie, President Canadian Northern Ry., was entertained at dinner at the House of Commons, London, Eng., Apr. 13, by a number of members and friends.

Miss D. M. Fletcher, granddaughter of Collingwood Schreiber, C.M.G., Consulting Engineer, Department of Railways and Canals, was married to R. S. Lake, M.P., at Ottawa, Apr. 4.

Fred Shaughnessy, son of the President C.P.R., who is engaged in the Fourth Vice President's office, at Montreal, is spending a short holiday in England for his health.

Jno. Niblock, formerly Superintendent District 3, Western Division, C.P.R., Calgary, has removed to his fruit farm at Naramata, B.C., where he will in future reside.

The Souris, Man., Board of Trade, entertained General Superintendent Arundel, and the Divisional Superintendents at Winnipeg, Brandon and Souris, at a dinner, April 11.

The engagement is announced of Miss Grace Lowrey, step-daughter of Hayter Reed, Manager in Chief C.P.R. Hotels, to Harold Daly, son of Hon. T. Mayne Daly, K.C., Winnipeg.

C. B. Foster, Assistant General Passenger Agent C.P.R., Vancouver, B.C., has returned to business after having visited his home in New Brunswick, and friends at other eastern points.

Hugh Sutherland, Executive Agent Canadian Northern Ry., Winnipeg, who left for Europe at the end of March, to meet Mrs. Sutherland, is expected to return with her during May.

Jno. Simpson, who died in Toronto recently, aged 76, was for 45 years in the G.T.R. service. At the time of his retirement, about seven years ago, he was station agent at Cayuga, Ont.

Mrs. M. B. Beasley, mother of H. E. Beasley, Superintendent Esquimalt and Nanaimo Ry., Victoria, B.C.,, and of H. H. Beasley, General Storekeeper, Toronto Ry., died at Toronto recently.

G. H. Anthony, General Agent Pere Marquette-Lehigh Valley Line, St. Paul, Minn., and formerly General Agent Wisconsin Ry., Winnipeg, was visiting in Winnipeg during the latter part of April.

T. S. Scott, who recently resigned the position of chief assistant city engineer, Toronto, was formerly engineer in charge of construction of the McRae, Chandler and McNeill contract on the Temiskaming and Northern Ontario Ry.

D. B. Hanna, Third Vice President Canadian Northern Ry., returned to Toronto, Apr. 9, from Great Britain, where he spent some two months in organizing the Canadian Northern Steamships service.

R. R. Jamieson, mayor of Calgary, Alta., and formerly General Superintendent C.P.R. Central Division, is reported to have been asked to take the portfolio of Minister of Public Works for Alberta.

H. N. Ruttan, President Canadian Society of Civil Engineers, was recently presented with an oil portrait of himself, by the Winnipeg city engineering staff to mark his twenty-fifth anniversary as city engineer.

C. M. Hays, President G.T.R., and G.T.P.R., accompanied by Mrs. and Miss Hays, returned to Canada, Apr. 14, from England, where they had taken part in the launching of the G.T.P.R. s.s. Prince George.

Sir Thomas G. Shaughnessy, President C.P.R., has given an emphatic denial to the recent rumor emanating from the U.S., to the effect that he would shortly resign the Presidency of the C.P.R. to enter politics.

W. F. Salsbury, local Treasurer of the C.P.R. at Vancouver, B.C., is one of the provisional directors of the Western Union Fire Insurance Co., which has been incorporated by the British Columbia Legislature.

O. O. Winter, formerly General Superintendent Grand Trunk Pacific Ry., Winnipeg, is reported to have purchased about 10,000 acres in the Moose Lake district, Sask., and it is stated that he is about to take up residence there.

Major J. E. Hutcheson, Superintendent and Purchasing Agent Ottawa Electric Ry., will command the Canadian rifle team at Bisley this year. He will sail from Montreal on the s.s. Tunisian, June 17.

W. Mackenzie, President Canadian Northern Ry., who left Toronto for England, Mar. 9, accompanied by Mrs. Mackenzie will, probably return during May, by the Canadian Northern Steamships line.

H. W. McLeod, who has been appointed Trainmaster District 3, Pacific Division C.P.R., at Nelson, B.C., is a graduate in civil engineering of the University of New Brunswick, and prior to this appointment was Resident Engineer C.P.R., Calgary, Alta.

F. Leeper, cashier Pere Marquette Rd., at St. Thomas, Ont., died at Dresden, Ont., recently. He had been with the company since it took over the Lake Erie and Detroit River Ry., and had been on leave of absence since Jan. on account of ill health.

Miss F. Johnson, secretary to H. R. Charlton, General Advertising Agent G.T.R. and G.T.P.R., Montreal, was presented with a travelling bag recently, by her associates, on the occasion of her leaving the service to be married to S. Simpson, Winnipeg.

J. W. Kearns, District Passenger Agent Pere Marquette Rd., Detroit, Mich., and formerly Travelling Passenger Agent same road, London, Ont., was presented recently with a purse of gold by a number of friends at London, on his appointment to the former position.

W. A. Bowden, who has been engaged in the engineering branch of the Department of Railways and Canals for about five years, and who has been acting as Chief Engineer since the resignation of M. J. Butler, is reported as likely to be appointed to that position in the near future.

W. A. Cooper, General Superintendent of Sleeping, Dining and Parlor Cars and News Service C.P.R., has been elected President of the recently organized International Stewards' Association of Canada, the membership of which comprises stewards, hotel proprietors and hotel managers.

Lord Strathcona has subscribed $2,000 towards the erection of new buildings for the Portage la Prairie, Man., Exhibition Association, and has also sent $5,000 and offered the use of his Montreal house for the entertainment of guests during the forthcoming Eucharistic Congress there.

R. B. Thomson, who died in New York recently aged 34, from the effects of an accident, was a son of the late W. Thomson, the first President of the Old Northern Ry., now part of the G.T.R. system; and a brother of Mrs. Polson, widow of the late F. B. Polson, President of the Polson Iron Works, Toronto.

Niblock & Tull, Calgary, Alta., have located on the ground floor of the Grain Exchange Building, where they will handle their Atlantic Steamship agencies, real estate business, etc. D. B. Niblock was in the C.P.R. service for several years, among other positions being passenger agent at Calgary and Brandon.

Dunsmuir Castle, Victoria, B.C., which was built by the father of Jas. Dunsmuir, formerly President of the Esquimalt and Nanaimo Ry., at a cost of $300,000, has been sold. Three acres of land go with the residence, the remainder of the grounds having been sold in lots, of which over 120 were sold at $2,750 each.

Capt. Tatlow, formerly a member of the British Columbia Government, died at Victoria, B.C., April 10, as a result of being thrown out of his carriage a couple of days previous. He married in 1893, Miss F. M. Cambie, daughter of

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H. J. Cambie, then Division Engineer C.P.R., now Chief Engineer Esquimalt and Nanaimo Ry.

Miss Clara Hays, daughter of the G.T.R. President, is to be married to Hope Scott, at Montreal, June 9.

R. Wright, who retired from the position of Treasurer of the G.T.R. in 1894, died in Montreal, April 5, aged 78. He entered railway service in England in 1858, joining the London staff of the G.T.R. in 1862, and came to Canada two years later. He subsequently became Treasurer at Montreal, which office he retained until his retirement in 1894.

J. S. Carter, who has been appointed General Agent Passenger Department C.P.R. Atlantic Steamship Lines, Winnipeg, has been in the C.P.R. service for a number of years. He was for some time ticket agent at Winnipeg, and from 1901 to 1907 was District Passenger Agent at Nelson, B.C., and was transferred to Spokane, Wash., as General Agent on the opening of the Soo-Spokane Line.

D. T. Main, whose appointment as District Master Mechanic C.P.R., Nelson, B.C., was announced in our last issue, was born at Kirkintilloch, Scotland, and came to Canada in 1903, when he entered Mackenzie, Mann & Co.'s service as draughtsman, and in 1904 entered C.P.R. service, and was from 1907 to Mar. 1908, locomotive foreman at Minnedosa, Man.; from Mar. 1908 to Mar. 1910, locomotive foreman at Cranbrook, B.C.

M. S. Blaiklock, whose portrait appear on the first page of this issue, was born at Quebec, July 19, 1859, and entered railway service in 1880, since when he has been, to 1889, Assistant Engineer G.T.R.; 1889 to 1891, Assistant Engineer St. Clair Tunnel; 1892 to 1896, Inspector G.T.R.; 1896 to Apr. 1902, Resident Engineer Eastern Division G.T.R., Montreal; Apr. 1902 to Oct. 1907, Superintendent Eastern Division G.T.R., Montreal; Oct. 1907 to date, Engineer Maintenance of Way G.T.R., Montreal.

Jas. Leitch, K.C., Chairman of the Ontario Railway and Municipal Board, while investigating a Toronto St. Ry. case in his office in Toronto on April 5, suddenly lost the sight of his right eye, owing to the rupture of a blood-vessel. It is not anticipated that the loss of sight will be permanent, but it will take some months of rest and treatment to restore the sight and to correct the conditions which caused the hemorrhage. A. B. Ingram, Deputy Chairman, is acting as Chairman during Mr. Leitch's absence.

G. A. Walton, who has been appointed General Agent Passenger Department C.P.R., at Spokane, Wash., was born at Montreal, July 17, 1881, and entered railway service June, 1897, since when he has been, to Aug., 1901, clerk in G.T.R. Passenger Department, Montreal; Aug., 1901, to Feb., 1903, rate clerk C.P.R. Passenger Department, Winnipeg; Feb., 1903, to Feb., 1906, chief clerk C.P.R. Passenger Department, Winnipeg; Feb., 1906, to Oct., 1907, C.P.R. station ticket agent, Winnipeg; Oct., 1907, to Apr. 11, 1910, District Passenger Agent C.P.R., Brandon, Man.

At the investigation into the Alberta and Great Waterway Ry. matter at Edmonton recently, it was stated that F. S. Darling, formerly Division Engineer of Construction C.P.R., Toronto, who is now in Edmonton, was sent there to take charge of construction in the interest of the Royal Bank. It was also stated that W. R. Clarke, President of the A. & G.W.R. received $25,000 a year as President, J. A. L. Waddell, the Chief Engineer, receiving the same amount, with a bonus of $75,000, of which $30,000 was to be paid on the completion of the first 150 miles, and $45,000 on the completion of the whole line. G. Seymour, Auditor, has a salary of $4,800 a year.

Temiskaming and Northern Ontario Ry.

The annual report of the Commissioners recently issued, covers 10 months ended Oct. 31, 1909, is due to the fact that the Ontario Legislature has decided that the accounts for all provincial purposes shall be closed Oct. 31, instead of Dec. 31, as formerly. The railway has 252.3 miles of main line, 13.34 miles of branches, and 68.80 miles of yard and spur tracks; adding 0.64 miles of a spur at New Liskeard, under construction. This gives a total of 335.08 miles.

Following is the condensed statement of revenue account:—

Revenue from transportation	$1,298,698 27
Other revenue	62,526 61
Total operating revenue	$1,361,224 88
Operating expenses	794,796 88
Net operating revenue	$566,428 00
Ore royalties	108,516 68
	$674,944 68
Hire of equipment	19,073 47
Total earnings	$655,871 21
Paid Treasurer of Ontario	550,000 00
Balance to Profit and Loss	$105,871 21

The operating expenses amount to 58.4% of the gross earnings, and the net earnings to 41.6%, as compared with 74.2% and 25.8% respectively in 1908. The offices in Toronto and North Bay are insured for $34,225, and the other buildings, and insurable property on the line at $1,958,799; while $520,000 of employer's liability insurance, and $90,000 of guarantee insurance is carried.

The report covers in detail the work done by the different departments during the 10 months, and also gives details of the contracts entered into. The general balance sheet follows:—

ASSETS			
Property Owned			
Cost of road to Dec. 31, '08		$11,991,175 22	
Cost of road to Oct. 31, '09		1,350,768.00	
			$13,341,943.22
Cost of equipment to Dec. 31, '08		1,450,529.67	
Cost of equipment to Oct. 31, '09		49,077.80	
			1,499,607.47
			$14,841,550.69
Less:—			
Net bonuses from mines		140,171.61	
Advances townsite sales, less expenses		9,415.80	
			149,587.41
			14,691,963.28
Working Assets			
Cash			122,431.99
Foreign freight balance			4,100.96
Net balance due from Agents and conductors			86,468.85
Accounts collectible			79,060.82
Materials and Supplies			315,040.02
			607,102.64
Deferred Debit Items.			
Paymaster's advance			8,000.00
Treasurer's advance			50.00
Insurance paid in advance			25,093.10
Fire ranging (chargeable Nov. and Dec. '09)			4,240.98
Advances contracts—McRae, Chandler & McNeil contract			127,000.00
Construction account in suspense			422,610.96
Other items in suspense			2,896.04
			589,891.08
			$15,888,957.00
LIABILITIES			
Provincial Loan			$15,338,338.69
Working Liabilities.			
Accounts payable inc. pay rolls			$285,798.86
Unclaimed wages			1,278.01
Deposit on contracts			24,854.78
Car mileage and per diem balance			5,733.29
Foreign ticket balance			4,796.03
Foreign telegraph balance			187.25
			322,648.22
Free Surplus			
Profit and Loss—Balance			227,970.09
			$15,888,957.00

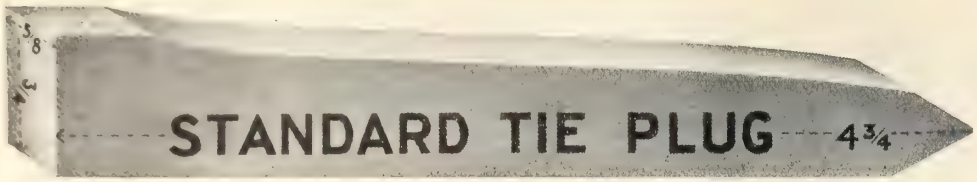
Too Late for Classification.

Detroit River Tunnel.—In their annual report for the year 1909, the Michigan Central Rd. directors say:—"The construction of the double tube tunnel under and across the Detroit River by the Detroit River Tunnel Co., the entire capital stock of which latter company is owned by this company, has progressed almost to completion. The open cuts and approaches on both sides of the river are finished, and the tunnel under the river is finished so far as to be open for use for the purpose of construction. There remains only to be completed a portion of the interior lining of the subaqueous tunnel and the tracks and electrification work. It is expected that the tunnel can be put into use during the early part of 1910. An arrangement has been made under the terms of which this company can acquire at any time, upon demand, the title to and possession of the property in the city of Detroit desired for the location of a proposed new passenger station, and a satisfactory ordinance passed by the city providing for the necessary closing of streets and construction of subways, etc., has been accepted by this company." We were advised April 15, that the contract work covering the construction of the tunnel will be completed in May. There will then remain two or three months' work in connection with the electrification to be done. It is expected that the tunnel will be in operation some time during the summer.

New York, New Haven and Hartford Rd.—Press reports from New Haven, Conn., April 12, state that consequent upon the G.T.R.-Central Vermont Ry. extension to Providence, R.I., the N.Y., N.H. and H. Rd. will build two sections of line which will give it a direct connection with Sherbrooke, Que. It is said that surveys have been ordered to be made for a line from Brattleboro and South Vernon, and for a line between Windsor and White River Jct., and that construction will be started in the fall. The company secures its present connection over the Central Vermont Ry.

The rails which are used in the construction of the uncompleted and abandoned ship railway across the isthmus at Chignecto, N.S., after having seen some years' service on the Intercolonial Ry., are being re-rolled by the works of the Provincial Steel Co. at Cobourg, Ont. Originally weighing 110 lbs. to the yard, they are being rolled to 80 lbs. to the yard.

"Note the Size and Shape"



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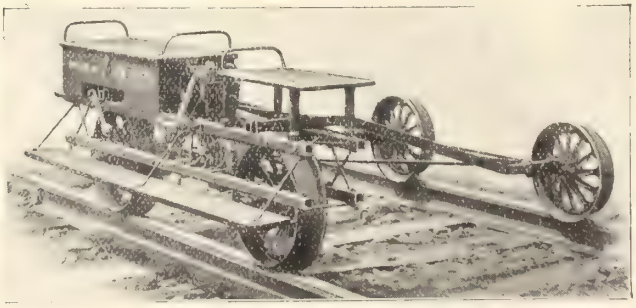

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TRANSPORTATION APPOINTMENTS.

The information under this head, which is almost entirely gathered from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian Northern Ry.—J. F. McGuire, who has been appointed City Ticket Agent, Winnipeg, vice W. Stapleton promoted to Canadian Northern Steamship service.

Canadian Northern Steamships Ltd.—D. B. Hanna, Third Vice President, Canadian Northern Ry., has also been appointed Second Vice President C.N.S. Office, Toronto.

P. Mooney, General Freight and Passenger Agent, Halifax and South Western Ry., has also been appointed General Agent, Freight and Passenger Departments, C.N.S., at Halifax, N.S. Territory includes Nova Scotia, Prince Edward Island, New Brunswick and Maine.

G. Tombs, General Freight and Passenger Agent, Canadian Northern Quebec, and Quebec and Lake St John Rys., has also been appointed acting General Freight and Passenger Agent C.N.S. Office, Montreal.

A. H. Davis, heretofore chief clerk C.P.R. steamship office, St. John, N.B., has been appointed Passenger Agent C.N.S. at Montreal.

J. B. Foote, formerly Superintendent Canadian Lake and Ocean Navigation Co., Toronto, who was recently appointed Marine Superintendent C.N.S. at Montreal, has resigned and has been succeeded by —. Jones, who has been sent out from Great Britain by Capt. Gregory, Marine Superintendent at Bristol.

W. Phillips, General Freight and Passenger Agent Canadian Northern Ontario Ry., and General Eastern Agent Canadian Northern Ry., has also been appointed acting Traffic Manager C.N.S. office, Toronto.

H. C. Bourlier, heretofore in the Allan Line office, Toronto, has been appointed General Agent, Passenger Department. C.N.S., Toronto. Territory east of Port Arthur, Detroit and St. Clair River, and west of Kingston, Sharbot Lake and Pembroke, Ont. He will also perform other general duties allotted to him.

W. Stapleton, heretofore C.N.R. city ticket agent, Winnipeg, has been appointed General Agent Passenger Department C.N.S., for territory west of, and including Port Arthur, Ont. Office, 64 Scott Block, Main St., Winnipeg.

Canadian Pacific Ry.—Sir Wm. C. Van Horne has resigned the Chairmanship of the Board, but remains as a director.

H. P. Timmerman, heretofore Industrial Commissioner, lines east of Montreal, has been apointed Industrial Commissioner for the Atlantic and Ontario Divisions, and that portion of the Eastern Division east of Carleton Jct Office, Montreal.

W C. Casey, Travelling Passenger Agent, St. John, N.B., is reported to have been appointed chief clerk to General Passenger Agent Atlantic Steamship Service, Montreal.

J. R. Watson, heretofore dining car conductor, has been appointed Inspector Sleeping and Dining Car Department. Headquarters, Montreal.

H. N. Hooper, heretofore Assistant Agent Sleeping and Dining Car Department, Ottawa, has been appointed Agent same department there, vice E. A. Tupper assigned to other duties at Toronto

E. A. Tupper, heretofore Sleeping and Dining Car Agent at Ottawa, has been appointed News Department storekeeper at Toronto.

J. S. Carter, heretofore General Agent at Spokane, Wash., has been appointed General Agent Passenger Department Atlantic Service at Winnipeg, vice S. J. Sharpe resigned to enter private business in Toronto. He will have charge of the entire west for the Atlantic Steamship Service, reporting to the General Passenger Agent Atlantic Steamship Lines, Montreal.

A. G. Richardson, heretofore City Passenger Agent, Portland, Ore., has been appointed City Passenger Agent, Winnipeg.

J. E. Proctor, heretofore District Passenger Agent, Calgary, Alta., has been appointed District Passenger Agent, Brandon, Man., vice G. A Walton, promoted.

R. A. Gamble, heretofore Inspector Refrigerator Service, Winnipeg, has been appointed Fuel Agent Western Division, vice J. F. Kane resigned. Office, Calgary, Alta.

R. G. McNeillie, heretofore Passenger Agent Nelson, B.C., has been appointed District Passenger Agent at Calgary, Alta., vice J. E. Proctor transferred

J. W. Marshall, heretofore assistant car foreman at Winnipeg, has been appointed car foreman at Lethbridge, Alta., vice E. Y. Brake transferred.

J. Rutley, heretofore locomotive driver, has been appointed road foreman of locomotives, District 4, Western Division, Macleod, Alta., vice L. E. W. Bailey resigned

E. Y Brake, heretofore car foreman at Lethbridge, Alta., has been appointed car foreman at Cranbrook, B.C., vice A. McCowan resigned.

W. J. Wells, heretofore Travelling Passenger Agent, Brandon, Man., has been appointed District Passenger Agent at Nelson, B.C., vice R. G. McNeillie transferred.

O. Johnson has been appointed Roadmaster between Farron and Midway and the Phoenix Branch, District 3, Pacific Division, vice T. H Nichols transferred. Office, Nelson, B.C.

Jno. Anderson, heretofore Roadmaster Mountain section and Arrow Lake branch, Revelstoke, B.C., has been appointed Roadmaster from Field to mileage 72.6 main line. Office, Golden, B.C.

T. H. Nichols, heretofore Roadmaster on District 3, Pacific Division, has been appointed Roadmaster from mileage 72.6 main line west of Field to Revelstoke, and Arrow Lake branch. Office, Revelstoke, B.C.

F. W. Walker, heretofore acting Superintendent, District 3, Pacific Division, Nelson, B.C., has been appointed Rules Instructor for the Pacific Division. The appointment is only a temporary one, and he will travel over the whole division giving instructions in the new rules.

W. E. Kingston, heretofore assistant chief clerk General Manager's office, Winnipeg, is reported to have been appointed chief clerk to General Superintendent Pacific Division, Vancouver, B.C., vice W. B. Semmens resigned to enter private business.

C. Adez has been appointed acting Travelling Fireman, District 2, Pacific Division. Headquarters Vancouver, B.C.

F. X. LaPrairie, heretofore Car Inspector at Kenora, Ont., has been appointed wrecking foreman at Vancouver, B.C.

H. D. Annable, heretofore General Freight Agent Atlantic Steamship Service, London, Eng., has been appointed Assistant Foreign Freight Agent at New York, vice C. W. Sellers, Assistant Export and Import Freight Agent resigned. Office, 1 Broadway.

G. A. Walton, heretofore District Passenger Agent, Brandon, Man., has been appointed General Agent Passenger Department, Spokane, Wash., vice J. S. Carter, promoted.

L. F. Knowlton has been appointed City Passenger Agent at Portland, Ore., vice A. G. Richardson transferred.

Duluth, South Shore and Atlantic Ry., Mineral Range Rd.—A. W. Martin has been appointed Travelling Passenger Agent at Duluth, Minn.

Grand Trunk Pacific Ry.—The following agents have been appointed:—Ingelow, Man., J. A. Lachance; Spy Hill, Sask., S. F. Beamish; Waldron, Sask., W. H. McDonald; Raymore, Sask., C. S. Brydges; Scott, Sask., L. C. Pearson; Chauvin, Alta., J. A. McKinnon. The station at Grandora, Sask., has been closed.

Press reports state that W. Duperow, Travelling Passenger Agent G.T.R., Toronto, will be appointed Passenger Agent G.T.P.R., at Prince Rupert, B.C.

R.Beaumont, heretofore General Agent Northern Navigation, Port Arthur, Ont., has been appointed Assistant to the Manager G.T.P.R. Pacific Coast service, Vancouver, B.C.

Grand Trunk Ry.—J. H. Taylor, heretofore Assistant Claims Agent, has been appointed acting Claims Agent (Personal Injuries), vice S. Wells, deceased. Office, Montreal.

W. J. Nixon has been appointed acting Chief Train Dispatcher at Montreal, vice P. G. Flaherty.

P. G. Flaherty, Chief Train Dispatcher, Montreal, has been appointed acting Master of Transportation, Eastern Division, vice S. B. Kramer, who has been granted three months' leave of absence. Office, Montreal.

Press reports state that C. E. Jenney of the Toronto city ticket office, will be appointed Travelling Passenger Agent at Toronto, to succeed W. Duperow, who, it is reported will be appointed Passenger Agent G.T.P.R. at Prince Rupert. B.C.

G. H. Wyatt has been appointed General Foreman at Nichols, Mich., vice G. F. Dick transferred.

G. F. Dick, heretofore General Foreman at Nichols, Mich., has been appointed General Foreman at Milwaukee Jct., Mich.

F. W. Egan, Superintendent Western Division, having been granted leave of absence, the following changes became effective Apr. 22, and until further notice:—

J. H. Ehrke, Assistant Superintendent, Battle Creek, Mich., has been appointed acting Superintendent. Office, Detroit, Mich.

F. G. Bement, heretofore Trainmaster, Durand, Mich., has been appointed Trainmaster District 25, Main Line, and District 26. Office, Battle Creek, Mich. All reports heretofore made to the Assistant Superintendent, will hereafter be made to the Trainmaster.

O. F. Clark, heretofore Chief Dispatcher, Battle Creek, Mich., has been appointed Trainmaster District 25, (C.S. & M.), Districts 27, 28 and 29 and Pontiac, Oxford and Northern Rd. Office, Durand, Mich.

The following agents have been appointed: Brechin, Ont., J. McLeod; Alma, Ont., A. Yaeck; Morrefield, Ont. J. A. Scott; Harriston, Ont., S. D. Croft; Greenfield, Ont., H. L. Abrams; Moose Creek, Ont., O. Parent (temp.) Rockland, Ont., O. Parent; Kingsville, Ont., J. L. Mander (outside).

Inland Navigation Co.—L. A. W. Doherty, heretofore assistant to General Manager has been appointed Traffic Manager in full charge over all Lake Ontario and westbound package freight traffic. Office, Hamilton, Ont

Intercolonial Ry.—S. G. Tiffin, heretofore Travelling Agent, Toronto, has been appointed Agent there vice N. Weatherston, superannuated.

Intercolonial Ry.—W. F. Byrne, heretofore draughtsman in the drawing office at Moncton, has been appointed Locomotive and Roundhouse Inspector.

International Ry. of New Brunswick.—The operating staff has been appointed as follows:—Manager, E. H. Anderson; Traffic Manager, A. A. Andrew; Ticket Agent, E. B. Price; Freight Agent, G. McRae; Chief Engineer, D. W. Brown.

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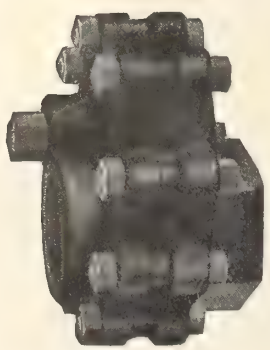

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The Irondale, Bancroft and Ottawa Ry., control of which was secured by Mackenzie, Mann & Co., is being operated under lease by the Central Ontario Ry., of which G. Collins is General Manager.

New York Central Lines.—L. Drago, who has been telegraph operating for the G.T.R. at Niagara Falls, Ont., since the Clifton Hotel, there, closed for the winter, will resume his former position as N.Y.C. ticket agent at the hotel, when it reopens in May.

Orders by the Railway Commissioners.

The following orders have been passed in addition to those on p.p. 363 and 365:—

10117. Apr. 12.—Adding Montreal St. Ry., Bell Telephone Co., G.N.W. Telegraph Co., C.P.R. Telegraphs, and others as parties to resolution of Montreal Chamber of Commerce, respecting level crossings, and fixing Apr. 28 for hearing at Montreal.

10118 to 10122. Apr. 7.—Relieving G.T.R. from providing further protection at crossings at first highway south of Henfryn; at second highway south of Hawkesbury, and at Saugeen Road, two miles south of Kincardine, Ont.; and similarly relieving C.P.R., regarding crossings at second highway west of The Brook, between lots 18 and 19, cons. 6 and 7, Russell Co., and at mileage 21.5, Osgoode tp., Ont.

10123, 10124. Apr. 6.—Declaring that C.P.R. Daniel St. and John St. crossings, Arnprior, Ont., are protected to the Board's satisfaction.

10125. Mar. 24.—Dismissing P. S. Seager's application for order directing P.M.R. to provide undercrossing on lot 6, Moore tp., Ont.

10126 to 10128. Apr. 9.—Authorizing Ontario Hydro-Electric Power Commission to erect telephone and relay wires across G.T.R. at three points.

10129. Apr. 13.—Approving agreement of Norfolk County Telephone Co. with Bell Telephone Co. respecting connections at Waterford, Scotland, Delhi, Simcoe, Otterville, and Port Dover, Ont.

10130. Apr. 13.—Approving C.P.R. plan showing interchange track with G.T.R. at Galt, Ont.

10131. Apr. 12.—Approving plan of proposed bridge over highway at mileage 24.2, C.P.R. Port Burwell Branch, near Straffordville, Ont.

10132. Apr. 12.—Authorizing C.P.R. to use bridge at mileage 1 of its Napinka section, Man.

10133. Apr. 5.—Authorizing A. C. Beatty to place telephone wires across G.T.R. at Garden Hill, Ont.

10134 to 10141 inclusive. Apr. 11.—Authorizing Ontario Hydro-Electric Power Commission to place telephone and relay wires across various railways at eight points.

10142. Apr. 12.—Ordering C.P.R. within 60 days to install electric bell at Thomas St. crossing, mileage 20.67, London section, Ont.

10143, 10144. Apr. 12.—Authorizing C.N.O.R. to build across private roads between lots 32 and 33, con. 2, Pickering tp., and between lots 28 and 29, con. A, Hamilton tp.

10145 to 10147. Apr. 12.—Ordering G.T.R., within 60 days, to install electric bells at crossings 3½ miles east of Lennoxville station, Ont., and east of St. Madeleine station, Que.; similarly ordering C.P.R. respecting Queen St. crossing, Streetsville, Ont.

10148. Apr. 12.—Authorizing C.P.R. to build spurs to Superior Portland Cement Co.'s premises, Orangeville, Ont.

10149. Apr. 5.—Approving location plan of C.P.R. station at Clive, Alta.

10150. Apr. 12.—Approving location of C.P.R. Regina, Saskatoon and North Saskatchewan branch from mileage 95.8 to 132.

10151 to 10153. Apr. 12.—Authorizing C.P.R. to use bridges at mileages 147.5, Portal Section; 118.0 Estevan Section, and 34.5, over Badger Creek, Napinka Section, Man.

10154. Apr. 8.—Relieving G.T.R. from providing further protection at crossing at first public road north of Fultons, Ont.

10155, 10156. Apr. 12.—Ordering G.T.R. and C.P.R., within 60 days, to install electric bell at crossings at Main St., Mount Brydges, and Manvers Road, Pontypool, Ont.

10157, 10158. Apr. 8.—Relieving G.T.R. from providing further protection at crossings five miles west of Bright, and at St. George St., Fergus, Ont.

10159. Apr. 5.—Ordering C.N.Q.R. to maintain watchman between 7 a.m. and 7 p.m. daily, at LaSalle Ave. crossing, Maisonneuve, Que., to flag engines and cars.

10160. Apr. 12.—Releasing certain lands on Scotland and Bell Aves., Winnipeg, from the operation of plan showing G.T.P.R. location.

10161. Apr. 14.—Authorizing C.P.R. to build spur for Robert Bell Engine and Thresher Co., Winnipeg.

10162, 10163. Apr. 14-13.—Authorizing G.T.R. to build spurs to D. G. Cooper's premises and Bryan Mfg. Co.'s premises, Collingwood, Ont.

10164. Apr. 5.—Authorizing C.P.R. to take certain lands on the Columbia and Western Ry.

10165. Apr. 5.—Dismissing application of H. G. Hannan, of Kipp, Alta., for order directing C.P.R. to provide station and sidings on s.w. ¼ of sec. 29, tp. 9, r. 22, w. 4 m., Alta.

10166. April 5.—Adding city of Hull, Que., as party in R. Quain's complaint against alleged dangerous condition of C.P.R. crossing near Matthews' Pork Factory.

10167. Apr. 5.—Rescinding order 7931, Sept. 1, 1909, which approves of change C.P.R. location from its Crow's Nest Pass branch.

10168. Apr. 18.—Authorizing C.P.R. to build across private road between lots 6 and 7, con. 4, Darlington tp., Ont.

10169. Dec. 8, 1909.—Ordering that general plans and specifications of work called for by part 1 of Toronto grade separation, shall within two months be filed by G.T.R. for approval and copies furnished to city of Toronto and Etobicoke and York tps.; that subway at Queen St., Toronto, known as Sunnyside crossing, shall be 65 ft. wide; that G.T.R. shall commence the work before May 1, and shall complete the separation of grades at the several crossings within two years.

10170. Apr. 18.—Approving Nipissing Central Ry. Standard Passenger Tariff.

10171. Apr. 18.—Ordering C.P.R. to make approaches to crossing at mileage 47.31, between cons. 8 and 9, Puslinch tp., Ont., 20 ft. wide and re-fence approaches to conform to the Board requirements under its general regulations affecting highway crossings, Jan. 26, 1909.

10172. Apr. 18.—Authorizing city of Edmonton, Alta., to build highway across Edmonton, Yukon and Pacific Ry. within city limits.

The Canadian Society of Civil Engineers, Ottawa branch, has its headquarters at 177 Sparks St. A. A. Dion is acting chairman, owing to the illness of W. J. Stewart, S. J. Chapleau is Secretary. Meetings are held every Wednesday, except in June, July and August.

Locomotive Fuel Consumption.

The cost of fuel consumed by locomotives on the various Canadian railways during the year ended June 30, 1909, was $17,544,449. In volume the aggregate consumption was 6,832,108 tons, against 5,970,791 in 1906-07. Following are details, two cords of wood being calculated as one ton of fuel:

Class of Locomotive	Coal		Wood		Total	Miles Run	Fuel consumed per 100 miles
	Anthracite	Bituminous	Hard	Soft			
	Tons.	Tons.	Cords.	Cords.	Tons.		Tons.
Freight	4,534	3,816,810	1,138	21,809	[illegible]	45,580,449	[illegible]
Passenger	2,600	1,824,536	395	1,[illegible]	[illegible]	32,282,534	[illegible]
Mixed	[illegible]	406,[illegible]	364	[illegible]	410,800	[illegible]	5.67
Switching	[illegible]	740,044	91	142	[illegible]	14,[illegible]	[illegible]
Special	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	231,986	4.14
Total	[illegible]	6,799,148	2,188	43,658	6,832,108	97,865,325	

The average cost of fuel per 100 miles was:—freight, $22.65; passenger, $14.54; mixed, $14.51; switching, $12.82; construction, $10.59.

Economy in Locomotive Repair Shops.

By W. R. Smith, General Foreman, Canadian Northern Ry. Shops, Winnipeg.

The subject upon which I have endeavored to compile this paper is a very broad one, in fact there are very few railway problems upon which there has been more comment and discussion than that of economy in locomotive repair shops. Possibly, on account of the mechanical department not being directly a revenue bearing department, greater attention has been paid to it as regards the organization in its various branches, than to any other department, in connection with railway work. To bring this matter before you in detail would occupy a very considerable length of time, therefore, I shall only mention points which are of the greatest importance in connection with shop practice.

The first of these which I wish to bring to your notice is the storing of material, particularly heavy material, such as tyres, boiler plate, tubes, bar iron, etc., etc. All these should be located as near as possible to the shop in which used, and stored in properly erected buildings or racks, suitable for the purpose required, thus reducing delay on the part of the shop staff to a minimum, and at the same time placing such material under cover that would otherwise be subjected to atmospheric conditions, causing the material to depreciate in value, on account of corroding and pitting, thus reducing the length of service and thereby increasing the cost of the manufactured article. The buildings referred to should be thoroughly equipped with small cranes or lifting devices, to eliminate hard labor and facilitate rapid handling. The use of magnetic power on locomotive cranes now in use in the majority of modern plants, has proved very effective, and has been found to be a labor saving device. It would not be an extensive plant that would not require at least 20 men to perform duties of this nature, without proper facilities, which could be handled by the use of a crane of this type with about five men, effecting an approximate estimate in wage economy of about $8,000 a year.

You will, therefore, see that the saving would aggregate a much higher figure than would be considered creditable by those not conversant with engine repairs. There is one other point on the material question, through which the mechanical department can be subjected to numerous inconveniences and disadvantages, detrimental to the working progress which necessity terminates in increased expense; I speak of the purchasing and supplying of the proper quantity and quality of material at the required time, it being a very essential feature in economy. In this particular line of railway business, it appears to me, after personal experience of several years with four different railway companies, that if those in authority in such matters, acted as far as consistent in supplying the make or quality of material specified by the head of the mechanical department, it would assist materially in economy. It can be readily understood that it is practically impossible for the latter to obtain the best results, in frugal efficiency, without the support of the purchasing department. The fact cannot be denied, however, that cases do occur, through some neglect or oversight on the part of the mechanical department, in not advising the stores or purchasing officials of the consumption of an unusual amount of a certain class of material, or the necessity on the part of the latter to place an order for a commodity which it has not previously been customary to carry in the ordinary stock, thus placing that department in an unfair position through not being allowed sufficient time to obtain delivery.

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One matter to which strict attention should be paid is the tracing of orders for material after being placed. I could relate instances where it would be impossible for a mechanical department to correctly account for excessive charges through failure on the part of a manufacturer to supply material within a reasonable time. As we know the manufacturer's tendency is to grasp all the business possible, with the result that it frequently takes double the necessary time to get deliveries made. I have known cases where six months has been taken where 30 days under ordinary circumstances should be ample time. This is an expensive proposition and one that should not be tolerated by a railway company, as the ultimate cost is perhaps 100% more than the actual value. This and other questions of a similar nature prompt me to state that the most improved business methods, possible to adopt, relative to these three departments, are in the best interest of the company.

In referring to what is conceded by many to be the principal cause of high figures in mechanical labor, being that of the present standard rates of wages, we are all aware that conditions in this particular have made a wonderful advance in the past ten years. Still, expensive locomotive repairs must not alwayss be solely attributed to this fact, as there are comparisons for consideration in what might be termed the ancient and modern methods in applied mechanics found in shop practice. The rapid strides accomplished in the mechanical sphere of late years, are more than equal to those which have taken place in any one particular in railway records. It is well said that time is money, and in this age of comparison, rapidity should be the point at issue in every performance in locomotive repairs, in order to keep pace with the records which are now being continually made in modern shop efficiency.

I do not propose entering upon a discussion of the numerous improved appliances, but by way of comparison I remember only a few years ago, in what was at that time one of the largest shops in Canada, where an employe welding boiler tubes after 10 hours of strenuous labor would have about 100 tubes welded. To-day it is possible by the use of certain machines, without any more exertion on the part of the operator, to weld 600 tubes in the same length of time. Take for instance the enormous amount of manufactured material produced by the use of the modern blacksmith shop machinery. Then consider the modern moulding department as compared with that of 10 years ago, and we find an increase in the output ranging from 100% up, and not only a higher grade of casting, but more accurate, requiring less machine work thereby reducing the cost of manufacturing in every particular, due to the use of moulding machine. The same progress may be applied in speaking of the boiler shop, as 75% of the operations which were manual labor, a few years ago, are now minor details, through the use of hydraulics and compressed air.

The tool and machine shops have, with high speed steel and high grade improved machinery, shown no small display in the advanced superiority of shop efficiency, and in view of the existence of such conditions, the fact, beyond a doubt is clearly demonstrated, that the adopting of modern methods and such machinery, is of vital importance to a mechanical staff who are expected to compete with the competitors of this decade, for never in the history of railroading has there been such efficiency developed in railway mechanics as in that of the past 10 years, which goes to prove that all companies to-day occupying an important position in the handling of freight and passenger traffic, must of necessity keep their motive power in first class condition, there being nothing that will reflect discredit upon a company quicker, than neglect in this department. By this it is understood that shop equipment for locomotive repairs, is an essential question and should warrant due consideration, in order that economy is brought to prevail, which necessitates close inspection of all details in daily shop practice, as the small matters count in the question of time and labor, which is money, and in the performance of such duties, system is required to be observed in every particular governing the delivering of material to the respective departments, also the disposing of scrap materials, and the various relations between the foremen, in order that the work in each and every department, be advanced to the best interests of all concerned.

Another important item in this connection, is the checking of the costs of work performed each day. In order to have correct information with reference to the cost of locomotive repairs, it is necessary to obtain a daily check, to prevent any mistakes being made by the employes on their time distribution slips, which are commonly used in time-keeping in locomotive repair shops. This places the foreman directly in charge of engine erecting or machine work in a position to explain why certain repairs on any particular engine should cost more than the same repairs on another engine of the same type. To obviate such difficulties I am convinced that a system adopted about a year ago by A. Shields, Master Mechanic Canadian Northern Ry., which is known as the "engine repair account' and is only used in general repair shops, or what is generally termed "back" shop, is one of the most convenient methods to be found in checking cost of engine repairs, i.e. from a mechanical department's point of view. It must be admitted that it entails extra time in stores accountant's office. It is a system of itemized charges against repairs by the use of consecutive numbers, which are used to specify every piece of work on an engine, and is as follows:—

ACCOUNT REPAIRS TO ENGINES

1. Stripping.
2. Repair rods.
3. Take off Frame, r. or l.
4. Repair Frame, r. or l.
5. Put on Frame, r. or l.
6. Remove cylinders no.....
7. Apply cylinders no.....
8. Boring cylinders no.....
9. Bush cylinders no.....
10. Repairing cylinders no.....
11. Firebox—new or repairing.
12. New front flue sheet.
13. New back.
14. New inside sheets, r. or l.
15. New outside sheets, r. or l.
16. New door sheet.
17. New wagon top.
18. New face plate.
19. New throat sheet.
20. New crown sheet.
21. Boiler.
22. Smoke Box—new or repairs.
23. Washout plugs and holes.
24. Tank repairs.
25. Remove flues.
26. Repair flues.
27. Replacing flues.
28. Front end arrangement and netting.
29. Ashpan and rigging.
30. Air pump, air signal and steam heat.
31. Driving brake and rigging.
32. Driving boxes, hub liners and eccentric straps.
33. Repairs to shoes, wedges and horn blocks.
34. Deck casting.
35. Deck beam brackets and mud sheets.
36. Hanging motion and setting valves.
37. Repairs to engine trucks.
38. Steam and exhaust pipes.
39. Dry pipe and throttle rigging.
40. Valve seats, bushes and chests.
41. Pistons and crossheads.
42. Guide bars and block.
43. Spectacle plate.
44. Repairing valve gear and motion.
45. Driving tires, wheels, crank pins.
46. Boiler mountings, injectors, pops and lubricators.
47. Lagging.
48. Jackets.
49. Piping.
50. Engine bell.
51. Headlight.
52. Smoke stack and base.
53. Front end ring and door.
54. Expansion and running board brackets.
55. Springs and spring riggings.
56. Wheeling and putting up binders.
57. Pilot buffer beam brackets and front coupler.
58. Cab running boards and deck floor.
59. Sand box, dome casting and hand rails.
60. Painting engine and tender.
61. Tank frame repairs and draft gear.
62. Trucks and Brake rigging.
63. Miscellaneous.

Stripping an engine is account no. 1, repairing rods account no. 2, and so on; the highest number is 63, it being a miscellaneous account which covers all extra or unusual charges. It is worked in this way:—Presuming a machinist has worked all day on boiler mountings (account 46). On his time slip he writes the date, engine number and 9 hours account 46, which is all that is necessary. Each morning all slips are collected from ticket boxes, and charges recorded by the mechanical department, previous to sending slips to the timekeeper. The form used for this purpose has the dates printed on the top line and the account numbers on the right side, so that all that is necessary is to place the amount charged under the date and opposite the account number. There is one form for each engine in the shop for each month. By this you will understand that at a glance, the cost of labor on every piece of work in the shop can be obtained daily. Charges for material, of course, can only be got at the end of each month, when accounts are closed by the stores department. It is understood of course, that due credit is received for scrap material. Some companies use the shop order system. In this every piece of work has a different number, being confusing on account of high figures, which would run into the thousands every month. With the account system, a certain piece of work on every engine is always the same number, with which the employes become familiar and thus avoid mistakes on their time slips. It may be possible to improve on this system, but I must say, if properly carried out, it is the best arrangement in the interest of the mechanical department that I have used.

The foregoing paper was read before the Western Canada Railway Club recently

Canadian Freight Association.

At the annual meeting in Montreal Apr. 14, the following officers were elected:—President, M. H. Brown, General Freight Agent, C.P.R., Toronto; 1st Vice President, C. A. Hayes, General Freight Agent, G.T.R., Montreal; 2nd Vice President, B. R. Hepburn, General Manager Ontario & Quebec Navigation Co., Picton, Ont.

Advisory Committee:—J. Pullen, Assistant Freight Traffic Manager, G.T.R., Montreal, Chairman; W. B. Bulling, Assistant Freight Traffic Manager, C.P.R., Montreal; G. C. Ransom, Division Freight Agent, M.C.R., Buffalo, N.Y.

Executive Committee:—C. A. Hayes, F. F. Backus, G.T. & P.A., Toronto, Hamilton & Buffalo Ry., Hamilton, Ont., and S. P. Howard, General Freight Agent C.P.R., Montreal.

Classification Committee:—W. B. Bulling, C. A. Hayes, Wm. Phillips, F. J. Watson, S. P. Howard, W. M. Kirkpatrick, L. Macdonald, A. E. Rosevear, H. E. Macdonell and R. E. Perry.

Inspection Committee:—R. W. Long, G. Tombs, F. Conway, R. W. Youngs, J. Paul, G. T. Pettigrew, B. R. Hepburn, S.P. Howard, W. B. Bamford and F. J. Balch.

The next quarterly meeting will be held at Penetanguishene, Ont., July 14

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G.T.R. Semi-Annual Meeting.

The semi-annual meeting was held in London, Eng., Apr. 14, when the report for the half-year ended Dec. 31, 1909, was presented. The following summary shows a comparison of the revenue for that period, with that for the corresponding period 1908:—

1908.		1909.
£3,326,158	Gross receipts	£3,632,902 18 1
	Deduct—	
2,407,631	Working expenses, being at the rate of 75.79%, as compared with 72.38% in 1908.	2,753,142 17 0
918,527	Net traffic receipts ...	879,760 1 1
41,901	Balance of income from rentals, outside operations, and car mileage.	39,953 3 10
£960,428	Total net revenue.	£919,713 4 11
	Add—	
16,013	Amount received from International Bridge Co.	16,012 16 7
6,507	Interest on bonds of Central Vermont Ry.	6,506 143
68,739	Interest on securities of controlled lines and on St. Clair Tunnel bonds acquired by issue of G.T.R. 4% debenture stock ...	68,743 9 5
42,626	Balance of general interest account .	27,630 17 3
£1,094,313	Net revenue receipts ..	£1,038,607 2 5

The following are the net revenue charges compared with the corresponding period, 1909:

1908.		1909.
£ 77,603	Rents, leased lines.	£ 77,603 0 9
498,624	Interest on debenture stocks and bonds	508,571 9 9
36,395	Interest on debenture stock and bonds of consolidated lines	36,589 4 5
43,378	Canada Atlantic Ry. deficit	17,367 16 9
£656,000		£640,131 11 8
3,139	Deduct Detroit, Grand Haven, and Milwaukee Ry. surplus	12,066 19 1
£652,861		£628,064 12 7
441,452	Leaving a surplus of	410,542 9 10
£1,094,313		£1,038,607 2 5

Following is a comparison of receipts for half-years ended Dec. 31, 1909 and 1908:

TRAFFIC EARNINGS

Description of receipts.	1909.	1908	Increase.
Passengers	£ 1,041,429	£ 1,041,429	£ 50,006
Mail and express ...	192,585	189,302	13,583
Freight	2,352,106	2,044,305	287,801
Other receipts	100,316	101,424	5,285
	£3,686,436	£3,382,903	£306,715
Average fare per pass.	1.44d.	1.44d.	0.00d.
Average rate per ton per mile	0.68c.	0.68c.	0.00c.

Description of Mileage.	1909	1908	Increase.	Decrease
Passenger	4,399,734	4,440,222	.....	40,488
Freight	3,824,644	3,642,507	182,136	.....
Mixed Trains	726,110	736,497	10,613	.....
Total	9,951,487	9,793,226	158,261	.....

Description of expenditure	1909.	1908.	Increase	Decrease
Maintenance of way and structures	£ 568,896	£ 569,299	£ 39,394	£ .....
Maintenance of equipment	669,889	408,772	261,117	.....
Traffic expenses	97,995	95,000	2,383	.....
General transportation	1,198,601	1,172,996	25,605	.....
Conducting transportation	80,529	88,618	.....	8,089
General expenses	77,181	72,346	5,135	.....
Taxes	.....	.....	.....	.....
Total	£2,693,113	£2,407,031	345,512	.....
Percentage of gross receipts	74.18	72.38	2.40	.....
Expenditure per train mile	66.06d.	59.06d.	7.00d.	.....

Adding balance of £9,938 1s. 7d. at credit net revenue account on June 30, 1909, the amount available for dividend is £420,480 11s. 5d., from which the directors recommend the payment of the following dividends:

Half-year on 4% guaranteed stock	£196,800	4	3
Half-year on first preference stock	85,420	15	0
5% on second preference stock.	126,420	0	8
	£408,640	19	11

leaving a balance of £11,839 11s. 6d. to be carried forward to next half-year's account.

The average rate per ton per mile on the entire freight business was 0.68c., being the same as in the corresponding half-year.

The working expenses, excluding taxes, were £2,675,662 or 73.65% of receipts, as compared with £2,335,285, or 70.21%, in the corresponding half-year; an increase of 3.44% in the proportion to the gross receipts.

Following is a comparison of the revenue expenditure, including taxes, for half-years ended Dec. 31, 1909 and 1908; and

The train mileage of the half-year compares with that for the half-year ended Dec. 31, 1908, as follows:

The gross receipts show an increase of £306,745, or 9.22%; the working expenses, including taxes, £345,512, or 14.35%; and the train mileage 158,261 or 1.62%.

The equipment was increased during the half-year by the purchase of 1,000 steel coal cars, the cost of which, £183,204 16s., has been charged to capital account. During the half-year, £259,512 18s. 8d. has been charged to revenue in reduction of engine and car renewal suspense account, leaving the balance, £197,695 6s. 5d., of which £81,031 11s. was in respect of engines, and £116,663 15s. 5d. of cars.

The gross receipts of the Canada Atlantic Ry., for the half-year were £230,104, against £206,097 for the corresponding half-year, and the working expenses £188,480, against £188,525, leaving a net revenue balance of £41,624, against £17,572, which with the balance of income from rentals, outside operation and car mileage, makes a total net revenue of £42,746, against £19,723. The number of passengers carried was 290,729, against 275,871, an increase of 5.38%; and the passenger receipts, including mails and express receipts, were £49,006, against £47,298, an increase of 3.61%. The quantity of freight moved was 1,258,375 tons, against 1,192,452 tons in 1908, an increase of 5.53%; and the receipts from freight traffic were £171,079, against £147,443, an increase of 16.03%.

The gross receipts of the Grand Trunk Western Ry., were £637,166, against £588,971 for the corresponding half-year, and working expenses, £468,976, against £424,985, leaving net receipts of £168,190 against £163,986, which with balance of income from rentals, outside operations and car mileage makes a total net revenue of £119,096 against £123,510. The net revenue charges were £93,307, against £99,187, so that there was on Dec. 31, 1909, a net revenue credit of £25,789, which is carried forward, as compared with £24,323 for the corresponding half-year 1908. The number of passengers carried was 1,052,197, against 919,597, an increase of 14.42%; and the passenger train receipts, including mails and express were £230,519, against £212,431, an increase of 8.51%. The quantity of freight moved was 1,740,216 tons, against 1,555,695, an increase of 11.86%, and the receipts from this traffic were £391,015, against £365,132, an increase of 7.09%.

The gross receipts for the Detroit, Grand Haven and Milwaukee Ry., were £219,978, against £188,969, and the working expenses £159,486, against £138,905, leaving net receipts of £60,492, against £50,064, which with balance of income from rentals, outside operations and car mileage, makes a total net revenue of £49,048, against £40,972. The net revenue charges were £36,981, against £37,833, so that there was a net revenue surplus of £12,067, as compared with £3,139 for the corresponding period of 1908. The number of passengers carried was 487,122, against 446,936, an increase of 8.99%; and the passenger receipts, including mails and express, were £75,032, against £68,167, an increase of 10.07%. The quantity of freight moved was 1,116,699 tons, against 925,289 tons in 1908, an increase of 20.69%; and the receipts from freight traffic were £125,074, against £100,659 in 1908, an increase of 24.26%.

Grand Trunk Pacific Railway.

The comparatively open winter has enabled favorable progress to be made with preparations for the early commencement of construction in the coming season, and the grading on the portions of the line for which contracts have recently been let,—from Wolf Creek westerly to Tete Jaune Cache, 179 miles, and from Copper River easterly to Aldermere, 135 miles—will, it is expected, be completed by the end of the current year. There still remains about 425 miles between Tete Jaune Cache and Aldermere for which contracts have not been let. Tracklaying has been commenced from Prince Rupert east to the Copper River, 130 miles, and should be completed by July 1. It is expected that the portion of the Government line from Winnipeg to Lake Superior Jct., 245 miles, will be in readiness for traffic by Sept. 1, so that this year's crops may be taken all the way from the West to the Great Lakes. The company's new terminal elevator at Fort William, with a capacity of 3,500,000 bush. will also be available for the handling of this year's crop. Satisfactory progress is also being made with the construction of branch lines in Saskatchewan and Alberta, under guarantees alr ady given by those Provinces. The branches from Melville to Regina, Melville to Canora, in Saskatchewan, and Tofield to Calgary, in Alberta will, it is hoped, be completed by the end of 1910. Additional guarantees by Saskatchewan for further branch lines were obtained at the last session of the Legislature, for lines: from Regina south-easterly to the International boundary between the eastern limit of r. 32, w. p. m. and the western limit of r. 8, w. 2 m.—about 155 miles; from the G.T.P.R. within r. 26, 27, or 28 w. 2 m. northerly to Prince Albert—about 110 miles; from at or near Regina westerly to Moose Jaw, thence north-westerly about 110 miles to the south branch of the South Saskatchewan River; from the G.T.P.R. between the eastern limit of r. 11 and the western limit of r. 16 w. 3 m. south-

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westerly and westerly, 50 miles; from the line near tps. 41, 42 or 43, westerly and north-westerly, 50 miles. The company is under obligation to complete 150 miles of these five branches during 1910, the balance to be completed by Dec. 31, 1912.

Reports of Officers.

The Chief Engineer, H. G. Kelley, states that the length of the G.T.R. maintained and operated during 1909 was as in 1908, 3,536 miles. The bridges over the Richelieu River at Beloeil, and the Yamaska River just east of St. Hyacinthe station, have been completed, and there is in operation, continuous double track from Montreal, east to Ste. Rosalie Jct., 38.01 miles. The Ottawa terminal improvements are in progress. The baggage and express annex has been finished, and is being used for temporary station accommodation. Work has been started on both the new central union passenger station and the new hotel Chateau Laurier, and the contractors for these buildings are making satisfactory progress. The expenditure during 1909, for maintenance of way and structures, was $4,384,252.58, against $3,941,845.10 in 1908, an increase of a little over 11.22%. The outlay on track and permanent way, including ballast and ballasting, clearing snow, renewals of rails and ties, and also including their proportion of superintendence, was $2,788,421.14 in 1908, or at the rate of $788.58 per mile. In 1909, the amount was $3,186,471.96, or at the rate of $901.15 per mile, an increase of 14.27%. For renewal and repair of bridges, trestles, and culverts, the expenditure during 1909 shows an increase of $164,241.33, or 97%, compared with the outlap during 1908, the figures being $333,417.53 and $169,176.20 respectively. The cost of repairs and renewals of buildings and fixtures amounted to $549,246.49 in 1909, compared with $640,340.55 in 1908, a decrease of nearly 14.23%. New stations have been built at Cumberland, South Indian, Ottawa (freight), Bluevale, Palmerston, Corinth, Omemee, Bay City, Halstead and Ashland Avenue stations, Chicago, Windiate Park, Milwaukee Jct., Ionia, Muskegon, Hickey, and South Lyon—16 in all

The comparative cost of repairs per train, engine and car mile was:

	Repairs and renewals of buildings and fixtures		Repairs and renewals of bridges, trestles and culverts		Repairs and renewals of fences, snowsheds, roadway, tools and machinery		Total		Cost per mile.		
	1909	1908	1909	1908	1909	1908	1909	1908	Car.	Train.	Engine.
	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.
Freight	13.47	10.05	12.17	7.86	0.34	0.62	25.98	18.53	0.979	16.11	
Passenger									7.22		
Mixed											
Car											

	Total miles run by cars		Total cost of repairs and renewals	
	1909	1908	1909	1908
Passenger	22,424,586	22,005,440	$3,031,867	$2,867,531
Freight	14,444,586	13,110,998	3,754,154	3,589,913
Mixed	16,661,798	16,661,798	4,337,467	4,172,467

An increase in expenditure of $898,465, or 127.04%, with an increase in car miles of 5,914,146, or 3.74%.

The Superintendent of Motive Power, W. D. Robb, reports expenditure, mileage, etc., as follows:

Half-year ended	Total expenditure.	Train mileage.	Rate of Expense per mile. Train	Engine	Car
			Cents	Cents	Cents
Dec., 1909	$4,849,724	9,951,487	48.73	38.33	2.96
" 1908..	4,361,936	9,793,226	44.54	34.84	2.76

An increase in expenditure of 11.18% compared with an increase in train miles of 158,261 or 1.62%.

During the half-year one engine was sold and 20 were scrapped, leaving at the end of the half-year 29 old light capacity engines set aside to be scrapped. The actual stock at Dec. 31, was 874 engines.

The revenue account for the half-year is as follows:

	£	s.	d.	£	s.	d.
RECEIPTS.						
Freight	2,343,310	4	8			
Less						
Carriage, &c.	57,246	14	1			
International and Bridge tolls	12,123	14	0			
St. Clair Tunnel tolls	21,833	18	9			
	91,204	6	10			
				2,252,105	17	10
Passenger	1,100,053	11	10			
Less						
International Bridge tolls	2,036	16	11			
St. Clair Tunnel tolls	6,590	19	2			
	8,627	16	1			
				1,091,425	15	9
Mail and Express				182,855	1	10
Other Revenue from Transportation				66,921	19	11
Revenue from Operations, other than Transportation				39,594	2	9
				£3,632,902	18	1

EXPENDITURE

		£	s	d.
Maintenance of way and structures	17.31o/o	628,697	17	8
Maintenance of equipment	18.44o/o	669,859	1	19
Traffic expenses	2.70o/o	97,934	17	5
Conducting transportation	32.99o/o	1,198,341	0	6
General expenses	2.21o/o	80,329	1	2
Total operating expenses	73.65o/o	2,675,662	4	7
Taxes	2.13o/o	77,480	12	5
	75.78o/o	2,753,142	17	0
Net income from roads	Cr.	56,514	12	8
Outside Operations—Dining car service balance	Cr	1,371	4	5
		2,695,656	19	11
Hire of equipment balance	Dr.	17,532	13	3
		2,713,189	13	2
Balance to net income account		919,713	4	11
		£3,632,902	18	1

Grain Elevator Notes.

The Scott elevator at Dalny, Man., was burned Apr. 4, with about 12,000 bush. of wheat. The loss has been estimated at $8,000, covered by insurance.

The Dominion Elevator Co.'s elevator at Moosoomin, Sask., was burned recently, together with its contents, of about 14,000 bush. of grain.

The Globe Elevator Co., which built a 500,000 bulk elevator at Calgary, Alta., last year, is reported to have decided to double its capacity during the summer.

The Scott Elevator Co.'s elevator at Dalny, Man., was burned, with about 12,000 bush. of wheat, Apr. 4. The loss, estimated at $8,000, is covered by insurance.

The Edmonton Elevator Co., which has recently completed the foundation of an elevator at Monarch, Alta., is preparing the site for the erection of another at New Dayton.

The Alberta Pacific Co., will, it is stated, build elevators this year at Maple Creek, Walsh, Sask., and Tees, Alta., and will remove its elevator at Chigwell, to Clyve, Alta.

The Calgary Milling Co.'s elevator B at Calgary, Alta., with about 100,000 bush. of grain, was burned, Apr. 14. The elevator, which had a capacity of 250,000 bush., was built in 1905. The loss is quoted at $300,000.

A privately owned elevator, one of three at that point, was destroyed by fire, at Eyebrow, Sask., Apr. 14, together with a C.P.R. box car and a quantity of grain. The elevator was to have been sold shortly to the Moose Jaw Milling Co.

The Farmers' Elevator and Trading Co., Ltd., of Craik, Sask., received tenders, Apr. 23, for the construction of a 60,000 bush. farmers' elevator, with 30 ins. 1,200 bush. bins, 6 ins. 2,300 bush. bins, balance in three bins, two dumps, two scales, large cleaner, gasolene engine and car puller.

A winding-up order has been made in respect of the Parkin Elevator Co., Ltd., of Hespeler, Ont., on the petition of N. A. Kribs, a creditor for $868. The town of Hespeler holds a mortgage on the plant for about $14,000, and there is about $20,000 owing to the Merchants Bank of Toronto. The company's nominal capital is $48,000.

The Prairie Elevator Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $100,000 and office at Winnipeg, to erect, own and operate grain elevators, and to carry on a general elevator business. The provisional directors are: R. Hume, Fort William, Ont., A. E. Choate, E. B. Eadie, R. Siderfin, C. S. Scott, A. G. Rattray, J. H. Sanders, Winnipeg.

The Maple Leaf Milling Co., Ltd., has been incorporated under the Ontario Companies Act, with a Capital of $5,000,000 and head office in Toronto, to carry on a general business as grain millers, dealers, forwarding agents, etc., and to conduct a general elevator and warehouse business. The provisional directors are: H. Shaw, C. W. Band, C. Mulock, C. Wurtele, J. Carrick, S. H. Foster and C. S. Band, Toronto.

Press reports from Lethbridge, Alta., of Apr. 18, state that C. G. Bell, Secretary-Treasurer of the Western Farmers' Elevator and Milling Co., has absconded, after having issued a check for $5,000, with only $4 in the bank to meet it. It is stated that he has ordered $15,000 worth of lumber for a number of elevators, which it is the company's intention to erect at various points on the Crows Nest Pass line, and at Brandon Island.

The report of the Warehouse Commissioner at Winnipeg with regard to interior, terminal and eastern transfer elevator capacity, states that there are, in Manitoba, 312 stations having elevators with 21,624,500 bush. capacity, an increase in capacity of 772,000 bush. during the past year. In Saskatchewan, there are 330 stations having elevators with 24,279,000 bush. capacity, an increase of 76 stations. In Alberta, there are 121 stations having elevators with 8,050,400 bush. capacity. The number of stations and the capacity was practically doubled during the past year. In the west, there are 769 stations having 1,763 elevators in active operation, with a total storage capacity of 54,234,900 bush.

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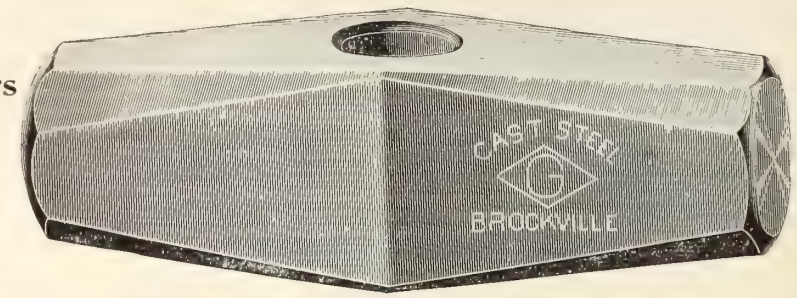

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AND ITS LESSON

The following cities are using Pay-As-You-Enter Cars: Chicago City Railway, 839 cars; Chicago Railways, 1,328; Public Service Corporation of New Jersey, 466; New York City Railway, 555; Third Avenue Railroad, New York, 550; International Railway, Buffalo, 200; Buffalo & Lake Erie Traction Co., 10; Washington Ry. & Elec. Co., Washington, D.C., [illegible]; Capital Traction Co., Washington, D.C., 51; Municipal Traction Co., Cleveland, Ohio, 180; United Rys. Co. of St. Louis, Missouri, 310; Portland Ry., Lt. & Pwr. Co., Portland, Ore., 25; Columbus Ry. & Lt. Co., Columbus, Ohio, 10; Wichita R.R. & Lt. Co., Wichita, Kan., 14; Jacksonville Elec. Co., Jacksonville, Fla., 5; Dallas Elec. Co., Dallas, Texas, 20; Houston Elec. Co., Houston, Tex., 41; Northern Texas Trac. Co., Ft. Worth, Texas, 25; Ithaca Street Ry., Ithaca, N.Y., 2; Peoria Street Ry., Peoria, Ill., 13; Urbana & Champaign Ry., Champaign, Ill., 3; Mutual Lt. & Water Co., Brunswick, Ga., 4; Rochester Ry. Co., Rochester, N.Y., 25; Ft. Dodge, Des Moines & So. R.R. Co., 2; Muskogee Elec. Trac., Muskogee, Okla., 6; Union Traction Co., Dubuque, Ia., 4; Topeka Ry. Co., Topeka, Kas., 12; United Rys. & Elec. Co., Baltimore, Md., 32; Detroit United Ry., Detroit, Mich., 225; Cincinnati Traction Co., Ohio, 50; Montreal Street Railway, 400; British Columbia Elec. Ry., 30; Calgary Street Railway, 18; Metropolitan Street Ry., Kansas City, Mo., 50; Edmonton Radial Ry., 4; San Antonio Traction Co., San Antonio, Tex., 6; Rockford & Int. Ry., Rockford, Ill.; Cairo Street Ry. & Lt. System, 6; Des Moines City Railway, Iowa, 12; Macon Ry. & Lt. Co., Macon, Ga.; Virginia Ry. & Power Co.; Columbia Elec. St. Ry. & Lt. & Power Co., Columbia, S.C.; Aurora, Elgin & Chicago Ry., Chicago, Ill.; Wichita Falls Traction Co., Wichita Falls, Tex.; Ottawa Electric Ry. Co., Ottawa; Bloomington & Normal Ry. & Lt. Co., Bloomington, Ill.; Corsicana Transit Co., Corsicana, Tex.; Compania Electrica y de Ferrocarriles, Mexico; The Milwaukee Elec. Ry. & Lt. Co., Milwaukee, Wis.; Springfield Street Ry. Co., Springfield, Mass.; Lynchburg Traction Co., Lynchburg, Va.; Chicago & Southern Traction Co., Chicago, Ill.; Calumet & South Chicago Ry. Co., Chicago, Ill.

THE LESSON

taught by this widespread use of Pay-As-You-Enter Cars is obvious. Increased Revenue, Accident Elimination and Schedule Improvement have been demonstrated in every case. Isn't all this sufficient to show that it always pays to operate the Pay-As-You-Enter Car? Why not remodel some of your present cars?

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Determination of Train Resistance.

By E. I. Wenger, B. Sc., Stud. Can. Soc. C.E.

The rapid development of the use of electricity as a motive power for railway trains has led to the consideration of problems, which were relatively unimportant a few years ago.

The tractive resistance of electric cars being the foundation upon which is based the calculations leading to the selection of motive power, equipment has of late claimed considerable attention. Numerous formulæ have been developed, and a number of tests have been made to determine the train resistance of electric cars and trains. Amongst these may be mentioned the Buffalo and Lockport Ry. tests in 1900 by W. J. Davis, the Zossen high-speed tests in 1902-3, tests made by the Electric Railway Test Commission on the test car, Louisiana, in 1904-5, the New York subway tests in 1905, and tests on the New York Central locomotives in 1905-6. The majority of these tests were made under somewhat unusual conditions of track and equipment, and consequently the results obtained are not generally applicable to traction problems met with in the ordinary inter-urban railway. It was, therefore, with the object in view of obtaining information which would be useful in the selection of motive power equipment for inter-urban railways operating single car trains that a series of experiments was undertaken by the University of Illinois Railway Engineering Department.

The car used in making the tests to determine train resistance was a standard interurban car and formed part of the laboratory equipment of the Railway Engineering Department. The principal dimensions are as follows:

Length over all	45 ft.
Width over all	8 ft. 4 in.
Distance between truck centres	22 ft. 4 in.
Height from under side of sill to top of roof,	9 ft. 6 in.

The car is divided into two compartments, the smaller of which contains the recording instruments as well as part of the motor control apparatus. In the larger compartment are a motor generator for supplying low voltage current for bond testing, a water rheostat for regulating the voltage on the motors, and several other pieces of apparatus for work of a special nature. The trucks are of the C60 type. The wheels on one truck are rolled steel and on the other chilled iron. The wheel base is 6 ft. 4 ins., and the wheels are 33 ins. in diameter and have the M. C. B. tread and flange. The motive power equipment consists of four 101D Westinghouse motors, with a nominal rating of 50 h.p. The gear ratio is 22.62, thus giving the car a maximum speed of 45 miles an hour, with a pressure of 500 volts on the trolley-wire. The motor control is the Westinghouse unit switch system of multiple unit control. The switch group, circuit breaker, reverser, limit switch, and line relay are installed in the interior of the car for the purpose of inspection under operating conditions and instruction of students. The straight air brake system was used, hand brakes being installed for use in emergencies.

Car used in making tests.

The instrument equipment consists of two integrating wattmeters, a recording ammeter, a recording voltmeter, two speed-recorders, an air pressure recorder, and a portable wind vane and anemometer. One integrating wattmeter was used to measure the total power supplied to the motors, and the other one measured the power supplied to the air compressor motor. The recording ammeter and voltmeter were of the graphic recording type, and gave continuous records of the current supplied to the motors and the voltage across the motor terminals. The speed recorders were of two different types, the first one installed consisting of a recording ammeter of low range connected to a small generator, which was driven from the axle and separately excited from a storage battery carried on the car. The other speed recorder was the well-known Boyer recorder, which was installed for the purpose of checking the speed record obtained by means of the electric speed recorder. The air pressure recorder was connected with the brake cylinder, and was used in making braking tests as well as serving to show whether or not the brakes were fully released during any tests. The portable anemometer and wind vane were mounted on a tripod and set up in the field adjacent to the track, and were used to determine the direction and velocity of the wind for each individual test. The record sheet or chart was 40 ins. wide, and was arranged to be operated on either a time base or a distance base. In operating on a time base the paper rolls were driven by a small electric motor, while for operation on a distance base the rolls were driven from the axle by means of a system of gears. A record of distance was obtained by means of a magnetically operated pin, which made an offset in the distance line every 50 ft. The magnet circuit was completed by a contact-maker driven from the axle. The location of the car at any instant was obtained by a pen operated by a magnet, the circuit of which was closed by means of a telegraph key operated manually as the car passed the poles. The time record (fig. 5) consisted of two lines operated by magnets, which had their circuits closed every five seconds by a time-marker clock, thus producing offsets in the time lines at five seconds' intervals. In addition to these recording instruments, indicating instruments were also connected in the circuits, and the records were frequently checked with the readings on the indicating instruments. Attempts have been made from time to time to develop an instrument for recording acceleration. The best results have been obtained by using a one-kilowatt transformer having the low tension winding connected in series with the ammeter used for recording speed and the high tension winding connected to a millivoltmeter. The jump spark method of recording was used with partial success, but owing to the pressure of more important work, this accelerometer was never fully developed.

Interior of Car used in making tests

In making the tests the car was operated on the Illinois Traction System's track between Champaign and Danville. This track was of the ordinary interurban construction, the rails 30 ft. long and 70 lbs. to the yard, being supported by sleepers spaced two ft., centre to centre, and the ballast was mostly gravel. A very accurate survey of the track was made and the exact location of each pole determined.

The scheme of operation followed in making the tests was to select a section of track free from grades and curves and of as great a length as possible. Owing to the fact that the kinetic energy of the car at high speeds was relatively large, and reading the speed record to

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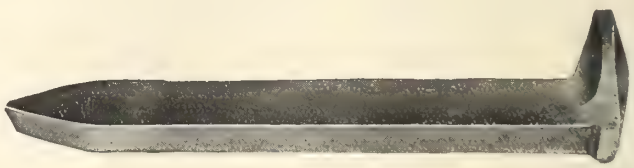

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the second decimal place rather difficult, no sections under 1,000 ft. in length were used, and as this division of the railway system contained a large number of curves, it was impossible to obtain suitable sections much more than 2,000 ft. long. A certain section of track was selected as the scene of operations for a certain day, and the car was run in both directions over this section as many times as possible. The regular service on this division being frequent it was unusual to obtain more than 40 individual tests in any one day, and the number of tests fell on some days to 10 or 12. The car was run to a point about 1,000 ft. from the end of the selected section, and brought up to the required speed some time before entering this section. While making the tests to determine the increase of train resistance due to curves, various curves of different radii, ranging from 1 to 15 degrees, were selected, and accurate surveys made of the curves and sections of tangent track at both ends of the curves. The car was operated at a uniform speed over the section of tangent track before entering the curve, the curve, and the section of tangent track after leaving the curve.

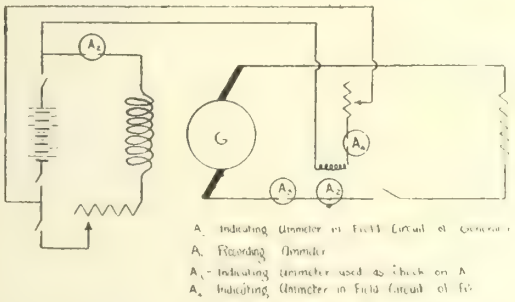

Fig. 3. Speed Recording Apparatus, Electric Test Car.

The method followed in working up the data recorded on the charts was as follows: At each end of the sections selected a perpendicular to the base lines was drawn across the chart, and, using a templet to correct for the arc described by the recording pens, the exact locations of each of the pens at the times of entering and leaving the sections were obtained. Perpendiculars were then drawn from these points to the various base lines, and the area enclosed by the base line, the record, and the two perpendiculars were obtained by using a planimeter. The mean height was then obtained by dividing the area by the distance between the perpendiculars, and the mean values of current voltage and speed were read on the calibration curves. The time taken to pass over the section was obtained by measuring the time line from the last five second offsets to the perpendiculars at the ends of the section. Knowing the current, voltage, and time, the energy delivered to the motors were calculated. From the speed record the speeds at the entrance and exit of the section were obtained, and the kinetic energy of these speeds calculated. From the profile the elevations were obtained, and the energy input or output due to grade was calculated. Thus energy delivered to the motors plus or minus the change in kinetic energy plus or minus the energy due to grade divided by the length of the section gave the tractive effort over the section. This divided by the weight of the car in tons gave the true train resistance in pounds per ton, the various values of which were then plotted against speed and an average curve drawn which showed the value of train resistance for all of the various speeds. In determining the increase of resistance due to curves the same method was followed, except that the tangential section at each end of the curve section was worked up to avoid any possible error due to change in the relative direction of the wind with respect to the car. The superelevations of all curves were carefully ascertained and made a part of the records.

A total of about 400 tests was made in the determination of train resistance for straight, level track, and the values obtained in these tests were plotted. As is to be expected in work of this nature, all of the points did not lie on a curve, so an average curve was drawn such that the sum of the moments of the points lying on one side of the curve was equal to the sum of the moments of the points on the other side of the curve. In this way a curve was obtained which was held to represent the average values of train resistance for ordinary interurban cars on a track of this type. At the same time the fact that a considerable number of points lay further from the curve than any possible error could account for would indicate that the train resistance varies over a considerable range, and shows the necessity of experiments to determine the values of individual elements of train resistance. The results of the tests to determine the increase of train resistance due to curvature were plotted in a series of curves showing the increase for curvature of 1, 2, 3, 5, and 10 and 15 degrees.

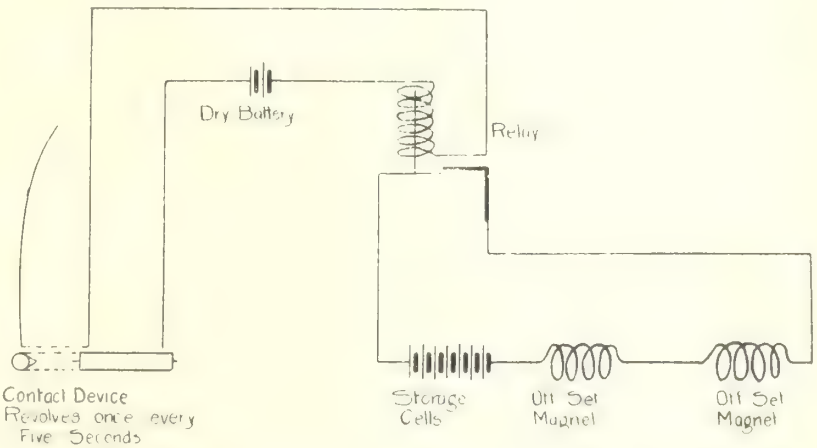

Fig. 5. Schematic Diagram, Time Recording Apparatus Electric Test Car.

The foregoing paper was read before the Canadian Society of Civil Engineers recently.

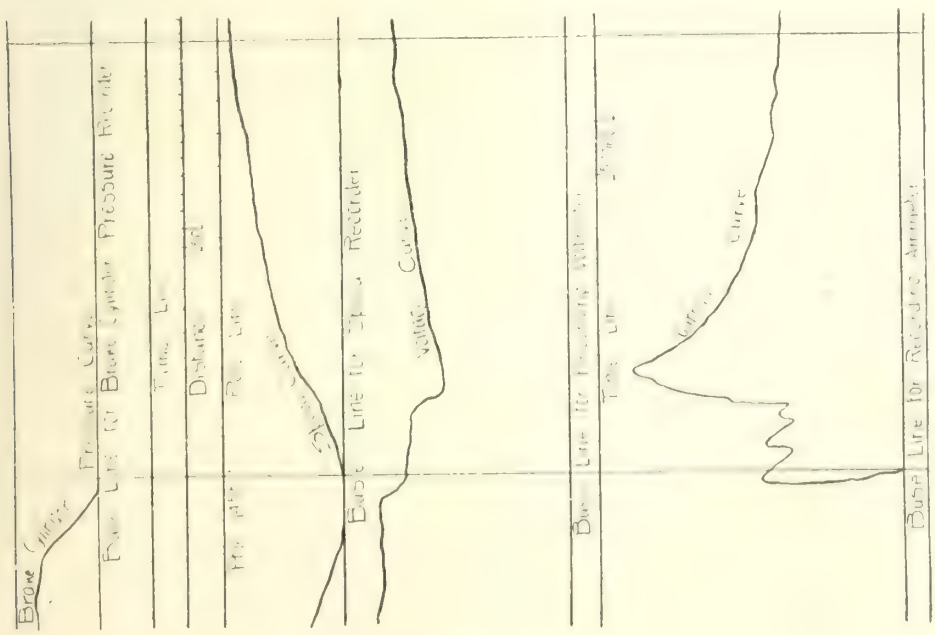

Fig. 4.

Electrical Energy Inspection in B.C.—An act was passed last session of the British Columbia Legislature providing for the appointment of an officer whose duty it shall be to inspect the premises and plant used for the generation, transmission and supply of electrical energy for power, lighting, heating or other purposes. The powers of the Inspector are extensive, as he is authorized to require the attendance of any person he may desire to examine, and the production of all books, in connection with the plant under inspection, and a penalty of $50 may be enforced for obstructing the Inspector in the discharge of his duties. The Inspector may make an order directing the remedying of any defects, such order to become operative on confirmation by the Government engineer, and if is not complied with a penalty of $50 a day may be enforced until the defects are remedied. The inspectors under the act, it is provided by sec. 17, shall in no wise relieve any company from any liability or responsibility resting upon it by law.

Alberta and Saskatchewan Central Ry.—The Alberta Legislature has incorporated a company with this title to build a railway through the centre of the province and west with branch lines, connecting up the principal towns.

The 100,000 tons of steel rails ordered by the C.P.R. from the Algoma Steel Co., as mentioned on page 361, include various orders placed within the last four months.

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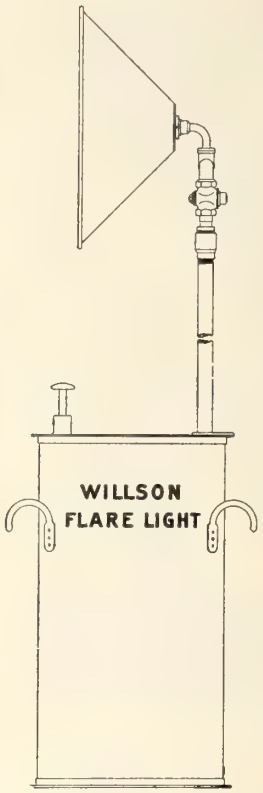

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British Columbia Electric Ry.—The British Columbia Legislature has confirmed an agreement made between the company and the city of Victoria. The agreement provides that within three years the company will expend $1,500,000 in the construction of an electric plant near Victoria, having a capacity of not less than 10,000 h.p., such power to be used in extensions to the company's electric railway, lighting and power undertakings. The company also agrees to expend $250,000 upon extensions of its existing power plant in Victoria. The corporation agrees to take for lighting purposes, but not for sale an amount of electricity equal to that now generated by the existing plant of the corporation at a price which shall not exceed one-half of the present cost to the corporation of generation. The charge made for the electric light and power in the city shall not exceed that charged in Vancouver. The corporation agrees not to become a competitor of the company in the sale of electric light or power.

A contract is reported to have been let to J. W. Pike, Vancouver, for the completion of the prairie section of the line to Chilliwack, about five miles. The contract was originally let to the Seattle and Puget Sound Dredging Co., but was later on taken over by the company. The section is a difficult one to build owing to the swampy character of the ground. (April, pg. 310).

Calgary, Alta.—An offer has been made to the Calgary, Alta., City Council, by a local syndicate, that it will build under the City Engineer's supervision, a line of 1.5 miles, through a building site owned by it, as soon as the city builds the proposed Crescent Heights loop line. The syndicate proposes to make over the line to the city when completed, on condition that it is maintained and operated as a part of the city system. (Mar., pg. 231).

Buffalo and Fort Erie Ferry and Ry. Co.—See Fort Erie Ferry Ry. Co.

The Couteau Power Co., we are advised has been incorporated in British Columbia to develop some 5,000 h.p. at Shuswap Falls, and part of its plan of operations is the construction of standard gauge electric railways through the orchard districts. The first line, proposed to be constructed, will be from Lumby to Vernon, 17 miles. Later as the orchards come into full bearing a line will be constructed from Vernon to Kelowna, 30 miles, with spurs and branches at Kelowna, Summerland, Penticton, etc. The present idea of the company is to use the standard freight cars of the steam railways, load them at the various packing houses and ship straight through to the eastern markets. The report that a mono-rail or gyroscope railway is to be built through the district is, we are advised, a canard, and it is surprising that such a wide circulation was given to it. The company's officers did receive a letter from the inventor of the gyroscope plan. (Mar., pg. 231).

The Fort Erie Ferry Ry. Co.'s application for an act increasing its capital stock, and changing its name to the Buffalo and Fort Erie Ferry and Ry. Co., has been passed by the Ontario Legislature.

Frank, Alta.—A project is reported to be under consideration for the construction of an electric railway from Frank, to connect up the mining towns and villages in the Grassy Mountain district. The Canadian-American Coal and Coke Co., is the principal company interested in the development of the district which is estimated to have a population of about 9,000.

Halifax Electric Tramway.—A special committee, appointed by the Halifax, N.S., City Council, is considering the question of double tracking certain portions of the Tramway Co.'s lines, and of securing their extension northerly. The company is desirous of building a second track on certain streets, but the Council before giving permission for the work to be gone on with is anxious to secure the building of some additional lines. (July, 1908, pg. 509).

London and Lake Erie Ry. and Transportation Co.—At the organization meeting in London, Ont., April 7, the proposal to extend the old South Western Traction Co.'s line from London to Ingersoll was discussed. It is said that this work will be gone on with this year. At Ingersoll a connection will be made with the Woodstock, Thames Valley and Ingersoll Ry. The following elections and appointments were made: President, M. A. Verner; directors, W. F. Dinnick, S. C. Smoke, W. K. George, G. B. Woods, Toronto; T. H. Purdom, J. Milne, London, Ont. A special meeting of shareholders will be held in London, May 10, to authorize the issue of $700,000 of 1st mortgage bonds to be used in connection with the purchase of the South-Western Traction Co.'s line and franchises.

Montreal and Southern Counties Ry.—The Dominion Parliament has extended the time within which the company may complete the building of its authorized lines. (Feb., pg. 147).

Montreal East Boulevard Co.—Application is being made for the incorporation of a company with this title to construct a boulevard from Montreal to the northeast extremity of Montreal Island, and to construct a tramway thereon. The provisional directors are:—M. J. A. Prendergast, J. T. R. Laurendeau, G. Harbruboise, Montreal; Joseph and Jean Versailles, Pointe-aux-Trembles, Que.

Nelson Electric Street Ry.—The British Columbia Legislature has ratified a by-law of the city of Nelson guaranteeing the bonds of the Electric street railway in that city to the amount of $25,000, and interest thereon at the rate of 6%. The corporation leases the existing tramway lines to the company for 10 years at a rental of $1 a year, and thereafter for a further 10 years at an annual rental equal to 6% on the cost of the lines to the city. Power is supplied for the present by the city at a nominal charge. The lines, which came into the possession of the city on the failure of the old company to operate them, had not been in operation for a considerable time when the present company was organized in Sept., 1909, to take them over and operate them.

Under the by-law guaranteeing the company's bonds which has recently been confirmed by the B.C. Legislature, it is provided that no extensions shall be built unless plans have been approved by the City Engineer and City Council, and such extensions must be completed and in operation within 12 months after approval has been given. The overhead or trolley system is to be used entirely, and the company is permitted to use the electric light poles owned by the city, for street railway purposes. The by-law provides for the construction of the following extensions of the present lines:—

Four blocks across Gore St. to Hendry St., down Hendry St., to Mill St., up Mill St. to Park St., down Park St. to Silica St., down Silica St. to Ward St., down Ward St. to the present existing line on Baker St., such lines to be constructed within six months after the by-law becomes operative. The company has authority under the by-law to erect car barns and a power plant. For the present power is supplied by the city at a nominal charge.

A contract has been let to L. G. Brandt for the construction of some new track complete, to be built immediately. The rails, poles and other supplies are on the ground. A new car barn has been completed. (Mar., pg. 231).

Niagara Falls, Welland and Dunnville Electric Ry.—At the organization meeting recently held the following were elected officers for the current year:—President, F. R. Lalor, Dunnville, Ont.; Vice President, G. Arnold, Ridgeville, Ont.; Secretary, F. E. Misener, Marshville, Ont.; Treasurer, P. H. Burger; Solicitor. H. A. Rose, Welland, Ont. It is reported that survey work will be started by J. C. Gardiner, of Niagara Falls, Ont., at once, from Dunnville (April, pg. 311).

Niagara, St. Catharines and Toronto Ry.—A Niagara Falls, Ont., press report states that it is proposed to build a line during the summer to Fort Erie. (Mar., pg. 231).

Nipissing Central Ry.—The engineering inspector of the Department of Railways, April 12, approved of the operation of cars over the line between Haileybury and Cobalt, Ont., at a maximum speed of 15 miles an hour. At that time about a mile of ballasting had to be completed. It is expected that the line will be opened for traffic May 1.

An extension of 1.5 miles to Port Cobalt will it is said be constructed immediately, and the proposed extension to New Liskeard, will be gone on with as soon as the financial arrangements have been concluded. (April, pg. 311).

Ontario West Shore Ry.—It is reported that grading has been completed on about 25 miles between Goderich and Kincardine, Ont. Rails are lying at Goderich, and tracklaying will it is said be started at an early date. It is expected that the line will be ready for operation by the end of the summer. Power is to be obtained from the Maitland River Power Co., which is developing 15,000 h.p. from a head of 105 ft. (Nov., 1909, pg. 848).

Ottawa Electric Ry.—A meeting between officers of the company and the civic street railway extension committee was held April 13, when the various routes proposed for extensions to the south, and also to the cemeteries were considered. A report will be presented to the city council. (Mar., pg. 233).

Peoples Ry.—A by-law was passed at Berlin, Ont., Mar. 31, favoring the taking of $60,000 of stock in this company, on condition that the projected line be extended from New Hamburg through Perlin to Guelph. It has been decided by the Wilmot tp. council to submit to vote a by-law to take $30,000 stock in the company to aid in the construction of an electric railway through the municipality. (Mar., pg. 233).

Port Arthur-Fort William St. Ry.—The Joint Street Ry. Board is considering the advisability of laying 80 lb. rails all over the lines in Port Arthur, Ont., and of carrying out a number of improvements on the other lines. (April, pg. 311).

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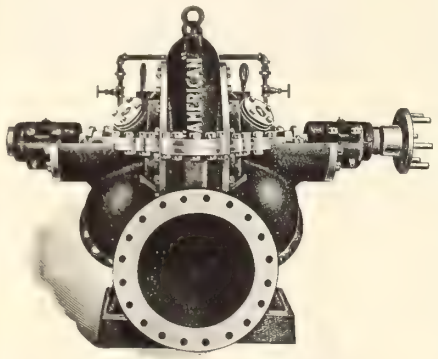

The same care that is employed in designing the principal features of the pump is carried out in every detail of construction; in balancing the impeller, overcoming the end thrust, water-sealing the inner end bearings and oiling the main outer end bearings with rings and chains and oil cellars.

"American" Volute centrifugals are made in both horizontal and vertical types in any number of stages, in any size from 1 inch to the largest installations made and equipped with any power.

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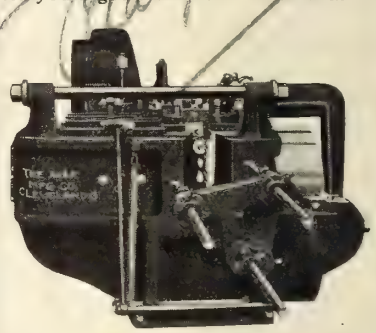

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Quebec Ry., Light and Power Co.—A by-law has been passed increasing the directors from three to 15.

Quebec Ry., Light, Heat and Power Co.—It is reported to have been decided to erect an eight story building for station and office purposes on the site of one of the Jacques Cartier market halls recently purchased by the company.

The directors at a meeting held April 11, decided to proceed with the building of a double track extension of six miles from Maple Ave., to Quebec Bridge site, and a double track from the Montmorency Falls to Ste. Anne de Beaupre. Some extensions are to be made at the Kent House, and park during the summer.

There has been deposited in the Registry office at Quebec plans of the proposed extension of the line to St. Colomb de Sillery, for which the approval of the Board of Railway Commissioners is to be asked. (Dec., 1909, pg. 931).

Regina, Sask.—A press report states that the City Council has granted a 20 year franchise for the building and operation of an electric railway in the city to J. W. D. O'Grady, J. A. Anderson and J. Geddes of Winnipeg. The agreement provides that the city can take over the lines on the expiration of the franchise. (April, pg. 311).

The St. George Electric Co. is applying to change its name to the Bearice Electric and Power Co., with power to construct an electric tramway from St. George station, on the Quebec Central Ry., through St. George and the Valley of La Rivieri du Loup, to the International boundary between Quebec and Maine. Campbell and Gendron, Sherbrooke, Que., are solicitors for applicants.

St. Thomas St. Ry.—The city council is preparing to give the ratepayers another opportunity of passing a by-law (the one submitted in Jan. being defeated) authorizing the raising of money to put the municipal street railway in proper condition. The City Engineer reported to the Council April 1, that unless the line was improved very soon its operation would have to be suspended. (Jan., pg. 59).

Sherbrooke Ry. and Power Co.—A franchise for 28 yaers has been granted to the company, a condition being that $500,000 will be spent upon improvements and extensions at once. C. J. McCuaig, Montreal, is President of the new company, which has taken over the nine year old line of the Sherbrooke St. Ry. Co. He, with others interested, was in the city April 4, and in an interview said the work of reconstruction and extension will be carried out under the direction of Ross and Holgate, Consulting Engineers, Montreal. The company proposes to develop a water power on the Magog River and to supply power for manufacturing purposes. C. B. Hibbard is Vice President and General Manager. (See Sherbrooke St. Ry., Mar., pg. 233).

Simcoe Ry. and Power Co.—An extension of time for the construction of this company's projected electric railway near Midland, Ont., was granted at the last session of the Ontario Legislature. The act also contains a section confirming by-laws passed by the County of Simcoe, and the townships of Ting and Matchedash, granting right of way for a pole transmission line. (Feb., pg. 147.)

Suburban Tramway and Power Co.—Application is being made for an act authorizing the company to change its name; to exercise throughout Montreal Island and Soulanges and Terribonne counties all the rights and privileges conferred upon it by law; to construct underground railways and terminal stations, and to put the company under the control of the Quebec Public Utilities' Commission in respect of such powers. The company is a subsidiary of the Montreal Street Ry. Co.

Toronto and York Radial Ry.—A press report states that the company has under consideration plans for the extension of its Scarboro division northerly from the Kingston Road to Markham, Ont. The company has purchased about 92 acres of land south of the Kingston Road, 6½ miles from the Woodbine, for use as a picnic park; a line will be run into the park. (April, pg. 311).

Toronto Ry.—The City Engineer, April 15, received a letter from the General Manager Toronto Ry., stating that it had been decided to lay a double line of tracks on five new routes, and single tracks on two other new routes. Girder rails are to be laid on the down-town streets, and 70 lb. T rails on the other streets.

The City Engineer reported to the Works Committee as to certain routes upon which the Council should request the company to extend its lines. (April, pg. 311).

Toronto Tube Railways.—The committee of the Toronto City Council having in charge the proposals for the construction of a system of tube railways in the city, recommends the appointment of a special legal adviser, and an engineer.

Sandwich, Windsor & Amherstburg Ry.

This company does not issue a separate report, its operations being included with those of the Detroit United Ry., of which system it is a part. The following particulars of the S.,W. & A. Ry. are extracted from the D.U.R. report for the year 1909. Mileage on Jan. 1. 1909. 35,813 miles, to which .247 miles were added during the year. Interest on funded and floating debt and taxes, $26,-803.57. Revenue passengers, 3,018,413; transfer passengers, 356,665; employe passengers 20,920; total, 3,395,998. Receipts revenue passengers, .0541; receipts per passenger, .0480. Car mileage, 854,-641; earnings car mile, .1991; expenses car mile, .1078; net earnings car mile, .0913. An extension of lighting plants and addition to power house was built at a cost of $26,644.34. In the D.U.R. assets the S.,W. & A.R. is included as an investment at $253,134.91, and under accounts current at $193,075.92.

BALANCE SHEET, S.,W. & A. RY.

Capital stock		$ 297,000.00
Mortgage bonds		490,000.00
Accrued interest on bonds		1,987.50
Detroit United Railway		193,075.92
Vouchers Payable		1,698.17
Injuries and damages Reserve		906.88
Insurance reserve		737.86
Unredeemed tickets		2,841.84
Profit and loss		18,096.56
Investment	$ 944,913.98	
W. & T.E. Ry. Co. (stock)	10,000.00	
W. & T.E. Ry. Co.	5,115.84	
Accounts receivable	876.61	
Stores	906.62	
Cash	47,501.68	
	$1,009,344.73	$1,009,344.73

BALANCE SHEET WINDSOR & TECUMSEH ELECTRIC RY. CO.

Capital stock		$ 100,000.00
Mortgage bonds		189,000.00
Sandwich, Windsor & Amherstburg Ry.		5,115.84
Investment	$ 294,115.84	
	$ 294,115.84	$294,115.84

The earnings and expenses of the Windsor & Tecumseh Electric Ry. are included in the operations of the S.,W. & A.R., which latter company owns all of the capital stock of the W. & T.E.R. Co.

Electric Ry., Finance, Meetings, Etc.

British Columbia Electric Ry.—Gross earnings for Feb., $237,756; working expenses $139,884; net operating earnings $91,872; renewal funds $17,852; net earnings $80,020; approximate income from investments $16,000, net income $96,020, against $181,638 gross earnings; $93,969 working expenses; $81,669 net operating earnings, $13,958 renewal funds; $67,711 net earnings; $13,550 approximate income from investments; $81,261 net income for Feb., 1909. Aggregate gross earnings for eight months ended Feb. 28, $1,968,901; net earnings, $861,148, against $1,525,557 gross and $711,266 net for same period 1908-09.

Calgary St. Ry.—Gross earnings for Mar., $13,257.65; maintenance of way and structures $388.31; maintenance of equipment $903.98; transportation expenses $6,097.06; general expenses $473.27; total expenses $7,862.62; net earnings $5,395.03. Gross earnings, per car mile, 25.424; expenses, per car mile, 15.878; net earnings per car mile, 9.546.

Halifax Electric Tramway.—Railway receipts for Mar., $15,966.97, and for two weeks ended Apr. 14, $7,303.94, against $13,558.21 and $6,686.16 for same period 1909.

London St. Ry.—Gross earnings for Mar., $20,451.80; expenses $14,762.17; net earnings, $5,689.63; deductions, $2,441.75; net income, $3,247.88, against $18,080.01 gross earnings; $13,411.91 expenses; $4,668.10 net earnings for Mar., 1909. Aggregate gross earnings for three months ended Mar. 31, $56,164.74; expenses, $41,467.30; net earnings, $14,-697.44; deductions, $7,089.05; net income, $7,608.39, against $52,314.84 aggregate gross earnings, $39,121.40 expenses $13,193.44 net earnings for same period 1909.

Montreal St. Ry.—Passenger earnings for Mar., $332,781.05; miscellaneous earnings $3,415.54; total earnings $336,-196.59; operating expenses $220,790.08; net earnings $115,406.51; city percentage on earnings $23,877.32; interest on bonds and loans $14,637.64; rent leased lines $552.90; taxes $4,000; total charges $43,067.86; surplus $72,338.65; expenses per cent. of earnings 65.67, against $295,979.61 passenger earnings; $2,748.26 miscellaneous earnings; $298,-727.87 total earnings; $203,832.08 operating expenses; $94,895.79 net earnings; $20,540.26 city percentage on earnings; $14,861.91 interest on bonds and loans; $498.67 rent leased lines; $3,000 taxes; $38,900.84 total charges; $55,994.95 surplus; 68.23 expenses per cent. of earnings, for Mar., 1909. Aggregate total earnings for six months ended Mar. 31, $1,992,236.21; operating expenses $1,216,984.37; net earnings $775,-251.84; total charges $214,978.43; surplus $560,273.41; expenses per cent. of earnings 61.09, against $1,813,342.55 aggregate total earnings; $1,149,583.72 operating expenses; $663,758.83 net earnings; $198,042.58 total charges; $465,716.25 surplus; 63.40 expenses per cent. of earnings for same period 1908-09.

Port Arthur-Fort William St. Ry.—Receipts for March, $8,461, making for the three months ended Mar. 31, $22,199. Operating expenses for Jan., $5,399.45; for Feb., $4,747.98.

Quebec Ry. Light and Power Co.—A dividend at the rate of 7% per annum for the half year ended April 30, will be paid May 2.

Winnipeg Electric Ry.—Gross earnings for Feb., $261,800; expenses $133,-300; net earnings $128,500, against $202,300 gross earnings; $101,800 expenses; $100,500 net earnings for Feb., 1909. Aggregate gross earnings for two months ended Feb. 28, $559,100, net earnings, $274,900, against $434,800 gross and $217,000 net for same period 1909.

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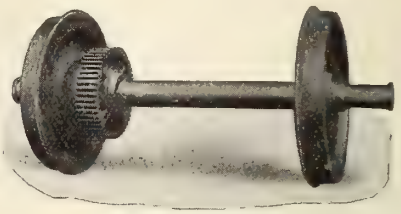

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Maps, as enumerated below, showing these lands in detail, will be sent free on application.

Map No. 1—Winnipeg to Second Meridian	$ 8.00 to $15.00 per acre.
Map No. 2—South-Eastern Saskatchewan, 2nd to 3rd Meridians	10.00 to 25.00 per acre.
Map No. 3—Main Line, 3rd and 4th Meridians (generally)	8.00 to 10.00 per acre.
Map No. 4—Part of Western Saskatchewan, 3rd to 4th Meridians	10.00 to 25.00 per acre.
Map No. 5 South-Western Alberta	8.00 to 25.00 per acre.

All prices are subject to change without notice.

TERMS OF PAYMENT

An actual settler may purchase not more than 640 acres on the ten instalment plan by paying a cash instalment at time of purchase, interest at six per cent. on the unpaid purchase money at the end of the first year, and the balance of the principal, with interest, in nine equal instalments annually thereafter, as shown in the following table:

160	Acres at	$ 8.00	per acre,	cash payment	$191.70	first year's interest	$ 65.28	and nine instalments of	$160.00
"	"	9.00	"	"	215.70	"	"	"	73.46	"	"	180.00
"	"	10.00	"	"	239.70	"	"	"	81 62	"	"	200.00
"	"	11.00	"	"	263.60	"	"	"	89.78	"	"	220.00
"	"	12.00	"	"	287.60	"	"	"	97.96	"	"	240.00
"	"	13.00	"	"	311.55	"	"	"	106.10	"	"	260.00
"	"	14.00	"	"	335.60	"	"	"	114.32	"	"	280.00
"	"	15.00	"	"	359.50	"	"	"	122.44	"	"	300.00

Purchasers who do not undertake to go into residence on the land are required to pay one-sixth of the purchase money down, balance in five equal annual instalments with interest at the rate of six per cent. per annum. Interest at six per cent. will be charged on overdue instalments.

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F. T. GRIFFIN, Land Commissioner, Winnipeg.

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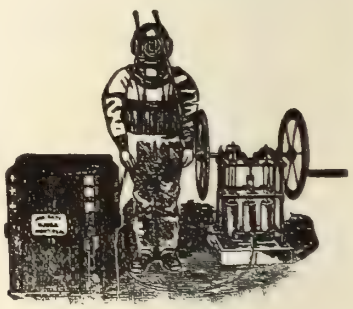
F. T. GRIFFIN, Land Commissioner, Winnipeg.



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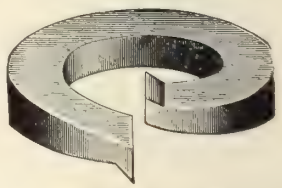

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Electric Railway Notes.

The Montreal St. Ry., has received two summer cars from the Preston Car and Coach Co., Preston, Ont.

City Engineer Bell has been appointed Manager, and L. D. Gillett, Superintendent of the municipal electric street railway at St. Thomas, Ont.

Three actions have been entered against the British Columbia Electric Ry., for damages in connection with the accident at Lakeview last Nov., when 14 were killed.

The Nipissing Central Ry., has received two fully equipped cars from the Preston Car and Coach Co., Preston, Ont., exactly similar to those delivered in Feb., and described in our Mar. issue.

The Toronto Ry., is reported to be contemplating a scheme for the use of creosote blocks under rails instead of concrete as at present, with a view to lessening noise.

It was reported to the Montreal City Council, April 12, that the Montreal St. Ry. was hauling C.P.R. freight cars over certain of its tracks at night. It was decided to investigate the report.

A map showing the electric lines in Toronto on a very large scale is being prepared for the Ontario Railway and Municipal Board, by K. L. Aiken, Electrical Engineer to the city council.

The London St. Ry. has granted an increase of pay to its employes, which works out to an additional 10c. a day, with a 9½ hour instead of a 10 hour day.

The Hull Electric Co., has received from the Preston Car and Coach Co., Preston, Ont., three cars, 38 ft. over body, 5 ft. 2 ins. length of vestibule, 49 ft. 4 ins. length overall, equipped with S.M.E. Westinghouse air brakes.

The Quebec Public Utilities Commission held its first meeting, April 5, to consider rules of procedure. It has been decided to meet for the transaction of business on the first Tuesday in each month.

W. H. Elson, who has been in the C.P.R. employ for about 23 years, as conductor and trainmaster, has been appointed Trainmaster British Columbia Electric Ry., in charge of all matters connected with the rolling stock on the New Westminster, Lulu Island and North Arm interurban lines. This is a

There has been discovered in a vault in a lawyer's office in Windsor, Ont., an agreement between the town of Sandwich, Ont., and the Sandwich, Windsor and Amherstburg Ry., granting the company a perpetual franchise. This agreement has been missing for some time.

The Brantford St. Ry. has adopted a new system of collecting fares and registering the number of passengers on its cars. The passenger puts the amount of fare into a slot machine (weight, 20 oz.) carried by the conductor, in which it is registered. No money for fares is handled by the conductor until after it is registered. Tickets are dealt with in the ordinary way.

The B.C. Electric Ry. is building at its own car shops 22 city passenger cars and four box cars, during the year purposes constructing there, in addition to the foregoing:—12 city passenger cars, six suburban passenger cars, two line cars, one express car, three box cars and three cabooses, and orders will be placed for 75 flat cars, one locomotive for shunting purposes and two electric locomotives. The estimated cost of this additional equipment is $435,000.

For the second time within two years the Montreal St. Ry. Co. has announced a voluntary increase in the scale of wages of motormen and conductors. The motormen and conductors receive the same pay, but are divided into three classes. Those of one and two years' standing will now receive 19c. an hour instead of 18c. Those of from two to five years' standing will receive 20c. instead of 19c., and those of more than five years' standing will receive 21c. an hour.

The Nova Scotia Legislature is considering a bill amending the act passed in 1909 appointing a Board of Public Utility Commissioners. It is proposed to add two new sections, the first providing that no public utility shall place wires "upon, along, under or across" any street in a city or town without first obtaining the consent of the council; and the second, that no similar work shall be done in any municipality other than a city or town, unless one month's notice shall have been given to the Warden and the councillors, who can make an agreement. In either case, the Public Utilities Commission can approve in the event of a disagreement.

Telegraph and Cable Matters.

The twenty-ninth annual meeting of the Association of Railway Telegraph Superintendents, is announced to be held at Los Angeles, Cal., May 16 to 20.

The recent trouble between the Winnipeg Grain Exchange and the telegraph companies operating there has been got over, and ample space has been allotted to the C.P.R., Canadian Northern and G.N.W. Telegraph Cos., in the Exchange for handling the business.

A wireless telegraph installation has been placed on board a tug at Port Arthur, so that communciation can be made with all vessels on the lakes similarly equipped. This is a temporary arrangement to serve until the erection of a Government station at the port.

The bills to control ocean cable rates and to amend the Telegraph Act, were dealt with in the Senate, Apr. 15, and, on the second reading, Sir Richard Cartwright stated that persons interested had asked to be heard and the usual practice would therefore be departed from, and the bills sent to the Railway Committee.

Press reports state that the C.P.R. commercial telegraph operators in the west have appointed a committee to deal with the question of increases of pay. It is stated that they are asking that the maximum wage be increased from $90 to $110 a month. C.P.R. operators on the Ontario Division are also reported to have asked for an increase of 10% over the present schedule.

The C.P.R., and G.N.W. Telegraph companies inaugurated a night lettergram service Apr. 13, the charge for 50 words or less, being at the regular day rate for 10 words, and one-fifth of that rate will be charged for each additional 10 words, or part thereof. These rates apply to all points reached by the companies' lines, and also to connecting offices in the U.S.

The Marconi wireless telegraph station at Glace Bay, N.S., which was burned last year, has been reconstructed, and was opened for business Apr. 20. Offices have been opened at Montreal, where a system will be exhibited showing the positions of the various Atlantic liners, which are equipped with Marconi apparatus. The rate for trans-Atlantic messages has been fixed at 12c. a word.

On the passing of the bill in the House of Commons, to control the rates and facilities of ocean cable companies, and to bring them under the jurisdiction of the Board of Railway Commissioners, the Postmaster General recently stated that concurrent legislation would be passed in the British Parliament to make the law operative. On Apr. 12, the British Postmaster General stated in the House of Commons, in reply to questions, that he was unable, at present, to make a statement regarding the course the British Government would take.

Among the Express Companies.

It is not anticipated that the Board of Railway Commissioners' judgment in connection with the enquiry into express rates, will be delivered before about the middle of May.

The Dominion Ex. Co. is erecting a transfer building at Galt, Ont., for handling express matter between the C.P.R., and the Galt, Preston and Hespeler St. Ry. It will be of red pressed brick, and its dimensions, 20 by 40 ft.

H. J. Parr, Travelling Auditor Canadian Ex. Co., met with a rather peculiar accident recently. A loaded revolver was being returned to one of the safes in the St. John office, when it was dropped and discharged, the bullet entering his left leg. The wound, though painful, is not serious.

The Board of Railway Commissioners, which commenced an enquiry into the rates of express companies operating in Canada, Apr. 6, has approved a draft form of contract, whereby the companies' liability for loss or damage, is limited to $50. Provision for greater liability in special cases is also made, when higher rates are charged. The amount of the liability is to be placed in red at the top of each receipt, and is to remain at that figure unless otherwise stated.

The Canadian Expressmen's Mutual Benefit Association's accounts for 1909 show receipts of $5,148.77, including $2,364.95 brought forward from 1908, and disbursements of $1,679.51, leaving a balance of $3,469.26 to be carried forward to the current year's accounts. The Death Benefit Fund has been taken over and a balance of $76.75 transferred to the above, making the amount carried forward $3,546.01. The officers for the current year are:—Hon. President, J. Bryce; President, E. Allan; Vice President, B. S. Murray; Secretary-Treasurer, W. T. Murphy, Toronto.

The express companies in dealing with the question of rates on corrugated paper, shipping cases and crated paper boxes, used especially by millinery manufacturers, propose, in view of the light weight of parcels, as compared with their size, that all cases, exceeding total height, length and width combined, of 50 ins., should be accepted only at minimum rates, and that the maximum measurement of such cases should be 110 ins. For cases measuring over 50 ins., and under 60 ins., the minimum weight proposed as a basis is 30 lbs., and a corresponding scale is proposed for larger packages.

Tramway Inspection in British Columbia.—By an act passed last session of the British Columbia Legislature, the Lieut.-Governor in council is authorized to appoint an officer whose duty it shall be from time to time, to inspect all tramways constructed, in course of construction, or that may hereafter be constructed within the province; and to make rules and regulations for enforcing the provisions of the act, especially for regulating the speed at which cars may run, and providing penalties for infractions of the rules. All the provisions of sections 51 to 76, both inclusive (sections 52 to 56, both inclusive excepted) of the B. C. Railway Act are to apply to tramways, and to the inspectors and inspections thereof, the word "tramway" being substituted for "railway," and "Attorney General" for "Chief Commissioner of Lands and Works." Tramway is interpreted as including street railway.

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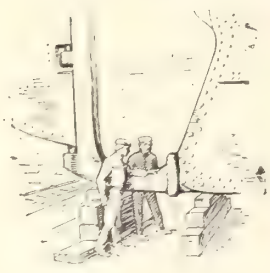

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SECRETARY, Jas. Morrison, Montreal.

International Water Lines Passenger Association.

PRESIDENT, W. M. Lowrie, New York.
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The Shipping Federation of Canada.

PRESIDENT, A. A. Allan, Montreal; MANAGER AND SECRETARY, T. Robb, 526 Board of Trade, Montreal.

Ship Masters' Association of Canada.

GRAND MASTER, Capt. J. H. McMaugh, Toronto, Ont.; GRAND SECRETARY-TREASURER, Capt. H. O. Jackson, 376 Huron St., Toronto.

The Merchants Mutual Line Limited.

The Merchants Mutual Line, Ltd., has been incorporated under the Dominion Companies Act, with a capital of $750,000 and office at Toronto, to own and operate steam and other vessels, wharves, docks, elevators, etc., and to carry on a general shipbuilding, elevator, navigation and transportation business; to enter into any arrangement for sharing of profits, union of interests or co-operation with any company which it may consider of benefit, and for other purposes. The provisional directors are J. S. Lovell, W. Bain, R. Gowans, H. Chambers and R. M Coates, Toronto. Mackenzie, Mann & Co., are the controlling interest in this new company.

The Merchants Mutual Line, Ltd., has taken over the steamships Plummer, Pellatt and Ames from the Canadian Lake and Ocean Navigation Co., and has bought the Beaverton and Mapleton from the Merchants Steamship Co., and the Saskatchewan from the Colonial Transportation Co. The Saskatoon was described in our March issue, the order for her having been placed in Scotland by J. W. Norcross and R. M. Wolvin. All these six vessels will be run in the Merchants Mutual Line, which must not be confounded with the Merchants Mutual Line, Ltd., the former being simply a line and the latter an owning company. The steamships Acadian and Canadian, owned by the Merchants Mutual Steamship Co. will also continue in the Merchants Mutual Line.

The steamships Turret Court, Turret Cape, Turret Chief and Scottish Hero remain under the Canadian Lake and Ocean Navigation Co.'s ownership.

J. W. Norcross, Toronto, has been appointed General Manager Merchants Mutual Line, Ltd., and he will probably also manage the Canadian Lake and Ocean Navigation Co., which is also controlled by Mackenzie, Mann & Co. interests. J. W Norcross & Co., are the General Western Agents of the Merchants Mutual Line.

Inland Marine Insurance.

F. King, Counsel Dominion Marine Association, in a recent interview dealt with the work of the advisory committee of the Great Lakes Protective Association. It appears to be a foregone conclusion he stated, that an addition of 1% will be made this year to the rate of 5% now in force on the lakes above Lake Ontario, and the fact that it is also practically decided by underwriters to restrict the sailing dates to Nov. 30, indicates that recent heavy losses in the last days of the season are responsible for the increased charge. A proposition has now been made that the vessel which makes no claim for damages under her policy should be entitled to a refund of this extra premium.

Prominent underwriters are interested in favor of the proposal, on one condition—namely that a substantial proportion, say 25%, of the refund should go to the master or executive officers of the ship by way of bonus, thus not only rewarding those directly responsible for the safety of the vessel, but also affording a positive incentive to all masters to navigate with caution, and so decrease the risk of loss on all boats, even in cases where the bonus is not actually earned. The underwriters apparently refuse to trust individual owners to administer the bonus properly, and feel that this stipulation should be part of a general scheme.

Mr. King says that while the Protective Association will continue to protest against any extra premium, it will, if forced to submit to the increase, support the above proposition, on a counter condition that while 75% of the refund shall go to the owner, the 25% shall be administered by the committee of the Protective Association subject to certain settled

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rules; for, granting that the underwriters are correct in requiring a disinterested trustee for this 25%, cases will frequently arise where a master whose vessel has not had any claims under her policy will still have been grossly negligent and possibly responsible for a considerable number of minor troubles less than the amount of the deductible average, the amount of loss which the owner himself bears in all cases. It is proposed that funds not used for bonuses be devoted towards navigation.

The Insurance Institute, which will meet at a very early date in London, Eng., will be largely guided by representations from New York, and the Protective Association is negotiating with underwriters in New York hoping to have matters settled without delay. Mr. King states that all his colleagues on the committee are in favor of the bonus principle and that the results of a similar system in force in the big Pittsburg Steamship Co., show conclusively that a plausible theory has in that case worked well in practice.

In addition to the 5% mentioned, vessels which trade down Lake Ontario pay 1% more and trading all the way to Montreal pay still another premium of 1% additional. The rate this year from Montreal would thus be 8%. A strong effort is being made to have these two additional premiums on lower waters reduced at least one-half, and the proposed reduction is being considered in connection with the present revision. Vessel owners complain that losses on the lower waters do not by any means justify the present additional premiums. Data of the Protective Association to the present time support this contention.

Coast, Lake and River Officers for 1910.

The following appointments have been made by the principal navigation companies for their various steam vessels and tugs for the current year, in addition to those given in our last issue. In the first column is given the name of the vessel, in the second that of the captain, and in the third that of the chief engineer.—

ARROW LAKE LUMBER CO., LTD., ARROWHEAD, B.C.		
Blonde	J. Bourgeois	J. Beaudry
C. K. Lamb	J. Smith	E. Ward
Mikkwanka	D. McKillop	J. Muliz
Ripple	J. Wilson	.....
BUTLER FREIGHTING AND TOWING CO., LTD., VICTORIA, B.C.		
Grainer	D. J. Butler	J. Donaldson
CANADIAN FISHING CO., LTD., VANCOUVER, B.C.		
Celestial	F. Brown	J. Dick
Empire	.....	.....
Flamingo	A. Freeman	W. Britton
COLLINGWOOD SHIPPING CO., LTD., COLLINGWOOD, ONT.		
Wasaga	M. McCormick	J. E. Readman
FOLEY, WELCH AND STEWART, PRINCE RUPERT, B.C.		
Conveyor	J. P. Douglas	J. E. Henley
Distributor	J. E. Doddridge	D. Martin
Omineca	J. Shannon	J. Physick
Operator	C. Meyers	J. Ritchie
Skeena	G. Magar	A. H. Evans
FRENCH RIVER AND NIPISSING NAVIGATION CO., STURGEON FALLS, ONT.		
Elgin L. Lewis	L. Johnston	J. Kelso
Highland Belle	J. A. Clark	E. Clark
Northern Belle	A. McKenny	J. Coventry
INLAND NAVIGATION CO., LTD., HAMILTON, ONT.		
Donnocona	J.W.Mawdesley	G. E. Downs
Dundee	J. Woolner	G. Fryar
Dundurn	R. Cooney	J. Morris
Dunelm	C. R. Albinson	J. A. Nicol
Glenellah	G. Mackey	A. E. D. Mackay
Neepawah	W. W. Allan	J. Dee
Rosedale	R. Alexander	J. C. Carr
Stadacona	J. Canally	C. H. Menmuir
Strathcona	J. Dick	S. Jones
Wahcondah	W. Linton	W. Leveson
Winona	B. Garvie	J. A. McLaughlin
NORTHERN TRANSPORTATION CO., LTD., ATHABASCA LANDING, ALTA.		
Northland Light	C. D. A. Barber	A. V. Bucknam
Northland Sun	G. Nicklas	L. R. Morton
NORTHWEST NAVIGATION CO., LTD., SELKIRK, MAN.		
City of Selkirk	J. Sigurdur	J. Keiller
Idell	W. Crawford	S. Stuart
Rocket	R. Forrest	J. Skinner
PELEE AND LAKE ERIE NAVIGATION CO., LTD., PELEE ISLAND, ONT.		
Alfred Clark	D. McCormick	W. Lowery
QUINTE NAVIGATION CO., LTD., PICTON, ONT.		
Aletha	M. Palmatier	J. Toppins
Brockville	D. B. Christie	J. McFaul
Varuna	J. E. Rathbun	J. Walker
S. C. SMITH, PENTICTON, B.C.		
Orillia	A. W. McCulloch	L. Smith
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Victoria	E. O. Kerby	W. I. Barton
SUMMERLAND SUPPLY CO., LTD., SUMMERLAND, B.C.		
Aberdeen	—. Weeks	.....
Okanagan	—. Easterbrooke	.....
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Robt.G.Weddell	N. Miron	G. Joppings
Trent	W. Smith	A. Weddell
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Dauntless	J. A. Keenan	H. Bevis
Lorne	W. Somerville	J. Reid
Peerless	W. A. Ballagh	F. Somerville
WHITE PASS AND YUKON ROUTE, VANCOUVER, B.C.		
Bonanza King	P. Roberts	D. Roberts
Casca	C. Beaupre	J. Gordon
Dawson	J. O. Williams	J. Young
Gleaner	T. Richards	J. Lord
Scotia	J. McDonald	D. Sullivan
Selkirk	G. McMaster	W. Vey
White Horse	W. Turnbull	P. Larsen

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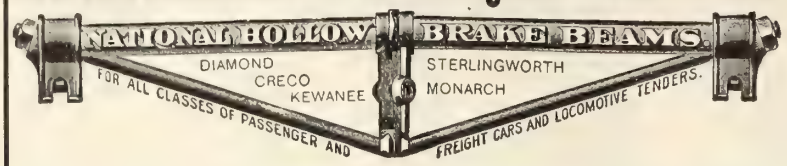

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Notices to Mariners.

The Department of Marine has issued the following:—

23. Mar. 18. 49.—Nova Scotia, south coast, Liverpool, range light established on bridge. 50.—Nova Scotia, Cnaso harbor, Arichat, lights to be improved.

24. Mar. 18. 51.—Quebec, Ottawa River, Ste. Anne lock range, color of daymarks. 52.—Ontario, River St. Lawrence, gas buoy to be established southward of Renshaw island. 53.—Ontario, River St. Lawrence, gas buoy to be established at shoal below Glengarry point. 54.—Ontario, River St. Lawrence, Colquhoun island, gas buoy withdraw. 55.—Ontario, Lake Erie, Port Maitland, Port Burwell, lights improved.

25. Mar. 18. 56.—Quebec, Gulf of St. Lawrence, Magdalen islands, Sandy Hook channel, color of buoy. 57.—Quebec, River St. Lawrence, Bersimis River, range lights discontinued. 58.—Quebec, Saguenay River, Chicoutimi, character of light. 59.—Quebec, River St. Lawrence, ship channel between Quebec and Montreal, Montreal harbor, character of Bellerive park and Hochelaga range lights.

26. Mar. 29. 60.—Canada, Arctic waters, Hudson Strait, and Melville Sound, hydrographic notes.

27. Apr. 4. 61.—Ontario, Lake Huron, Goderich, gas buoy withdrawn. 62.—Ontario, River St. Mary, Sault Ste. Marie Canal, lower entrance, boat light no longer maintained. 63.—Ontario, Rosseau Lake, Ditchburn shoal, light improved.

28. Apr. 6. 64.—Nova Scotia, Bay of Fundy, Minas basin entrance, Cape Sharp, change in character of light. 65.—Prince Edward Island, south coast, Northumberland Strait, Hillsborough Bay, Charlottetown harbor, Blockhouse point, hand fog horn at light station. 66.—Prince Edward Island, south coast, Bedeque harbor, Indian point, hand fog horn at light station. 67.—Newfoundland, south-east coast, Cape Race, old tower removed. 68.—Newfoundland, Labrador, Belle Isle, north end, fog alarm, direction in which horn points.

29. Apr. 6. 69.—British Columbia, Kootenay Lake, Lardo, light established. 70.—British Columbia, Malaspina Inlet, Theodosia Arm, hydrographic information. 71.—British Columbia, Grenville channel, Lowe Inlet, position of day beacon.

30. Apr. 8. 72.—Quebec, Gulf of St. Lawrence, Gaspe coast, Grand River, character of light on wharf. 73.—Quebec, River St. Lawrence, ship channel between Quebec and Montreal, St. Antoine range lights, arcs of invisibility 74.—Quebec, River St. Lawrence, ship channel between Quebec and Montreal, Lake St. Peter, Pointe du Lac range, new front range light house.

Montreal Harbor Improvements.

Resolutions have been passed by the Dominion Parliament authorizing the Government to advance from time to time to the Montreal Harbor Commissioners, such sums not exceeding in the whole $6,000,000, as may be necessary to pay off debentures amounting to $100,000 maturing during the current year; to enable the Commissioners to complete the construction of terminal facilities for the port for which plans have been approved; and such other facilities as may be necessary to properly equip the port. The principal and interest of these advances are to be repaid out of the Commission's revenues. The Commissioners propose to add to the wharf accommodations, to deepen the harbor adjacent to the wharves, to lessen St. Mary's current by dredging, to construct sheds on the wharves, to extend the present harbor system of railway tracks, to provide proper unloading facilities, and improved methods of handling cargoes. The plans for all these works had not been prepared, but the works were in line with a very comprehensive scheme which the Commissioners had adopted after having made a very careful examination of harbor improvements and terminal facilities in England, the continent of Europe and the U.S. The amount of the outstanding debentures of the Commission is $13,-142,000, of which $1,972,000 is due to the public; and the Government loans, represented by debentures deposited by way of security amount to $11,170,000, to which this $6,000,000 will now be added.

The plans of the proposed improvements were submitted to the representatives of the ocean and inland marine interests, and to the municipal authorities. The chief features of the plans include wharf and pier extension, basin development, the construction of a 2,000,000 bush. elevator, elevation of wharf tracks, floating drydock with a capacity to carry the largest ship entering the St. Lawrence and a complete ship-repairing plant; five new modern steel sheds; elevated tracks from the Jacques Cartier pier to the Racine River, about 22 miles, with connections to the wharves and railways; a new and enlarged Victoria pier; a new pier extending from opposite the offices of the Harbor Commission; 74 acres of new quays; extensions of about 300 ft. to each of the three quays above Victoria pier; an addition to the Bickerdike pier; deepening of the channel on the far side of St. Helen's Island to 35 ft.; extending of the ship channel along the entire harbor to the canal; building of a channel 10,000 ft. long south of St. Helen's Island; the erection of about 40 islets or mounds above Victoria bridge to hold the ice in the spring; the raising of the wharves below the Victoria pier to high-water level and covering them with sheds. The works proposed it is estimated will cost about $18,000,000, and their construction will be spread out over 12 years. The plans have been prepared by the Commissioners' Chief Engineer, F. W. Cowie.

The Navigator or Mariners' Guide, by Capt. R. M. Pugsley, late Master of the U.S. Transport Cervice, has been issued in a new and revised edition by the New Jersey Paint Works, Jersey City, N.J. Of the first edition, 15,000 copies were issued, and the second edition, of which a similar number has been issued, is enlarged and revised. The work is intended to provide in a handy and comprehensive form, for the general use of navigators, yachtsmen and others interested in marine matters, a large amount of valuable information, nautical tables, calculations, etc., not usually available in a sufficiently handy form. All the subjects treated of in the different sections of the volume, are of practical value, and are dealt with by a practical navigator, in a manner easily understood, by even those who are only studying navigation. The text is illustrated with cuts of vessels, signals, etc., and 18 charts have been prepared for distribution with the volume, nine for U.S. ports on the Atlantic coast, and nine for U.S. ports on the Pacific coast. The price of the volume is $2.

LIST OF STEAM VESSELS REGISTERED IN CANADA DURING MARCH, 1910.

Name	No.	Where and When Built.	Engines, etc.			Length	Breadth	Depth	Gross Tons	Net Tons	Port of Registry	Owners
Muirneag	126,738	Steveston, B. C., 1910	Screw	2	n. h. p.	35.5	10.3	4.4	12	8	Vancouver, B. C.	D. McDonald, Vancouver, B.C.
Paystreak	126,279	New Westmin'ter, B.C. 1909	Paddle	9	"	126.5	26.4	4.9	382	991	New Westminster B.C.	Royal City Navigation Co., New Westminster, B.C.
Rosina K	126,736	North Vancouver, B.C. 1910	Screw	9	"	56.1	13.0	5.8	33	22	Vancouver, B. C.	T. Kickham, Vancouver, B.C.
Rosswynne	126,737	Vancouver, B. C., 1909	"	2	"	35.0	8.0	3.6	9	6	"	A. Ross and J. Wilson, Vancouver, B.C.
Sarnia City	126,227	Sarnia, Ont., 1909	"	84	"	105.0	25.5	12.0	223	68	Sarnia, Ont.	Reid Wrecking Co., Sarnia, Ont.
Senator Derbyshire	112,3 1	West Bay City, Mich, 1897	"	73½	"	220.0	40.8	16.8	1 46	987	Brockville, Ont	A. Wendling, Brockville, Ont.
Westex	126,740	Vancouver, B.C., 1909	"	1	"	29.4	7.6	4.1	7	5	Vancouver, B.C	Western Explosives, Ltd., Montreal.
Zephir P.	126,455	Sorel, Que., 1910	"	21	"	93.0	22.3	7.0	237	119	Sorel, Que.	J. Paqette, Champlain, Que.

LIST OF SAILING VESSELS AND BARGES REGISTERED IN CANADA DURING MARCH, 1910.

Name	No.	Where and When Built	Rig	Length	Breadth	Depth	Reg. Tons	Port of Registry	Owners
Lilith Pardy	126,190	Allendale, N.S., 1910	Schr.	82.7	24.6	9.4	79	Shelburne, N.S.	W. Forsey, Grand Bank, Nfld.
Assurance	126,587	LaHave, N.S., 1910	"	97.5	25.8	10.5	99	Lunenburg, N.S.	L. Knock, M.O., Rose Bay, N.S.
Cecil L. Beck	126,586	Lunenburg, N.S., 1910	"	104.6	25.8	10.5	98	" "	W. C. Smith, M.O., Lunenburg, N.S.
Lundy	126,098	Welland, Ont., 1909	Dredge	120.0	42.7	9.5	597	St. Catharines, Ont.	Dominion Dredging Co., Ottawa.
Lost	126,592	Port Greville, N. S,, 1910	Schr.	134.1	32.2	11.2	399	Parrsboro, N.S.	H. W. Elderkin, M.O., Port Greville, N.S.
Margaret May Riley	107,296	Granville, N.S., 1900	"	123.5	30.5	11.2	341	St. John, N.B.	A. Wilson, St. John, N. B.
Mayola	126,588	Bridgewater, N.S., 1910	"	101.4	26.8	10.5	119	Lunenburg, N.S.	E. C. Wentzel, Riverport, N.S.
Percival S. Parks	126,589	LaHave, N.S., 1910	"	96.8	25.6	10.6	109	" "	S. Parks, M.O., LaHave, N.S.
Pyrites	126,739	North Vancouver, B.C., 1910	Barge	89.0	28.2	9.3	207	Vancouver, B.C.	Nicholas Chemical Co., Montreal.
R. M. Co. No. 9 (Dec)	126,418	U.S.A.	"	125.0	28.0	7.4	320	Toronto, Ont.	Randolph Macdonald Co., Toronto.
Wilfred D.	126,801	Mavilette, N.S., 1910	Schr.	50.0	15.0	6.4	25	Yarmouth, N.S.	R. J. Deveau, Mavilette, N.S.

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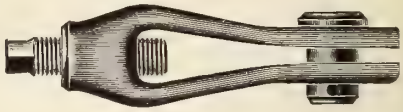

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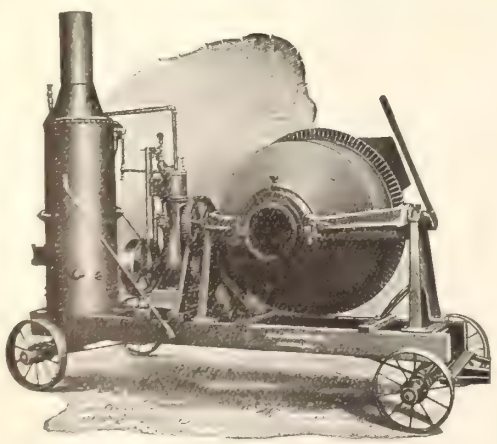

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Use of United States Canals.

If Canadian vessels have the right to navigate U. S. canals, they have shown a great lack of appreciation of that privilege. It is said that for 40 years no boat of Canadian register has passed through a State canal. By the Treaty of Washington, passed in 1871, the boundary waterways were made free to both nations, as were also the canals forming a part of the Great Lakes and St. Lawrence waterway. It was further provided that the U.S. Government would urge on the individual States the desirability of granting similar freedom in the canals owned by them. For the satisfactory fulfillment of the treaty it was necessary for the Federal Government at Washington to take over the canal at Sault Ste Marie from the State of Michigan.

The only record of a Canadian boat being stopped on a State canal is told by Denis Murphy of Ottawa as follows:

"About 1870 or 1871 the late firm of J. W. McRae & Company built six small barges called the A. B. C. D. E. and F. with the intention of running them through to New York with lumber, and having them returned with cargoes of coal. The first trip they were stopped at Whitehall, and after considerable correspondence and much delay to the barges, they were allowed to proceed with the understanding that in the future they would not be allowed further than Whitehall. These barges loaded coal in New York and came back to Ottawa and were kept in the trade here. About this time the forwarders here found this class of barge too small for the trade, and the larger barges were built. These barges were too large to go through the Champlain Canal, so that there was never any further trouble from that source. This one occasion is the only time I know of Canadian vessels being stopped at any of the U. S. canals."

It now seems probable that on account of this one incident a tradition has grown up in Canada that the New York State canals are not open to Canadian vessels. G. H. Perley, M.P., is responsible for investigations which put a new face on the matter. He has discussed the question with the U.S. Consul-General in Canada, and has received from him the following assurance: "The present constitution of the State of New York was adopted Nov. 6, 1904, and went into force Jan. 1, 1895. Since the adoption of this constitution it is my understanding that the canals have been absolutely free to vessels of all nations."

"It is provided by article 97 of this same constitution that: 'No person shall hereafter be imposed on persons or property transported on the canals, but all boats navigating the canals and the owners and masters thereof shall be subject to such laws and regulations as have been, or may hereafter be enacted, concerning the navigation of canals.'

"By the constitution of the State of New York the control and operation of the canals rests with the Superintendent of Public Works. This officer, who should be thoroughly conversant with the conditions and restrictions enforced by the Government, has written in part as follows: 'I beg to say that there has never been any discrimination either by the rules for the management of the canal, or by statutes, against Canadian owned boats, nor is there at the present time.'"

"Sec. 172 of chap. 13, laws of 1909, known as the Canal Law, prescribes rules for the registration of canal boats. This section, after providing that the owner of boats navigating the canals shall deliver to properly designated officials a certificate of registry, containing the name of the boat and the hailing point, provides that such registry shall be signed by the owner, if a resident of the State; if not, by the master of the boat as owner thereof."

It would appear, therefore, beyond question of doubt, that the State owned canals in New York are open to Canadian shipping.—Industrial Canada.

Dominion Canals Traffic.

The aggregate of business through the Dominion canals during the sason of navigation of 1909 was 33,720,748 tons, against 17,502,820 tons in 1908. The tonnage for the year was distributed as follows:—Sault Ste. Marie, 27,861,245 tons; St. Lawrence, 2,410,629 tons; Welland, 2,025,951 tons; Chambly, 752,117 tions; Ottawa, 336,939 tons; Murray, 102,291 tons; Rideau, 91,774 tons; St. Peters, 79,850 tons; Trent, 59,952 tons. The largest increase was on the Sault Ste. Marie Canal, where the tonnage showed an increase of 15,102,029 tons during the year. In 1900 the aggregate of business through the canals was 5,013,693 tons. The total number of Canadian vessels passing up and down was 22,507, their aggregate tonnage being 7,811,578 tons; and the total number of U.S. vessels using the canals was 9,996, with an aggregate of 16,459,322 tons. The explanation of this disproportion is found in the fact that the business of U.S. vessels is confined almost wholly to the upper lakes, where large cargoes prevail, while many Canadian craft of small capacity pass through the canals east of the Welland. The record of trade for the past five years, however, would seem to warrant the conclusion that an increase is steadily taking place in the tonnage of Canadian vessels. In 1900, the records showed that the number of passages of Canadian vessels was 5,502 with an aggregate of 2,408,985 tons, and the total number of passages of U.S. vessels was 21,755 with an aggregate of 4,129,250 tons.

Canadian Steamboat Inspection.

An order in council has been passed repealing the order in council of Dec. 29, 1904, imposing the provisions of the Canadian Steamboat Inspection Act on steamboats registered elsewhere than in Canada when plying in Canadian waters and engaged in the carriage of freight, and substituting the following:—"Steamboats registered elsewhere than in Canada and trading or plying from one port or place in Canada to another port or place in Canada (but not engaged in the carriage of passengers) shall, if holding a certificate of inspection from any of the following classification societies, namely:—Committee of Lloyd's Register of British and Foreign Shipping, British Corporation for the Survey and Registry of Shipping, or Bureau Veritas, be exempt during the currency of such certificate from the annual steamboat inspection imposed under part VII of the Canada Shipping Act; provided, (a) such inspection is made annually in the United Kingdom, and (b) such certificate is produced on demand to either the Collector of Customs or the steamboat inspector for the district in which such steamboat is trading or plying in Canada."

The Ontario and Ohio Navigation Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $150,000 and office at London, Ont., to acquire and operate steamships on Lake Erie between Port Stanley and Rond Eau, and between Port Stanley and Cleveland and other ports. The provisional directors are:—A. McKay, Ingersoll; P. Pocock, F. G. Rumball, S. W. Mower, London, Ont., and G. W. Parker, Detroit, Mich. The incorporators named are interested in the London and Lake Erie Ry. and Transportation Co., which took over the assets of the South Western Traction Co.

Atlantic and Pacific Ocean Marine.

The C.P.R. s.s. Empress of Ireland in arriving at Halifax, N.S., at noon, Apl. 14, created a record in her trip from Liverpool, Eng.

Announcement has been made that Canadian Northern Steamships, Ltd., has joined the Canadian North Atlantic Westbound Freight Conference.

The St. Lawrence navigation was opened by the arrival at Montreal, Apr. 11, of the s.s. Kronprinz Olav, from Sydney, N.S., with coal.

The Quebec Steamship Co., Ltd., has declared a dividend of 3% for the half year ended Dec. 31, 1909, making 6% for the year. This is the company's 64th dividend.

Sir Thos. G. Shaughnessy is reported to have stated to the President of the Halifax Board of Trade, that the C.P.R. will have two more Empress steamships, 630 ft. long, on the Atlantic within two years.

Allan Line officials are reported to have stated recently, that in order to relieve the congestion of passenger traffic between Great Britain and Canada this season, a number of extra vessels may be operated across the Atlantic.

Sir H. Montagu Allan, who returned from England, Apr. 10, is reported to have said that the Allan Line was prepared to take up the question of a faster steamship service as soon as the Government was ready to move in the matter.

The Canada Line, operating between Canada and Germany, which was inaugurated last year in the freight and third class passenger trade, has announced that it will cater for first class passengers this year, and has established accommodation for such on its steamships Prinz Oskar and Prinz Adalbert.

Capt. J. B. Foote, who, it was recently announced, had been appointed Marine Superintendent at Montreal of Canadian Northern Steamships Ltd., has resigned and has been succeeded by —. Jones who will be sent out from Great Britain and who will report to the Marine Superintendent at Bristol, Capt. Geo. Gregory.

With reference to the reports in the press regarding an explosion and fire which took place on the s.s. Cairnrona, off Dover, Eng., early in April, R. W. Reford & Co., Agents, Montreal, announced, Apr. 8, that they were grossly exaggerated. The vessel returned to London, where her bunkers were refilled, her passengers re-embarked, and sailed again Apr. 16.

A. Piers, Manager C.P.R. Atlantic Steamship Lines, Liverpool, Eng., was in Montreal in the early part of April, in consultation with the President and Fourth Vice President, in regard to the season's sailings, and other matters. Sir Thos. G. Shaughnessy is reported to have stated, subsequently, that no decision had been reached regarding the construction of new vessels for the Atlantic service.

J. B. Foote, who has been appointed Superintendent Canadian Northern Steamships, Ltd., at Montreal, was born at Owen Sound, Ont., Dec., 1874, and has been connected with navigation nearly all his life. From 1900 to 1903, he was shore captain of the Algoma Central Steamship Line, Sault Ste. Marie, Ont.; and from 1903 to the date of his present appointment has been Superintendent Canadian Lake and Ocean Navigation Co., Toronto.

Canadian Northern Steamships, Ltd., has not as reported in some daily papers obtained [illegible] vessels for its Atlantic service, which for the present is being performed by the Royal Edward and the Royal George. The s.s. [illegible] was bought from the builders at the

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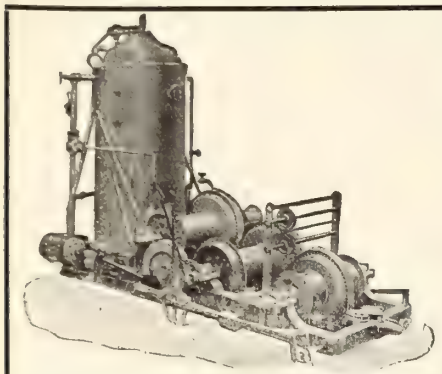

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same time is still leased to the Northwest Transportation Co. and is running between New York and Rotterdam via Halifax. She may be placed in the C.N.S. service later this season.

A company has been formed to take over all the shipping interests of the late Sir Alfred Jones, which include the Elder Dempster Co., which operates between Canada and South Africa and Canada and Mexico. The whole of the interests have been purchased by Lord Pirrie, Chairman of Harland and Wolff Ltd., Belfast, Ireland, who is also one of the incorporators of the recently chartered Dominion Dry Dock and Shipbuilding Co., Ltd., which purposes constructing dry docks and other plant at Levis, Que., and St. John, N.B.

The Donaldson Line s.s. Saturnia, which was launched at Scotstoun, Scotland, Mar. 29, is a twin screw vessel, with accommodation for 1,250 passengers. The second and third class accommodation is all arranged as two and four berth cabins, and special attention has been paid to the deck accommodation. The vessel has been constructed to the highest class at Lloyds, and to the Board of Trade requirements. There is ample space for freight, and the most modern equipment for expeditious handling of cargo has been adopted, in addition to the latest type of refrigerating machinery, and a Marconi wireless telegraph installation. The engines are of the triple expansion type, supplied with steam by six boilers. It is reported that another similar vessel will be built shortly, so that the company can maintain a regular weekly service between Canada and Scotland.

Maritime Provinces and Newfoundland.

Capt. S. R. Hill, Inspector of steamboat hulls at Halifax, and formerly captain of the Plant Line s.s Halifax, died there Apr. 10, aged 58.

The assets of the Newfoundland Steam Whaling Co., Ltd., in liquidation, which were offered for sale towards the end of April, included the steamships Puma and Lynx.

The s.s. Kamfjord, which arrived at North Sydney, N.S., Apr. 12, with manganese ore from Antwerp, for the Nova Scotia Steel and Coal Co., has been chartered by that company for the season.

The Government has despatched a party of wreckers to Sable Island, to break up the hull of the s.s. Skidby which was wrecked there some years ago, and which is considered a danger to navigation.

The liquidators of the Anglo-Newfoundland Fish Exporting Co , Ltd., St. John's, Nfld., recently sold, by tender, the company's fishing fleet, consisting of 12 schooners and a gasolene launch.

The Newfoundland Colonial Secretary received tenders recently for the conveyance of mails and passengers by steamer between Kelligrews and Bell Island, calling at Portugal Cove and Broad Cove, for five years from May 1.

The Newfoundland sealing steamboat Iceland was caught in the ice on the north-west of the island, Mar. 30, and with her cargo of about 2,500 seals, was lost, the crew escaping over the ice. She was a wooden vessel and was built in 1870

The St. John's, Nfld., Pilot Commissioners have chartered the steamboat Margerie F., to act as a pilot boat there. She was given a trial spin, Apr. 8, when she was pronounced quite able to perform the work for which she was engaged.

An order in council has been passed, with reference to the order in council of Apr. 9, 1907, which authorized the establishment of a pilotage district for Minas Basin, N.S., by which the payment of pilotage dues within the limits of the district is made compulsory.

Tenders have been asked for the construction of a steel steamboat and a wooden side-wheel vessel for use in Halifax harbor, and it is stated that for the same purpose, an offer of $25,000 has been made for the ferry steamer Englewood, which is plying on the Hudson River.

The total value of the winter season's trade at St John, N.B., was reported Apr. 9, as being $19,805,280. Cattle shipments, which were lighter than in previous years, totalled 4,341 head; grain 6,821,279 bush.; flour 743,760 sacks. Both of the latter are a distinct advance on the figures of 1908-9.

The Shipmasters' Association of Canada has been formed in Halifax, N.S., consisting of masters and mates of Canada and Newfoundland. The object of the association is to secure the protection of its members in case of legal difficulty. Following are the officers for the current year: President, C. Hunter; Vice President, —. Norris; Secretary, J. Murphy; Treasurer, D. A. Scott.

Press reports state that J. Doran of Quebec, is about to inaugurate a ferry service between Sydney and North Sydney, N.S., and also that another scheme is in process of organization, to purchase and operate a double ended ferry transfer between Sydney and Westmount on an hourly schedule. It is stated that tenders have been received for the construction of a suitable vessel, and as soon as the business is financed it will be put through.

A bill, which was introduced into the House of Commons, Apr. 13, by the Minister of Public Works, authorizes the city of St. John, N.B., to convey land, bounded on the north by the prolongation westerly of the south line of Sheffield St., on the east by the westerly line of Charlotte St., on the south by the Government ballast wharf property and on the west by the city harbor line, for a site for the erection of buildings, wharves, docks and other necessary improvements. F. C. Durant of Philadelphia, Pa., is chiefly interested in the development.

The Dominion Government steam tug Canso, which was launched recently at Yarmouth, N.S., is built of steel to class 100 A1 at Lloyds, her dimensions being, length overall, 97.6 ft., beam 22 ft., mean draught 8.6 ft. She is built on the frame and reverse system, spaced 21" throughout, with five steel water tight bulkheads. The decks are of steel sheathed with hard wood, and the fore and aft peak tanks have a water carrying capacity of 20 tons. The deckhouse, 47' 6" by 14' 6" accommodates the captain's and chief engineer's quarters, bathroom, and there are lamp and refrigerator rooms fore and aft of the deckhouse. Dining room and other accommodation is provided below, adjoining the engine room, with crew's accommodation forward. The engines are of the triple expansion type, with cylinders 12, 19 and 30 ins. diar., by 20 ins. stroke, developing about 400 h.p. Other machinery includes centrifugal pump, direct steam windlass, steam steering gear, hydraulic ash ejector, etc. The boiler is 9' 6" long by 11 ft. diar., for a working pressure of 180 lbs.

Province of Quebec Marine.

The Quebec Steam Whaling Co., Ltd., Montreal, is to be wound up. S. R. Gauthier has been appointed liquidator.

J. A. Smith, assistant engineer Department of Marine agency at Quebec, has been appointed measuring surveyor of shipping for the port.

The Montreal Board of Trade has decided to ask the Department of Railways and Canals, that, in future, the St. Lawrence canals be opened for traffic much earlier than hitherto.

The Levis Ferries, Ltd., is reported to have placed orders in Levis, for the construction of ice-breaking ferry steamboats for the winter service between Quebec and Levis.

The act amending the Richelieu and Ontario Navigation Co.'s charter powers details of which were given in our April issue, has been passed by the Dominion Parliament.

The Quebec Steamship Co., which recently purchased the s.s. Fastnet from the Clyde Shipping Co. of Glasgow, Scotland, has decided to change its name to Cascapedia. She sailed from Glasgow Apr 8, for Montreal, where she was placed on the Gaspe route, her first sailing taking place from Montreal, Apr. 25.

The Dominion Fish and Fruit Co., Ltd., has been incorporated under the Quebec Companies Act, with a capital of $375,000 and office at Quebec, to carry on a general business of staple commodities, fish, vegetables and fruit, and in connection therewith to own and operate steam and other vessels, wharves, docks, warehouses, etc., and to transport freight and passengers.

The Department of Agriculture is calling for tenders for the construction of a steel steamer for the quarantine service for fresh water at Grosse Isle, Que., of the following dimensions: length, extreme, 113' 3"; beam, 23 ft.; depth, 12' 6". The vessel, with the exception of the dimensions, will be similar to the one at present building at Dartmouth, Eng., description of which was given in our March issue.

The Montreal Coaling and Salvage Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $40,000 and office at Montreal, to carry on a general stevedoring business, including the loading and discharging of all kinds of vessels, coaling, bunkering and cleaning, etc.; to operate salvage and wrecking plants, steam and other vessels. The provisional directors are H. St. G. Lindsay, E. H. Howard, H. U. P. Aylmer, J. deWitt and H. C. McNeill, Montreal.

Work on the extension and betterment of the facilities in Montreal harbor, was commenced Apr. 18. G. W. Stephens, Chairman of the Commission, stated on his return from Europe, Apr. 16, that the work to be done during this year included the conversion of Victoria into a high level wharf, thus increasing the port accommodation from 20 to 25 ocean-going vessels; the construction of a high level double track railway from Victoria pier eastward for seven miles and also a considerable amount of dredging.

The Dominion Dry Dock Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $1,000,000 and office at Quebec, to carry on the business of shipbuilding, repairing, salving, etc., to construct and operate dry and wet docks, harbors, wharves, elevators, vessels of all descriptions, and for other purposes. The provisional directors are, Sir Thomas G. Shaughnessy, H. A. Allan, Montreal; G. D. Davie, W. M. Dobell, Quebec; W. E. Foster, St. John, N.B.; Rt. Hon. W. James, Lord Pirrie, Belfast, Ireland; Sir Robert W Perks and A. M. Grenfell, London, Eng.

The board appointed under the Industrial Disputes Act to report on the rate of wages and the bonus system in use on the Montreal wharves, has reported to the Minister of Labor against the bonus system. The wage rate is left unchanged at 30c. per hour for day rate and 35c. for night rate. In place of the bonus system, under which 2½c.

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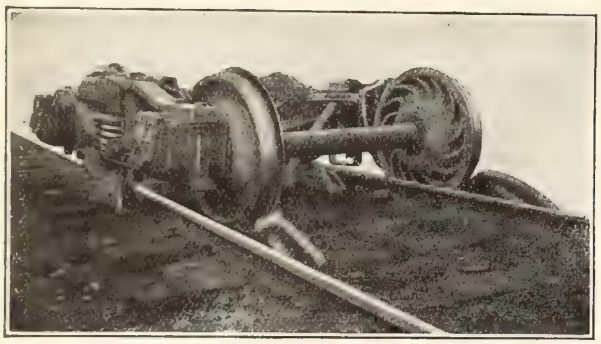

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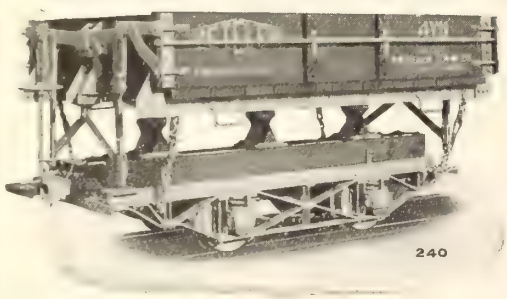

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per hour was retained from each man's wages until the end of the season, it is provided that the steamship federation and the syndicated longshoremen shall each deposit $2,000 with a trust company, and that each man shall sign an individual contract with the federation. In case he fails to carry out his agreement the $2,000 may be levied upon for non-fulfilment of contract. The report was unanimous and states that the assurance was given that the recommendations would be carried out by both parties. The agreement stands for five years.

Ontario and the Great Lakes.

A steam tug, for use in the harbor, was launched at Owen Sound, Apr. 13, and named George H. Jones.

The Welland canal was officially opened for traffic Apr. 15, but no vessels were on hand to make the passage.

The car ferry Marquette and Bessemer No. 2, which sank in Lake Erie about Dec. 7, 1909, with all on board, has been located near Port Bouce, Ont.

The name of the barge Sandy Hook, no. 126094, registered at St. Catharines, has been changed by order in council to Geraldine Battle.

Press reports state that a car ferry service between Sodus Point, N.Y., and Cobourg, Ont., in connection with the Pennsylvania Rd., is under consideration.

Press reports state the Dominion Government intends constructing an additional pier for the accommodation of vessels at Port Colborne.

The first vessel of the season to pass the Sault Ste. Marie Canadian canal, was the W H. Mack, on Apr. 12, on which date the canal was officially opened.

The Western Navigation Co.'s officers for the current year, elected at a recent meeting, are, President, J. Murphy; Vice President, E. R. Wayland; Secretary, H. W. Robinson.

The Canadian Northern Ry. is reported to have decided to make extensions at its coal and ore docks at Port Arthur, which will increase the storage capacity by 50,000 tons.

The Department of Railways and Canals received tenders, Apr. 28, for the removal of the range beacon and for the widening of the channel at the upper entrance to the Sault Ste. Marie canal.

The Imperial Oil Co., Sarnia, recently ordered in England an additional tank steamboat for its oil trade. It is expected that the vessel will arrive on the lakes about July 1.

The Northern Navigation Co.'s s.s. Hamonic is undergoing repair at Lorain, O., after having been somewhat damaged last fall at Point Edward when a large barge broke loose among the shipping there.

The Northern Navigation Co.'s steamboat City of Midland, after having her boilers overhauled at Owen Sound during the past winter, has been docked at Collingwood for minor repairs before being placed on her summer route.

The Department of Railways and Canals received tenders, Apr. 26, for the construction of section 6 of the Ontario-Rice Lake division of the Trent canal, and is asking for tenders for similar work regarding section 4.

Capt. Argue, of Parry Sound, is reported to have purchased a small passenger steamboat, which has been recently constructed at Kingston, on behalf of the C.P.R., for operation between Parry Sound and Little Current.

The C.P.R. s.s. Athabasca, which was damaged at the close of last season on Flower Pot Island, near Owen Sound, has been thoroughly overhauled during the winter, and in addition has been lengthened 36 ft., making her 291 ft. over all.

The Toronto Board of Trade and the Toronto branch of the Canadian Manufacturers' Association each sent telegrams to the Government, Apr. 15, calling attention to the urgency of the need for the enlarging and deepening of the Welland canal.

The Canada Shipping Co.'s steamboat D. A. Gordon, which was recently built at Glasgow, Scotland, sailed from Newport, Eng., Apr. 16. She is a full sized canal boat, and will be utilized in the grain trade between Montreal and the Upper Lakes.

Supplementary letters patent have been issued under the Ontario Companies Act, increasing the number of directors of the Western Dry Dock and Shipbuilding Co., Ltd., from three to five; authorizing the company to hold meetings outside Ontario, and changing the head office from Toronto to Port Arthur.

The dues collected at the Government dry dock at Kingston, during 1909, were $14,488.84, and expenditure $6,603.03, leaving a surplus of $7,884.81. There were 59 vessels docked having a total tonnage of 37,295. The dock has been leased to the Kingston Shipbuilding Co., Ltd., for 21 years.

The Keystone Transportation Co.'s steamboat Keystorm was launched at Wallsend-on-Tyne, Eng., recently She is of full canal size, with capacity of 100,000 bush. on a 14 ft. draught, but for 150,000 bush. in lake service only. She is similar to the company's steamboats Key West and Keyport, descriptions of which we have already published.

The U. S. Lake Survey reports the levels of the Great Lakes in feet above tide water for March, as follows:—Superior, 601.54; Michigan and Huron, 580; Erie, 571.68; Ontario, 245.75. Compared with the average March levels for 10 years, Superior was 0.45 ft. below; Michigan and Huron, 0.15 ft. below; Erie, 0.11 ft. below, and Ontario 0.32 ft. above.

The interests controlled by J. Playfair, Midland, which have acquired the Inland Navigation Co., Hamilton, the Midland Navigation Co., and the Empress Transportation Co., of Midland, have, it is reported, awarded a contract for the construction of a steel hulk freighter, 525 ft. long by 56 ft. beam, delivery to be made in time for the fall trade.

With reference to the recent reports that the Richelieu and Ontario Navigation Co. was negotiating for the purchase of the Hamilton Steamboat Co. and the Turbine Steamship Co., press reports state that the matter came up for discussion at the R. and O. N. Co.'s board meeting Apr. 14, but that nothing definite was accomplished.

Press reports state that the Upper Ontario Steamboat Co., and the Montreal River Navigation Co., are negotiating for an amalgamation of their interests. Both companies operate on the Montreal River, and the chief object of the proposed arrangement is to secure a more efficient service, by dividing the passenger and freight service.

Press reports from Haileybury state that the Temiskaming Navigation Co. has acquired control of the Haileybury Navigation Co., and that in future the two concerns will be managed by one board of directors. It is said that an agreement has been effected whereby the rates which were in force prior to the amalgamation shall be maintained

The Ogdensburg Coal and Towing Co. is reported to have purchased the steamboat A. McVittie from the Rutland Transit Co., for operation in the Lake Ontario and St. Lawrence coal trade. She was built in 1890, her dimensions being: length, 240 ft.; breadth, 42 ft.; tonnage, 2,046 gross, 1,552 net. She is equipped with fore and aft engines, with cylinders 28 and 52" diar., by 40" stroke.

The Brockville Navigation Co. has sold the steamboat Victoria to Capt. Davis, of Smith's Falls, Ont., who, it is stated, will use the vessel on the Rideau Lakes. The Victoria was built at Kingston, Ont., in 1900, her dimensions being: length, 72.6 ft.; breadth, 15.5 ft.; depth, 5 ft.; tonnage, 58 gross, 40 register. She is equipped with engine of 3 n.h.p., driving a screw.

The steam barge D. D. Calvin, which was recently sold by the Calvin Co., Garden Island, Ont., to Carlot and Smith, Belleville, was badly damaged by fire at Garden Island, April 11. She was built at Garden Island in 1883, her dimensions being: length, 166 ft.; breadth, 32 ft.; depth, 15.1 ft.; tonnage, 750 gross, 483 register. She is equipped with engine of 300 n.h.p. driving a screw.

The Canada Shipping Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $20,000 and office at Montreal, to carry on a general shipping business; and to own and operate steam and other vessels. The provisional directors are:—H. Munderloh, C. Byrd, W. T. S. Burns, C. Rinfret and R. Ball, Montreal.

The Dredging and Drainage Co., of Ontario, Ltd., has been incorporated under the Ontario Companies Act, with a capital of $50,000 and office at Toronto, to contract for the construction of public works, and in connection therewith to own and operate steam and other vessels. The provisional directors are, J. E. Russell, E. W. Wright and H. T. Hunter, Toronto

Canadian Northern Steamships, Ltd., announces an all water route from Great Britain to Port Arthur, with one transshipment only, instead of two as heretofore Freight will be trans-shipped at Montreal from the company's trans-Atlantic vessels to the lake vessels operated by the Canadian Lake and Ocean Navigation Co., which will proceed direct to Port Arthur.

Replying to questions in the House of Commons recently on the appropriation of $250,000 for Toronto harbor improvements, the Minister of Public Works stated that it would be useless to make the new entrance deeper than 18 ft., until the Welland Canal was deepened. The matter could be taken up later, if necessary, the ultimate cost of the work not being greater than if done now.

J. W. Norcross & Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $25,000 and office at Toronto, to act as managers, agents and brokers for transportation companies; to own and operate steam and other vessels, docks, harbors and other facilities. The provisional directors are:—J. W. Norcross, R. M. Wolvin and W. E. Burke, Toronto.

The Dominion Government has guaranteed the bonds of the Western Drydock and Shipbuilding Co., Port Arthur, Ont., to the extent of $1,200,000. The contract for the construction of the works has been let, and it is said that by the summer of 1911, the first two vessels to be built by the company will be launched. These vessels, it is said, will be 524 ft. long, with a capacity of 10,000 tons

The Niagara, St. Catharines and Toronto Navigation Co.'s steamboat Garden City arrived at Toronto Apr. 11, from St. Catharines, which is about a month earlier than in previous years. She will be operated between these points daily until June, when the regular summer service will commence. It is reported that the company's steamboat Lakeside will probably be sold for other [illegible] acting service, and another vessel purchased.

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NOTICE.—Application will be made on behalf of the Saskatchewan Midland Railway Company and the Canadian Northern Railway Company to the Board of Railway Commissioners for Canada at the Board's Office, Ottawa, on 10th May, 1910, at 10 o'clock in the forenoon, or as soon thereafter as the said application can be heard, for a recommendation to the Governor General in Council for the sanction of an agreement amalgamating the said companies.

Dated at Toronto this 24th day of March, 1910.

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The Algoma Central Steamship Line's steamboat T. J. Drummond, which has been built at Dumbarton, Scotland, especially for the rail trade, is expected to reach the lakes early in May. Her dimensions are, length overall, 257 ft.; length, between perpendiculars, 247 ft. 9 ins.; beam, 43 ft. 8 ins.; depth, 26 ft. The machinery consists of engines with cylinders 20½, 33 and 54 ins. diar., by 36 ins. stroke, supplied with steam by two Scotch boilers, 10½ by 14 ft., at a pressure of 190 lbs.

A vessel will be launched at Glasgow, Scotland, May 1, for the Point Anne Quarries Ltd., of which M. J. Haney, Toronto, is the principal owner. The vessel will be used for grain between Montreal and Fort William, and is the first of a number of freight vessels which it is proposed will be put on this route by the company. The vessel, which will be named Renvoyle, has a steel hull, and her dimensions are, length 250 ft., breadth 42½ ft., depth 18½ ft., with a capacity of 100,000 bush. The cost has been quoted at $125,000.

The Dominion Parliament has amended the Navigable Waters Protection Act, repealing secs. 4 and 5, and substituting others, which provide that no bridge, dam, wharf or other structure shall be built in or across any navigable water, unless the site has been approved by the Governor in Council, such provisions not, however, applying to small wharves, not costing more than $1,000, nor to beach protection works, boathouses, etc., which do not interfere with navigation; and any buildings built on any site not so approved, nor in accordance with plans so approved they may be removed and destroyed under the authority of the Governor in Council.

In pursuance of the U. S. statute approved March 10, entitled "An Act concerning tonnage duties on vessels entering otherwise than by sea," and as the result of negotiations since carried on, harbor masters in Ontario ports affected by the order in council of Dec. 1909, have been notified from Ottawa to waive the collection of fees from U. S. vessels entering on and after April 1, 1910; and collectors of Customs in U. S. ports on the lakes have also been officially notified from Washington under that vessels entering from Ontario on and after Apr. 1, will be exempt from the tonnage duty imposed by the U. S. Statute of Aug., 1909. This completes the restoration of the reciprocal arrangement between the U S. and Ontario existing prior to last summer.

The Porcupine Trading and Transportation Co., the incorporation of which we announced in a recent issue, will operate chiefly on Frederickhouse River and Lake and Night Hawk Lake. It was originally intended to build a number of stern wheel boats for this trade, but subsequent examination led to the conclusion that it was doubtful if they could, at present, be successfully operated there. The management considers that the only kind advisable to operate for the immediate future are large pointers equipped with gasolene engines, and gasolene launches. It is intended to build eight of these with capacity varying from two to 10 tons each, some of which will be equipped with gasolene engines, of suitable size and strength. This year's experience will enable the company to judge better of the kind of boat which can be operated with advantage.

CANADA SOUTHERN RAILWAY COMPANY.

The annual general meeting of the Canada Southern Railway Company for the election of directors and other general purposes will be held on Wednesday, the 1st day of June, 1910, at the hour of eleven o'clock in the forenoon, at the offices of the Company, in the city of St. Thomas.

NICOL KINGSMILL,
Sec. C.S.R. Co.

23rd April, 1910.

NOTICE.

NIAGARA GRAND ISLAND BRIDGE COMPANY.

The Annual General Meeting of the Niagara Grand Island Bridge Company, for the election of Directors and other general purposes, will be held on Wednesday, the 1st day of June, 1910, at the hour of eleven o'clock in the forenoon, at the Company's Head Office, in the City of St. Thomas.

NICOL KINGSMILL,
Secretary N.G.I.B. Co.

April 23rd, 1910.

NOTICE.

NIAGARA RIVER BRIDGE COMPANY.

The Annual General Meeting of the Niagara River Bridge Company, for the election of Directors and other general purposes, will be held on Wednesday, the 1st day of June, 1910, at the hour of eleven o'clock in the forenoon, at the offices of the Canada Southern Railway Company, in the City of St. Thomas.

NICOL KINGSMILL
Secretary N.R.B. Co.

April 23rd, 1910.

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The Northern Fish Co.'s steamboat Wolverine was considerably damaged by fire while in the dry dock at Selkirk, Man., undergoing repairs prior to going on her summer route. The damage was almost confined to the fittings, the machinery and hull not having suffered much. Repairs are being made at once, and it is expected that the vessel will be ready for service early in June. She was built at Selkirk, Man., in 1903.

The Railway Committee of the House of Commons, April 13, by a vote of 53 to 51, refused to pass the bill for the incorporation of the International Waterways Canal and Construction Co. The Company proposed to construct an 8 ft. canal from the mouth of Pigeon River, Lake Superior, to the Lake of the Woods, thence to Red River and Lake Winnipeg; or from the Lake of the Woods by the Winnipeg River to Lake Winnipeg. The primary object of the company was to generate electrical energy and to dispose of it in Canada and the United States. L. Coste, of the Canadian Section of the International Waterways Commission, stated that there were no engineering difficulties in the way of construction, and it was possible that it would not cost over $20,000,000. By its construction it would be possible to develop 1,000,000 h.p. within the district served.

B.C. and Pacific Coast Marine.

The Union Steamship Co.'s new vessel, which is to be named Cheslakee, is expected to reach Vancouver in July.

The Alaska Steamship Co. has purchased the s.s. Leelanaw from R. Dunsmuir and Sons, for operation between Seattle, Wash., and Nome, Alaska. The price paid is stated to have been $80,000.

It is reported that the G.T.P.R. Pacific Coast Service will operate a vessel between Prince Rupert and San Pedro, Cal., in order to deal with the anticipated movement northwards during the coming season.

The Michigan Towing Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $25,000, to own and operate steam and other vessels, and in connection with such operation to acquire any postal subsidies.

The West Vancouver Transportation Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $50,000, to own and operate steam and other vessels, and to carry on a general transportation business on B.C. waters.

Ship Poltalloch, Ltd., has been incorporated under the B.C. Companies Act with a capital of $24,000, to purchase the ship Poltalloch, owned in Portland, Ore., and to carry on a general freight-

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Press reports from London, Eng., state that arrangements have been practically completed for financial aid for the necessary increases proposed to be made at Esquimalt yards, in anticipation of the construction of vessels for the proposed Canadian navy.

The steamboat Victorian, a U.S. vessel, which at different times has been operating between Victoria and Seattle, and also in the neighborhood of Vancouver, and which is said to have cost $125,000 to build, was offered for sale recently, when $11,300 was the highest bid.

British Columbia press reports state that the Dominion Government is making a plan of the inner harbor at Victoria, between the entrance at Hospital Point and the Esquimalt and Nanaimo bridge. It is said that this work is being carried out in preparation for a general scheme of harbor improvement.

Press reports from Vancouver state that the G.T.P.R. will build an additional wharf there during the summer. It will be about 1,000 ft. long, running in the direction of the harbor mouth. The Government wharf, which it is stated will be constructed at the same time, will be 600 ft. long by 60 ft. wide, and will cost $70,000.

The Otis Staples Lumber Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $750,000, to carry on the general business of sawmill proprietors, lumbermen, etc., and in connection therewith to own and operate steam and other vessels, and to carry on a general business of transportation of passengers and freight, by land and water.

The Pacific Whaling Co. is adding two steam whaling vessels to its fleet, these being now on their way to Victoria. One of them was purchased at St. John's, Newfoundland, and the other has been constructed in sections at Christiania, Norway, and shipped to Victoria, where it will be built. Press reports state that two similar vessels are also being constructed in like manner in Norway, for the Queen Charlotte Whaling Co.

Canadian Ports and Harbors.—The Department of Marine has issued a directory to the principal ports and harbors of Canada, to which is added a description of new types of aids to navigation introduced in all Canadian waterways. The directory is confined to ports where the tonnage of vessels entered in 1908 was upwards of 50,000. Details are given of wharf and shed areas, depth of water, anchorage, facilities for loading, unloading, pilot charges, and a variety of other information useful to shipowners, mariners, importers, exporters, traders, insurance corporations, and others interested in the navigation of Canadian waters. Views showing a number of the harbors are given, as well as a number of plans, but the most important of the insets is a map showing the quick flashing lights on the Atlantic coast, and the St. Lawrence Gulf and River. The sign given at each point where there is a light shows not only whether it is a first, second or third order light, but also the number and interval of the flashes; and the new lights which are being installed. The directory, which is arranged in the form of a report, was compiled by G. J. Desbarats, Deputy Minister of Marine and Fisheries.

Vessels Removed from the Register.—The following vessels were removed from the register during March for the reasons assigned:—Steam—Ida, Port Arthur, 13 tons, out of existence; Lady of the Lake, Toronto, 7 tons, broken up; Maud S., Collingwood, 11 tons, broken up; Odessa, Collingwood, 8 tons, broken up; Picnis, Vancouver, 3 tons, burnt; Reliever, Midland, 366 tons, burnt. Sailing—Beulah Benton, Weymouth, 36 tons, broken up; Emma F., Lunenburg, 13 tons, broken up; Mindoro, Lunenburg, 80 tons, burnt; Minnow, Lunenburg, 35 tons, broken up; Norwood, Maitland, 1,597 tons, stranded; Squid, Vancouver, 51 tons, broken up; Twilight, Barrington, 37 tons, broken up.

The Delaware and Hudson Co. has constructed at Lake George, N.Y., a marine railway to facilitate the unloading of launches from railway cars direct into the water. A submarine track extends from the shore into deep water, permitting a boat having 6 ft. draught to be floated clear of the cars. This avoids all possibility of damage by handling in the old way, and the tariffs filed by the traffic department concerning the service indicate that in addition to the great improvement in service, boat owners will find it more economical.

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Ales
E. L. Drewry.. .....Winnipeg.
Alloys
American Vanadium Co.....Pittsburg, Pa.
Angle Bars
Hamilton Steel & Iron Co...Hamilton, Ont.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Anti Rail Creepers
The Holden Co., Ltd.....Montreal.
Automobiles
Preston Car & Coach Co., Preston, Ont.
Axes
James Smart Mfg. Co.....Brockville, Ont.
Axles
Canadian Car and Foundry Co....Montreal.
James Hutton & Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Jas. W. Pyke & Co.....Montreal.
Beacons
International Marine Signal Co....Ottawa.
Bearings, Side
Canadian Car and Foundry Co....Montreal.
Chicago Railway Equipment Co...Chicago
Blankets and Bedding
The Hudson Bay Co.....
Boilers
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.... .....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
Boilers, Portable
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.
Robb Engineering Co, Ltd..Amherst, N.S.
Boilers, Stationary and Marine
Babcock & Wilcox, Ltd.....Montreal.
I. Matheson & Co. .....New Glasgow, N.S.
Polson Iron Works, Ltd. .....Toronto.
Robb Engineering Co., Ltd..Amherst, N. S.
Boiler Staybolt Iron or Steel Bars
Falls Hollow Staybolt Co..Cuyahoga Falls.
Boilers, Steam
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.
Robb Engineering Co., Ltd...Amherst, N.S.
Boilers, Water Tube
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.
Robb Engineering Co., Ltd...Amherst, N.S.
Bolsters
Canadian Car and Foundry Co.—Montreal.
Canadian Ry. Equipment Co., Welland, Ont.
Bolts, Bridge
Montreal Rolling Mills Co.....Montreal.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Toronto Bolt and Forging Co.....Toronto.
Bolts, Carriage and Machine
Toronto Bolt and Forging Co.....Toronto.
Bolts, Track
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Toronto Bolt and Forging Co.....Toronto.
Books
Renouf Publishing Co.....Montreal.
Borers, Car Wheel
John Bertram & Sons Co.....Dundas, Ont.
Braces, Cross Arm
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.
Brake Beams
Canadian Car and Foundry Co.—Montreal.
Chicago Railway Equipment Co...Chicago.
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Am. Brake Shoe & F'dry Co..Mahwah, N.J.
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Acton Burrows, Limited .....Toronto.
Bridges
Canadian Bridge Co..... Walkerville, Ont.
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American Vanadium Co.....Pittsburg, Pa.
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Brown Hoisting Machinery Co. Cleveland.
Buildings, Steel
Canadian Bridge Co..... Walkerville, Ont.
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International Marine Signal Co....Ottawa.
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Chapman & Walker, Ltd.....Toronto.
E. F. Phillips Electrical Works....Montreal.
The Wire and Cable Co.....Montreal.
Caps, Uniform
W. H. Coddington .....Hamilton, Ont.
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Mussens, Ltd. .....Montreal.
Car Movers
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
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R. M. Burns & Co.....Chicago, Ill.
Crossen Car Mfg. Co.....Cobourg, Ont.
Canadian Car & Foundry Co. ...Montreal.
J. T. Gardner.....Chicago, Ill.
Hart-Otis Car Co., Ltd.....Montreal.
Hicks Locomotive and Car Works. Chicago.
Ottawa Car Co. Ltd.....Ottawa.
Pay A. You Enter Car Co. .... New York
Preston Car and Coach Co., Ltd..Preston.
Russel Wheel & Fdry. Co....Detroit, Mich.
Silliker Car Co., Ltd.....Halifax, N.S.
Cars, Logging
Peteler Car Co. .....Minneapolis, Minn.
Russel Wheel & Fdry. Co....Detroit, Mich.
Castings
American Vanadium Co.....Pittsburg, Pa.
Canadian Car and Foundry Co....Montreal.
Crossen Car Mfg. Co..... .Cobourg, Ont.
Lumen Bearing Co. ...West Toronto, Ont.
I. Matheson & Co. .....New Glasgow, N.S.
Russel Wheel & Fdry. Co....Detroit, Mich.
Standard Steel Works Co..Philadelphia, Pa.
Castings, Brass
Canadian Bronze Co.....Montreal.
Canada Iron Corporation, Ltd....Montreal.
Kerr Engine Co.....Walkerville, Ont.
Lumen Bearing Co. ...West Toronto, Ont.
I. Matheson & Co. .....New Glasgow, N.S.
Tallman Brass & Metal Co., Ltd.Hamilton.

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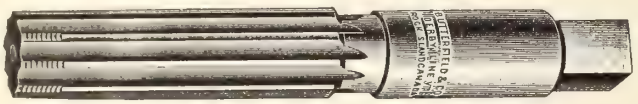

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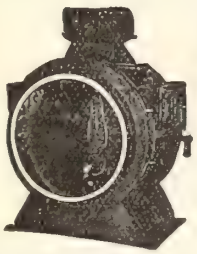

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Castings, Car
American Brake Shoe & Fdry Co. Mahwah.
Canada Iron Corporation, Ltd....Montreal.
Russel Wheel & Fdry. Co....Detroit, Mich.

Castings, Iron
Allis-Chalmers-Bullock Ltd.....Montreal.
Canada Iron Corporation, Ltd....Montreal.
Kerr Engine Co.....Walkerville, Ont.
Russel Wheel & Fdry. Co....Detroit. Mich.

Castings, Iron and Steel
American Brake Shoe & F'dry Co Mahwah.

Castings, Malleable
Galt Malleable Iron Co.....Galt, Ont.
Taylor & Arnold.....Montreal.

Castings, Manganese Steel
Lumen Bearing Co. ...West Toronto, Ont.
Montreal Steel Works, Ltd.....Montreal.

Castings, Steel
American Vanadium Co.....Pittsburg, Pa.
Canada Iron Corporation, Ltd....Montreal.
Montreal Steel Works.....Montreal.

Chains
B. J. Coghlin & Co.....Montreal.

Chisels for Pneumatic Chipping Hammers
Cleveland Punch & Shear Wks., Cleveland

Closets, Car
Duner Co.....Chicago, Ill.

Coal
Nova Scotia S. & C. Co., New Glasgow, N.S.

Compressors, Air
Allis-Chalmers-Bullock Ltd.....Montreal.
The American Well Works ....Aurora, Ill.
Canadian Rand Co.....Montreal.
The Holden Co., Ltd. .....Montreal.
Vandeleur & Nichols.....Toronto.

Concrete Mixers and Rock Crushers
F. H. Hopkins & Co. .....Montreal.
Mussens Limited.....Montreal.
Toronto Pressed Steel Co. .....Toronto.

Contractors' Supplies
F. H. Hopkins & Co.....Montreal
Rice Lewis & Son.....Toronto.
Peteler Car Co. .....Minneapolis, Minn.
Russel Wheel & Fdry. Co....Detroit, Mich.
Toronto Pressed Steel Co.....Toronto.

Conveyors, Coal and Ash
Babcock & Wilcox, Ltd.....Montreal.

Copying Presses
James Smart Mfg. Co.....Brockville, Ont.

Couplers, Car and Locomotive
Canadian Car and Foundry Co....Montreal.
McConway & Torley Co....Pittsburgh, Pa.
Montreal Steel Works, Limited..Montreal.
Taylor & Arnold.....Montreal.

Cranes
Brown Hoisting Machinery Co..Cleveland.
Northern Engineering Works, Detroit, Mich.

Cranes, Electric
Babcock & Wilcox.....Montreal.
Dominion Bridge Co.....Montreal.
Mussens Limited.....Montreal.
Northern Engineering Works, Detroit, Mich.

Cranes, Locomotive
American Hoist and Derrick Co..St. Paul.

Cranes, Wrecking
Mussens Limited.....Montreal.

Crowbars
B. J. Coghlin & Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.

Curtains and Fixtures, Car
The Holden Co., Ltd.....Montreal.
Preston Car & Coach Co...Preston, Ont.

Cuts
Acton Burrows, Limited.....Toronto.

Cylinders
American Vanadium Co.....Pittsburg, Pa.

Derailing Devices
General Railway Signal Co., Rochester, N.Y.

Derricks
American Hoist and Derrick Co..St. Paul.
M. Beatty & Sons.....Welland, Ont.
Mussens Limited.....Montreal.

Dies
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Ditchers
M. Beatty & Sons.....Welland, Ont.

Diving Outfits
John Date.....Montreal.
Mussens Limited.....Montreal.

Doors, Steel Rolling
Mussens Limited.....Montreal.

Door Signs
Acton Burrows Limited.....Toronto.

Draft Gear
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Standard Coupler Co.....New York City.
T. H. Symington & Co.....Baltimore, Md.
Waugh Draft Gear Co.....Chicago, Ill.

Draughtsmen's Supplies
John A. Hart & Co.....Winnipeg.

Dredges
M. Beatty & Sons.....Welland, Ont.
Polson Iron Works, Ltd. .....Toronto.

Drills, Air
Canadian Rand Co.....Montreal.

Drills, Flat Twisted
Cleveland Punch & Shear Wks., Cleveland

Dry Goods
The Hudson's Bay Co.....

Dump Cars (Contractors')
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montre l.
Peteler Car Co. .....Minneapolis, Minn.

Dynamos
Northern Electric & Mfg. Co.....Montreal.
Vandeleur & Nichols.....Toronto.

Dynamo and Electric Castings
American Brake Shoe & F'dry Co. Mahwah.

Economizers
Babcock & Wilcox (Ltd.).....Montreal.

Electric Apparatus
Allis-Chalmers-Bullock Ltd.....Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co.....Montreal.
Vandeleur and Nichols.....Toronto.

Electric Car Route Signs
Acton Burrows Limited.....Toronto.
Preston Car & Coach Co...Preston, Ont.

Electric Light Plant
Allis-Chalmers-Bullock Ltd.....Montreal.

Elevators, Grain
John S. Metcalf Co.....Chicago, Ill.

Enameled Iron Signs
Acton Burrows Limited.....Toronto.

Engines, Automatic
Robb Engineering Co., Ltd..Amherst, N.S.
Polson Iron Works, Ltd. .....Toronto.
Russel Wheel & Fdry. Co....Detroit, Mich.

Engines, Corliss
Allis-Chalmers-Bullock Ltd.....Montreal.
Robb Engineering Co., Ltd..Amherst, N.S.

Engines, Gas
Allis-Chalmers-Bullock Ltd.....Montreal.
Vandeleur & Nichols.....Toronto.

Engines, Gasolene
Canadian Fairbanks Co., Ltd.....Montreal.
Ontario Wind Engine & Pump Co. Toronto.
Vandeleur & Nichols.....Toronto.

Engines, Hoisting
Allis-Chalmers-Bullock Ltd.....Montreal.
American Hoist and Derrick Co..St. Paul.
M. Beatty & Sons.....Welland, Ont.
Dominion Equip't & Supply Co., Winnipeg.
I. Matheson & Co. .....New Glasgow, N.S.
Polson Iron Works, Ltd. .....Toronto.
Russel Wheel & Fdry. Co....Detroit, Mich.

Engines, Stationary and Marine
I. Matheson & Co. .....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Engines, Steam
Allis-Chalmers-Bullock Ltd. ....Montreal.
Vandeleur & Nichols.....Toronto.

Explosives
Standard Explosives Limited ...Montreal.

Express Office Signs
Acton Burrows Limited.....Toronto.

Fencing
New Brunswick Wire Fence Co., Moncton.
Owen Sound Wire Fence Co., Owen Sound.

Ferro-vanadium
American Vanadium Co.....Pittsburg, Pa.

Fire Appliances
Miller Chemical Engine Co., Chicago, Ill.
Missouri Lamp & Mfg. Co., St. Louis, Mo.

Flags
The Hudson's Bay Co. .....

Flour
The Hudson's Bay Co. .....

Forgings
American Vanadium Co.....Pittsburg, Pa.
Canadian Car and Foundry Co....Montreal.
Cleveland City Forge & Iron Co., Cleveland.
Crossen Car Mfg. Co. .....Cobourg, Ont.
Hamilton Steel & Iron Co., Ltd., Hamilton.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Standard Steel Works Co., Philadelphia, Pa.

Foundry Appliances
Goldschmidt Thermit Co. .....Toronto.
Ont. Wind Eng. & Pump Co., Ltd., Toronto.

Frames, Steel for Cars
Canadian Ry. Equipment Co., Welland, Ont.

Frogs
Canadian Ramapo Iron Wks., Niagara Falls.
Peteler Car Co. .....Minneapolis, Minn.

Furnaces, Corrugated
Continental Iron Works.....Brooklyn, N.Y.

Fuse Batteries
Standard Explosives Limited....Montreal.

Fuse Detonators
Standard Explosives Limited....Montreal.

Fuses, Electric
Standard Explosives Limited....Montreal.

Gaskets
Franklin Mfg. Co. .....Franklin, Pa.
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.

Gates
New Brunswick Wire Fence Co., Moncton.
Owen Sound Wire Fence Co..Owen Sound.

Gates, Crossing
General Railway Signal Co. Rochester, N.Y.
The N. L. Piper Ry. Supply Co..Toronto.

Gauges, Locomotive
Taylor & Arnold.....Montreal.

Gears
American Vanadium Co.....Pittsburg, Pa.

Generators, Electric
Northern Electric & Mfg. Co.....Montreal.

Grates, Shaking
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.
Vandeleur & Nichols.....Toronto.

Groceries
The Hudson's Bay Company.....

Guides and Outfitters
Otto Bros. ..... Field, B.C.

Hammers, Cast Steel
American Brake Shoe & F'dry Co. Mahwah.
James Smart Mfg. Co....Brockville, Ont.

Handcars
Canadian Fairbanks Co., Ltd.....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Rice Lewis & Son.....Toronto.

Hardware
The Hudson's Bay Co.....
Rice Lewis & Son.....Toronto.

Hats
W. H. Coddington .....Hamilton, Ont.

Headlights
Commercial Acetylene Co. ..... Toronto.
The N. L. Piper Ry. Supply Co..Toronto.
Pyle National Elec. Headlight Co..Chicago.

Headlinings
Crossen Car Mfg. Co.....Cobourg, Ont.

Heaters, Feedwater
Robb Engineering Co., Ltd..Amherst, N.S.

Heating, Car
Canadian Gold Car H'g & L'g Co. Montreal.
Safety Car Heating & L'ting Co. New York.

Hoists, Electric
American Hoist & Derrick Co....St. Paul.

Hoists (Pneumatic)
Taylor & Arnold.....Montreal.

Hollow Staybolt Iron and Steel Bars
Falls Hollow Staybolt Co. Cuyahoga Falls.

Hoppers, Car (Wet or Dry)
Duner Co.....Chicago, Ill.

Hydrants
Canadian Fairbanks Co., Ltd.....Montreal.
Kerr Engine Co.....Walkerville, Ont.

Illustrations
Acton Burrows Limited.....Toronto.

Injectors
T. McAvity & Sons .....St. John, N.B.

Inspections
R. W. Hunt & Co. .....Montreal

Insurance, Accident
Can. Casualty & Boiler Ins. Co., Toronto.
Canadian Ry. Accident Ins. Co....Ottawa.
Imp. Guarantee & Acc. Ins. Co., Toronto.
London Guar. & Accident Co., Ltd., Toronto

Insurance, Boiler
Canadian Casualty & Boil. Ins. Co. Toronto.

Insurance, Vessel
Burnett, Ormsby & Clapp, Ltd., Toronto.

Interlocking Plant and Signals
General Railway Signal Co. Rochester, N.Y.
Montreal Steel Works.....Montreal.
Saxby and Farmer, Ltd.....Montreal.

Iron, Pig
Nova Scotia S. & C. Co., New Glasgow, N.S.

Iron Signs
Acton Burrows Limited.....Toronto.

Iron Staybolt Bars
Falls Hollow Staybolt Co Cuyahoga Falls.

Jacks
Canadian Fairbanks Co., Ltd.....Montreal.
Dominion Equip't & Supply Co., Winnipeg.
H and E Lifting Jack Co..Waterville, Que.
F. H. Hopkins & Co, Ltd.....Montreal.
Montreal Steel Works, Ltd.....Montreal.
Mussens Limited.....Montreal.
A. O. Norton.....Coaticook, Que.
James Smart Mfg. Co.....Brockville, Ont.
A. R. Williams Mchy. Co., Ltd....Toronto.

Japans
The Dougal Varnish Co. Ltd....Montreal.

Journal Bearings
Canadian Bronze Co.....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Kerr Engine Co.....Walkerville, Ont.
Jas. W. Pyke & Co.....Montreal.

Journal Boxes
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.

Journal Jacks
A. R. Williams Mchy. Co., Ltd.. .Toronto.

Lager Beer, &c.
E. L. Drewry..... .....Winnipeg.

Lagging and Covering, Locomotive
Franklin Mfg. Co. .....Franklin, Pa.
Taylor & Arnold..... Montreal.

Lamps, Arc
Northern Electric & Mfg. Co.....Montreal.

Lamps, Incandescent
Canadian Westinghouse Co..Hamilton, Ont.

Lamps and Lanterns
The Hudson's Bay Company.....
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.

Lamps, Switch
The N. L. Piper Ry. Supply Co..Toronto.

Lathes
John Bertram & Sons Co.....Dundas, Ont.

Laths
J. Harrison & Sons Co..Owen Sound, Ont.

Lighting, Car
Canadian Gold Car H'g & L'g Co. Montreal
Safety Car H't'g & L't'g Co..New York.

Lights, Contractors' and Wrecking
F. H. Hopkins & Co.....Montreal.
International Marine Signal Co. ..Ottawa.
Mussens Limited.....Montreal.

Locomotives (Compressed Air)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co...Kingston, Ont.
Montreal Locomotive W'ks (Ltd.).Montreal.

Locomotives (Electric)
Baldwin Locomotive Works..Philadelphia.
Montreal Locomotive W'ks (Ltd.).Montreal.

Locomotives (Logging)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co....Kingston, Ont.

Locomotives (Rack)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co....Kingston, Ont.
Montreal Locomotive Works.....Montreal.

Locomotives (Steam)
American Car & Equip. Co....Chicago, Ill.
Baldwin Locomotive Works..Philadelphia.
R. M. Burns & Co.....Chicago, Ill.
Canadian Fairbanks Co., Ltd.....Montreal.
Canadian Locomotive Co....Kingston, Ont.
Dominion Equip't & Supply Co., Winnipeg.
J. T. Gardner.....Chicago, Ill.
Hicks Locomotive & Car Works..Chicago.
Montreal Locomotive W'ks. .....Montreal.
Vulcan Iron Works.....Wilkesbarre, Pa.

Lorries, Tracklaying
Crossen Car Mfg. Co.....Cobourg, Ont.
F. H. Hopkins & Co.....Montreal.

Lubricators
McCord & Co.....Chicago, Ill.
Taylor & Arnold.....'..Montreal.

Lumber
Parry Sound Lumber Co.....Toronto.
J. Harrison & Sons Co., Owen Sound, Ont.

Machines, Cement
Jas. W. Pyke & Co.....Montreal.

Machines and Plant, Contractors'
American Hoist & Derrick Co....St. Paul.
M. Beatty & Sons..... Welland, Ont.
R. M. Burns & Co.....Chicago, Ill.
Canadian Fairbanks Co., Ltd.....Montreal.
J. T. Gardner.....Chicago, Ill.
General Railway Signal Co., Rochester, N.Y.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Toronto Pressed Steel Co.....Toronto.

Machines and Tools, Prospecting
The American Well Works ....Aurora, Ill.

Machines and Tools, Well Drilling
The American Well Works ....Aurora, Ill.

Machines, Hoisting
American Hoist & Derrick Co....St. Paul.
Brown Hoisting Machinery Co..Cleveland.

Machines, Tracklaying
F. H. Hopkins & Co.....Montreal.

Machines, Logging
Russel Wheel & Fdry. Co....Detroit, Mich.

Machines, Wood and Iron Working
Canadian Fairbanks Co., Ltd.....Montreal.

Machines, Boring and Turning
John Bertram & Sons Co.....Dundas. Ont.

Machines, Car Shop
John Bertram & Sons Co., Ltd., Dundas
Greenlee Bros. & Co. .....Chicago, Ill.

Machines, Drilling
John Bertram & Sons Co.....Dundas, Ont.

Machines, Milling
John Bertram & Sons Co.....Dundas, Ont.

Machines, Planing and Shaping
John Bertram & Sons Co.....Dundas. Ont.
Cleveland Punch & Shear Wks., Cleveland

Machines, Radial Drilling
John Bertram & Sons Co.....Dundas. Ont.

Machines, Shaping
John Bertram & Sons Co.....Dundas, Ont.

Machines, Slotting
John Bertram & Sons Co.....Dundas, Ont.

Machines, Straightening
Cleveland Punch & Shear Wks., Cleveland

Machines, Track
Greenlee Bros. & Co. .....Chicago, Ill.

Machine Tools
John Bertram & Sons Co.....Dundas, Ont.
Pratt & Whitney Co. .....Dundas, Ont.

Manhole Frames and Covers
American Brake Shoe & F'dry Co.Mahwah.
Canada Iron Corporation, Ltd....Montreal.

Marine Repairs
Goldschmidt Thermit Co.....Toronto.

Marine Supplies
Rice Lewis & Son.....Toronto.

Metal, Anti-friction
W. Abbott.....Montreal.

Metal, Babbit
Tallman Brass & Metal Mfg. Co. Hamilton.

Metals
Goldschmidt Thermit Co.....Toronto.

Metal Work, Structural
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Montreal Locomotive W'ks (Ltd.).Montreal.
Jas. W. Pyke & Co.....Montreal.

Milepost Numbers
Acton Burrows Limited.....Toronto.

Motors
Canadian Fairbanks Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.

Motors, Electric
Allis-Chalmers-Bullock Ltd.....Montreal.
Canadian Crocker Wheeler Co., Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co.....Montreal.
Vandeleur and Nichols.....Toronto.

Motor Generator Sets
Allis-Chalmers-Bullock Ltd.....Montreal.
Chapman & Walker, Ltd.....Toronto.
Vandeleur and Nichols.....Toronto.

Motors, Turntable
Taylor & Arnold.....Montreal.

Nickel
The Orford Copper Co.....New York.

Nickel for Nickel Steel
The Orford Copper Co.....New York.

Numbers
Acton Burrows Limited.....Toronto.

Nut Locks
Positive Lock Washer Co....Newark, N.J.

Nuts, Clevis
Cleveland City Forge & Iron Co., Cleveland.

Nuts, Square and Hexagon
Montreal Rolling Mills Co.....Montreal
Toronto Bolt and Forging Co.....Toronto

Oakum
The Hudson's Bay Company.....

Office Fittings
Can. Office & Sch'l Furniture Co..Preston.

Office Signs
Acton Burrows Limited.....Toronto.

Oils
Galena Signal Oil Co..Franklin & Toronto

Packing
The N. L. Piper Ry. Supply Co..Toronto.

Paints
Standard Paint & Var. Co., Windsor, Ont.

Patterns
Hamilton Pattern Works....Hamilton, Ont.

Pile Drivers, Railway
F. H. Hopkins & Co.....Montreal.
Mussens Limited. .....Montreal.

Pinch Bars
The N. L. Piper Ry. Supply Co..Toronto.

Pipe, Culvert (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Pipe, Gas (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Pipe, Sewer (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Pipe Stocks
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Pipe, Water (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Planers
John Bertram & Sons Co.....Dundas, Ont.

Platforms, Steel
Standard Coupler Co.....New York City.

Ploughs, Contractors'
Mussens Limited.....Montreal.

Poles
J. Harrison & Sons Co., Owen Sound, Ont.

Porter
E. L. Drewry.....Winnipeg

Posts
J. Harrison & Sons Co., Owen Sound, Ont

Powder, Blasting
Standard Explosives Limited.....Montreal

Printing
Southam Press.....Toronto

Pumps
Canadian Fairbanks Co., Ltd.....Montreal
S. F. Bowser & Co., Limited.....Toronto
Ontario Wind Engine & Pump Co..Toronto
James Smart Mfg. Co.....Brockville, Ont
Vandeleur and Nichols.....Toronto.

Pumps, Centrifugal
The American Well Works ....Aurora, Ill.
M. Beatty & Sons .....Welland, Ont

Pumps, Deep Well, Steam and Power
The American Well Works ....Aurora, Ill.

Pumps, Fire Pressure
The American Well Works ....Aurora, Ill.

Pumps, Irrigating
The American Well Works ....Aurora, Ill.

Pumps, Reclamation
The American Well Works ....Aurora, Ill.

Pumps, Sprinkler Systems
The American Well Works ....Aurora, Ill.

Pumps, Underwriters' Fire
The American Well Works ....Aurora, Ill.

Punches and Shears
Cleveland Punch & Shear Wks., Cleveland

Rail Benders, Roller
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works.....Montreal.

Rail Drilling Machines
A. B. Jardine & Co.....Hespeler, Ont.

Rails (new)
Dominion Iron & Steel Co....Sydney, N.S
Drummond, McCall & Co. .....Montreal.
J. T. Gardner.....Chicago, Ill.
J. J. Gartshore.....Toronto.
F. H. Hopkins & Co...'.....Montreal.
Peteler Car Co. .....Minneapolis, Minn.

Rails (for relaying)
F. H. Hopkins & Co...'.....Montreal.
J. J. Gartshore.....Toronto.
Mussens Limited.....Montreal.
Jas. W. Pyke & Co.....Montreal.

Rail Joints
Goldschmidt Thermit Co.....Toronto.
The Rail Joint Co. of Canada....Montreal.

The G. & S. W. Rwy., Albert Harbor Goods Station, Greenock, N.B.
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Railway Supplies
Canadian Fairbanks Co., Ltd.....Montreal.
Franklin Mfg. Co .....Franklin, Pa.
T. McAvity & Sons .....St. John, N.B.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Rice Lewis & Son.....Toronto.
Russel Wheel & Fdry. Co....Detroit, Mich.

Reamers
Butterfield & Co.....Rock Island, Que.
Cleveland Punch & Shear Wks., Cleveland
A. B. Jardine & Co.....Hespeler, Ont.

Replacers, Car and Locomotive
Alexander Car Replacer Mfg. Co..Scranton.
Dominion Equip't & Supply Co., Winnipeg.
The Holden Co., Ltd .....Montreal.
F. H. Hopkins & Co.....Montreal.
W. K. Kenly Co. .....Chicago, Ill.

Rivets, Boiler, Bridge and Structural
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.

Rivet Snaps
Cleveland Punch & Shear Wks., Cleveland

Rock Crushers
Allis-Chalmers-Bullock Ltd.....Montreal.

Rope
F. H. Hopkins & Co.....Montreal.
The Hudson's Bay Company.....

Ropes, Coal Haulage
The B. Greening Wire Co..Hamilton, Ont.

Ropes, Derrick
Dominion Wire Rope Co.....Montreal.
The B. Greening Wire Co..Hamilton, Ont.

Ropes, Switch
The B. Greening Wire Co..Hamilton, Ont.
F. H. Hopkins & Co.....Montreal.

Scales
Canadian Fairbanks Co., Ltd.....Montreal.

Scows, Dump and Deck
M. Beatty & Sons.....Welland, Ont.

Scrapers, Wheel and Drag
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.

Screw Plates
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Screws, Coach and Lag
Montreal Rolling Mills Co.....Montreal
Toronto Bolt and Forging Co.....Toronto.

Seats, Station
James Smart Mfg. Co....Brockville, Ont.

Semaphore Arms
Acton Burrows Limited.....Toronto.

Semaphores
General Railway Signal Co., Rochester, N.Y.
The N. L. Piper Ry. Supply Co..Toronto.
Saxby & Farmer, Ltd. .....Montreal.

Shafting, Hollow
Falls Hollow Staybolt Co..Cuyahoga Falls.

Shears, Angle
Cleveland Punch & Shear Wks., Cleveland

Shears, Bar
Cleveland Punch & Shear Wks., Cleveland

Shears, Plate
Cleveland Punch & Shear Wks., Cleveland

Shingles
J. Harrison & Sons Co..Owen Sound, Ont.

Ships
Polson Iron Works.....Toronto.

Shops
The Hudson's Bay Co.....

Signal House Numbers
Acton Burrows Limited.....Toronto.

Signals
General Railway Signal Co. Rochester, N.Y.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Saxby and Farmer, Limited.....Montreal.

Signals, Fog
International Marine Signal Co....Ottawa.

Signs
Acton Burrows Limited.....Toronto.

Sills, Steel, for Cars
Canadian Ry. Equipment Co., Welland, Ont.

Skidders and Loaders
Russel Wheel & Fdry. Co....Detroit, Mich.

Slack Adjusters
Chicago Railway Equipment Co..Chicago.

Sledges
James Smart Mfg. Co.....Brockville, Ont.

Smoke Jacks
Paul Dickinson, Inc. ..... Chicago, Ill.

Snow Ploughs
Canadian Car & Foundry Co.....Montreal
Crossen Car Mfg. Co.....Cobourg, Ont.

Solder
Tallman Brass & Metal Mfg. Co. Hamilton.

Spikes, Railway, Ship or Pressed
F. H. Hopkins & Co.....Montreal.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Toronto Bolt and Forging Co.....Toronto.

Spreader Cars
F. H. Hopkins & Co.....Montreal.

Spring Dampeners
McCord & Co.....Chicago, Ill.

Springs
American Vanadium Co.....Pittsburg, Pa.
B. J. Coghlin & Co.....Montreal.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works.....Montreal.
Standard Steel Works Co..Philadelphia, Pa.

Stand Pipes
T. McAvity & Sons .....St. John, N.B.

Sprinklers, Electric
Preston Car & Coach Co. .. Preston, Ont.

Station Name Signs
Acton Burrows Limited.....Toronto.

Staybolt Bars, Charcoal Iron
Falls Hollow Staybolt Co..Cuyahoga Falls.

Staybolt Iron
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Taylor & Arnold.....Montreal.

Staybolt Iron or Steel Bars, Hollow
Falls Hollow Staybolt Co., Cuyahoga Falls.

Staybolts, Flexible
Flannery Bolt Co.....Pittsburg, Pa.

Staybolts, Locomotive
Falls Hollow Staybolt Co..Cuyahoga Falls.
Flannery Bolt Co.....Pittsburg, Pa.

Staybolt Taps
Butterfield & Co.....Rock Island, Que.
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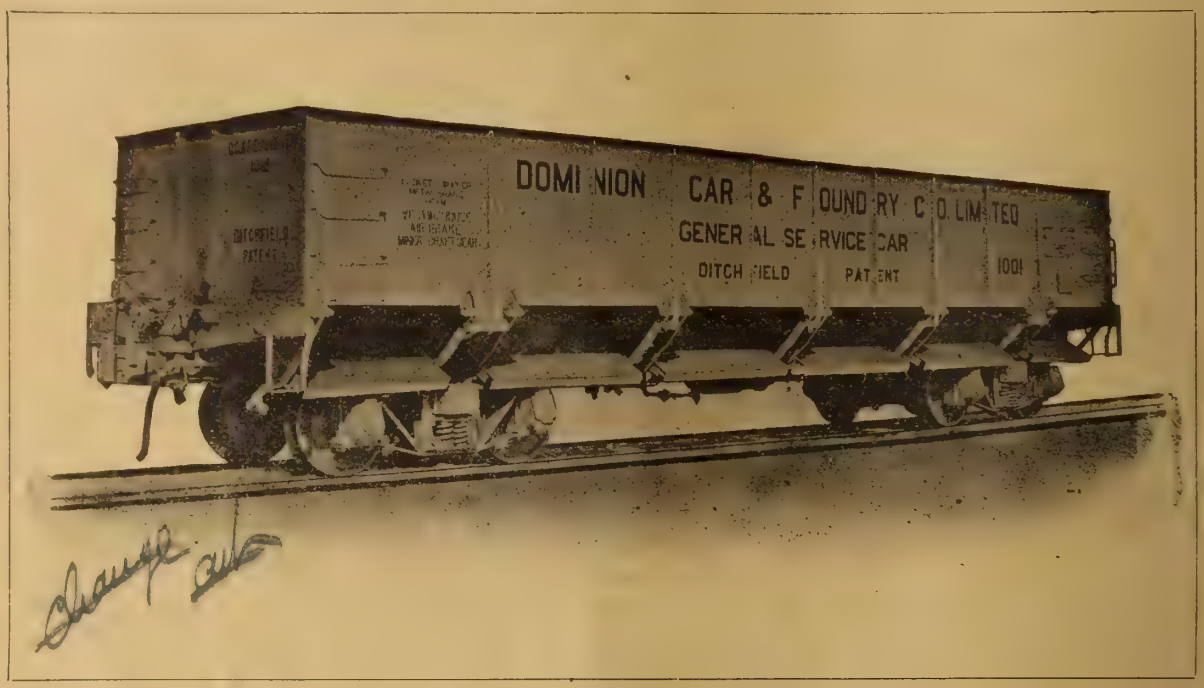

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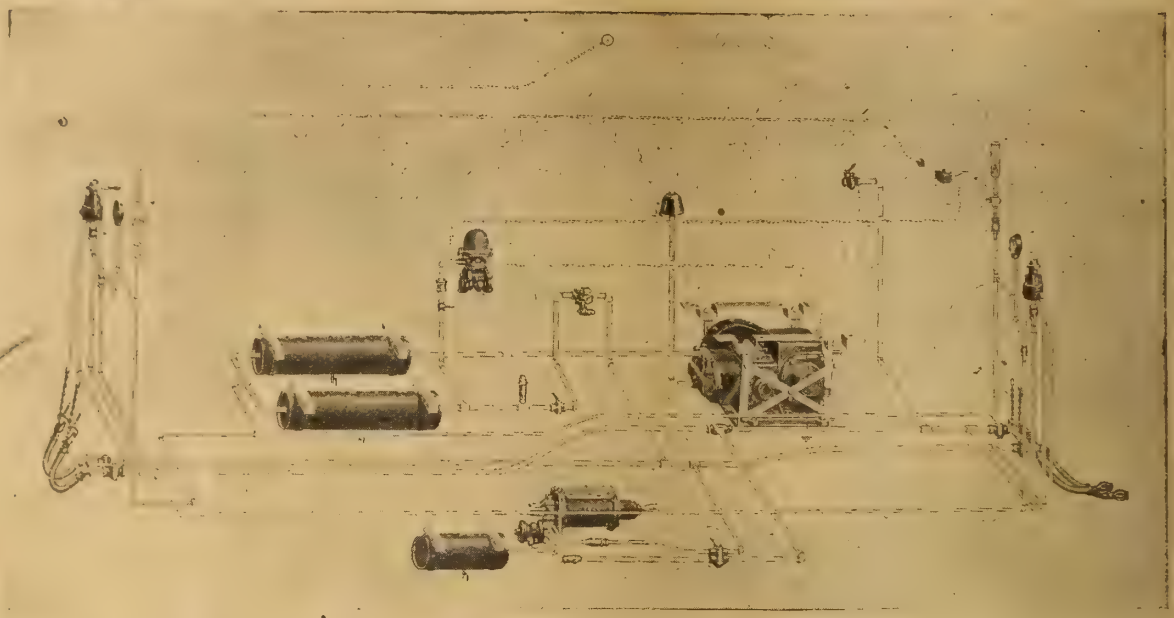

The diagramatical illustration graphically shows the small number of parts and simplicity of the equipment.

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Old Series, No. 230.
New Series, No 148.

TORONTO, CANADA, JUNE, 1910.

For Subscription Rates, See page 469.

Present Status and Tendencies of Railway Electrification.

By F. Darlington.

In the opening paragraph of a paper on railway electrification, recently read before the Engineering Society of Columbia University, L. R. Pomeroy wrote: "From a physical and mechanical view point, electric traction can meet all of the demands and requirements of railway service" and he added, "Whether electricity will replace steam traction or not, is entirely a commercial problem."

These two statements exactly describe the present situation regarding railway electrification. Electric power is capable of doing all of the work of railways. Will it pay to adopt it? We all appreciate that there can be no complete and comprehensive answer to this question at present; although during the recent period of financial depression, when no large improvements and extensions were undertaken by railways, splendid progress was made in the development of electric railway appliances, so that in many places where the application of electric power to railways would have been unprofitable a few years ago, it will now show a profit because of these improvements.

With the return of prosperity when business increases we have a right to expect that these improvements which have been both in the direction of reducing the cost of construction, and of increasing the power and efficiency of electric railway apparatus, will lead to new and extended applications of electric power to railways. Meanwhile independent interurban electric roads have grown extensively in the same territory with steam roads and often parallel to them, where the logical and economical course would have been for the steam railways to extend and increase their facilities and use electric power where it was advantageous. But electric motive power apparatus as it was first developed and used by trolley roads was not advantageous for steam railway work. It was excellent for single car operation, as is proven by its success, but it was too costly to install and was too inefficient for operating heavy railway trains. For steam railways to have adopted it under such circumstances would have meant electrical equipment for light local work only, while steam locomotives would have remained in use for heavy work, but today economical and efficient electrical apparatus is available for all railway requirements.

Improvements in the power and efficiency of electric railway appliances are making electric roads more and more on a par with steam roads for heavy transportation business, and it is more true every day that the best economy in any locality can be secured by a single line of railways rather than by separating the work and management. The separation of railways therefore into two classes, steam and electric, according to the kind of motive power they use, will soon become impossible, because modern electric railway apparatus is suitable for heavy as well as for

P204 J. E. Quick
General Baggage Agent Grand Trunk Ry. and Grand Trunk Pacific Railway.

light work and the advantages of combined management and operation of heavy railways and interurban roads, will be secured by utilizing improved electrical appliances for heavy traffic as well as for light traffic, and by combining both classes of work on one system and under one management. To whatever extent the conditions have been improved by the development of more economical and effective electric railway apparatus, to just that extent is the tendency of present times towards electrification of steam railways, since in the long run electrification will be carried as far as it will pay.

A short review of the various old and new electric railway systems comparing their first cost and efficiency will indicate the probable future course of electric railroads better than any opinion of mine would do. The first use of electric motors on railways was on city street cars where electric power replaced horses. The motors were of small size and the total power used per car was in the neighborhood of 15 h.p. and the motors were necessarily all of the direct current type, because in the early days of electric traction alternating current motors had not been developed. As a result of improvements in electric motive power appliances, street car lines were extended and the weight of their cars and the power of their motors were so increased that they became profitable for long runs, and interurban trolley roads resulted. At the same time direct current electric locomotives were developed chiefly for use where smoke from steam locomotives was objectionable, and, direct current motors have been improved and increased in power and are now thoroughly reliable for all classes of railway operation.

Complete direct current railway electrifications include an electric power generating plant, and trolleys or third rails and sub-stations, etc., for transmitting and distributing the electric power from the generating plant to moving trains, and motive power apparatus on the trains for converting the electric power into mechanical power for train propulsion. Improvements in the power and efficiency of electric generating plants kept pace with the advancement in direct current motor construction, and the apparatus for conducting electric power from the power house and distributing it by direct currents to moving trains was also improved.

The introduction of the so-called commutating poles or inter-poles is the most valuable improvement that was made in the last few years in direct current railway apparatus, because it enables the use of higher voltages on the motors and consequently on direct current distribution systems than were formerly possible; but with all that has been done to improve direct current appliances the minimum cost of direct current railway electrification prevents the general substitution of electric power for steam when large units of power are used per train and it does not seem possible with direct current apparatus to further materially reduce the cost of electric equipment. With the increasing power of electric trains third rails were substituted for overhead trolley wires and were increased in size and weight and supplemented by copper feeder cables, and protected by insulated covers, and the capacity of sub-

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stations was increased until appliances for the transmission and distribution of electric power by direct currents has become so costly that extensive use of direct current electric motive power for heavy railway service is unprofitable. Furthermore, sub-stations for changing high tension alternating current to direct current require a high labor cost for their operation.

Large powers can be more cheaply transmitted and distributed with alternating currents than with direct currents and this early led to a general effort among engineers to substitute alternating currents for direct currents for train propulsion and these efforts were effectively seconded by the practical development of two types of alternating current motors which you all know as single phase and three phase motors. Single phase motors are operated on single phase alternating current which requires two conductors for its transmission. In the case of electric railways, the conductors for distributing current to trains, consist of one overhead trolley wire and the track. Three conductors are required for three phase alternating current so that three phase electric railways require two separately insulated trolley wires in combination with the track.

Complete systems for the transmission and distribution of electric power from the power house to moving trains are much more simple with alternating current than with direct, since where alternating current motors are used on the trains it is not necessary to change from alternating to direct current, and also alternating current is readily transformed on the trains from high potential used on the trolleys to low potential used on the motors. Furthermore, three phase motors can be worked with fairly high potential alternating current so that on many three phase roads the current from the trolley wires is not even transformed to low potential for the motors. To complete the comparison of the direct current and alternating current distribution systems used in railway work, it must be remembered that under the conditions met with in railroading the efficiency of power distribution by direct current systems is very inferior to the efficiency with alternating current systems. In existing direct current installations between 25 and 50% of the power generated is lost in transmission from the power house and distribution to the trains, and with direct current systems 35% is probably about the average loss, while with single phase alternating current transmission and distribution the average loss under similar service conditions would ordinarily be about one-third as great. Three phase transmission and distribution is not so efficient as single phase but would ordinarily be far more so than direct current.

There is some difference in the cost of the locomotives employed in the different electric railway systems and it is generally in favor of direct current and three phase locomotives as compared with single phase locomotives, but for ordinary steam railway train weights and distances and density of traffic this difference in the cost of locomotives is several times offset by the difference in the cost of the electric power transmission and distribution apparatus, especially in the case of direct current distribution, even though at the present time direct current locomotives usually cost between 25 and 35% less than single phase locomotives for the same service. This difference in cost will be somewhat reduced as experience in single phase manufacture increases. Generally the electric power taken from the trolley by single phase locomotives is from 0 to 6% more than the power taken from the trolley or third rail by direct current or three phase locomotives doing the same work, but there are some conditions under which single phase locomotives take less electric power than direct current or three phase locomotives because the control apparatus for single phase motors is more efficient than direct current and three phase motor control. But in any event the superior efficiency of power transmission and distribution by single phase currents several times more than offsets the slightly superior efficiency of direct current motors, especially where power is used in large units for moving heavy trains as on ordinary steam railroads.

More Practical Testimony.

James Oborne, General Superintendent Ontario Division, Canadian Pacific Ry., has had a varied experience in railway work. Starting in 1861 with the G.T.R. in Montreal, as an office boy he became chief clerk to the Works Manager. He entered the C.P.R. service and served as chief clerk to Mechanical Superintendent, and chief clerk to Vice President. Then he became Car Accountant, Superintendent Car Service, in charge of fuel department, Assistant to the President; and then General Superintendent, first at Winnipeg, then at St. John, N.B., and afterwards at Toronto. He has thus had a most valuable experience in the mechanical, operating, maintenance and executive departments and is noted for his thoroughness in the work of every position he has filled. As the chief officer of one of the most important and busiest grand divisions of the C.P.R., he has little spare time but he makes a practice of reading the Railway and Marine World, to which he has been a subscriber from its inception. What he thinks of it is stated in the following letter:—

Canadian Pacific Railway Co.
General Superintendent's Office.
Toronto, March 21, 1910.

Dear Mr. Burrows.—I read the Railway & Marine World with a great deal of interest and profit. Its general make up, its newsy and reliable information, and its completeness of detail make it one of the leading railway periodicals on the continent. It is always most favorably commented on by railway officials and other subscribers.

Yours sincerely,
JAMES OBORNE.

The approval which our efforts to provide a first class transportation periodical have met with is most encouraging, and it is gratifying to be able to show that it is thoroughly read, a fact which advertisers should not overlook. Our circulation, covering every province in the Dominion and also Newfoundland, has been secured, not by spectacular circulation methods, but by systematic canvassing, and by a large percentage of unsolicited subscriptions. During the past twelve months it has increased more than during any previous year. One of the most satisfactory features of our subscription list is the fact that only an infinitesimal percentage of subscribers fail to renew from year to year, and every month shows a gratifying list of additional names.

Estimates recently prepared for the electrification of about 100 miles of single track railroad with about 25 miles of side tracks and with heavy grades to be climbed and very heavy and frequent trains to be handled, show the total cost of direct current transmission and distribution apparatus including sub-stations, $2,381,000.00 and for single phase alternating current with transformer stations $1,011,000.00. This was figured for 1,500 volts on a third rail for direct current and 11,000 volts on an overhead trolley for single phase current. The difference in cost of the two power distribution systems is $1,370,000.00. However, the single phase locomotives for the same railway would be more costly than direct locomotives by about $374,500, but this amount is only about one-quarter of the difference in the cost of the transmission and distribution appliances. Seven direct current sub-stations were required in the distribution system for the direct current equipment, and the attendance on these stations would cost between $15,000 and $20,000 a year, against which the attendance on the single phase transformer stations would be practically nothing.

All of this detail regarding electric power transmission and distribution for the various electric railway systems may seem unnecessary in view of the general knowledge of the subject, but it has a most important bearing on electric railways because it is in this work, that is, in the transmission and distribution of electric power that the greatest expense and difficulty has been encountered. Cheapening the cost and improving the efficiency of electric equipment for the operation of railways moving heavy trains over long distances is the most important result accomplished by alternating current railway apparatus. It is for moving heavy trains long distances that the superiority of alternating current apparatus is most pronounced and it is in this class of work, which includes the work of the majority of steam railways, that we must anticipate the greatest future advancement in electric railroading due to changed conditions.

As already stated, the last two or three years have not been favorable for heavy railway improvements, so the possibilities of alternating current machinery on railways have not been generally realized by practical application, although the reduction in construction cost, and the improvement and efficiency of electric railway appliances, especially for heavy motive power work fully justifies the expectation that in the future electric power will be applied to much work now being done with steam power, and to the hope that electric and steam railways will eventually be united in doing a common business, and that the advantages of a single railway and single organization for serving any given territory will be realized by extending the application of electric power to steam railways for all kinds of service both freight and passenger whenever electricity is profitable for any class of work.

The foregoing paper was read before the Central Railway Club in Buffalo, N.Y., recently.

The International Railway Fuel Association's second annual meeting was held May 23 to 26, at Chicago, Ill. A number of papers and subjects were read and discussed, those on the methods of supervision, instruction and encouragement in locomotive operation to secure the greatest efficiency in fuel consumption, being in charge of a committee, of which D. Meadows, Assistant Division Master Mechanic M.C.R., St. Thomas, Ont., is chairman.

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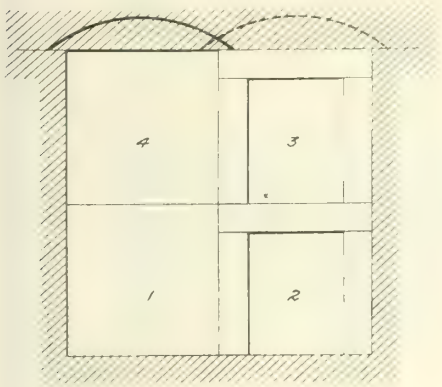
The method pursued in the construction of the Michigan Central Rd.'s tunnel under the Detroit River between Windsor, Ont., and Detroit, Mich., is the novel one of constructing tubes in the form of steel shells; sinking them into a trench dug in the bottom of the river; uniting them end to end; embedding them in a concrete casing and finally giving them a concrete lining. No compressed air was used in the subaqueous portion of the work except for the divers by whom the bolts, fastening the ends of the tube sections together, were placed.

In considering this plan it must not be confused with that of sinking independent caissons that were joined end to end, as in the case of the Metropolitan Ry. under the Seine at Paris. There the regular caisson method of sinking was followed, using compressed air in the usual manner. The caissons were independent sections to be sure and were afterwards joined together to form the tunnel. The Detroit tunnel, on the other hand, was formed by excavating a ditch across the bed of the river, setting a core in it and filling around with concrete, no caisson work being done at all.

The evolution of the idea is interesting and direct. The water in the river is 50 ft. deep in places and it was the natural desire of the engineers to keep as high as possible so as to avoid long or heavy approach grades; and so, when studying the situation, regrets were expressed that the bottom was not of rock so that the minimum of cover could be used. This suggested the excavation of a trench and filling it with an artificial rock (concrete) and then tunneling through that. But why tunnel? Why not sink a core and form the concrete around it? That was the birth of the idea and the completed tunnel is the result.



Order of excavation for centre wall of approach tunnel.

The scheme, simple as it appears in outline, was novel and daring in the magnitude of the undertaking and the depths of water to be encountered, but the results have fully justified it, for the completed work is dry and considered by its engineers to be one of the strongest subaqueous tunnels in existence. While the general scheme was one of simplicity itself, it is evident to anyone versed in such matters that, in its execution for the first time, problems of novel character would be constantly arising, the solution of which would tax the resourcefulness of the engineers to the utmost in order to reach a successful consummation. These problems cropped up from the very start. They began by presenting unexpected difficulties in the excavation of the trench in the bottom of the river in which the tubes were to be laid. The greatest depth of water at the point of crossing is about 50 ft. and the excavation was carried some 22 or 23 ft. below this, or 74 ft. from the surface. A bucket dredge was equipped to work to 40 ft. and did excellent work, taking out 1,500 cu. yds. per day. It was the intention to let this dredge lead and follow with a clamshell for the balance, but when the latter was set to work it was found to be unsuited to the task and that, at the rate which it could dig, the time required would be so long as to place it outside the pale of consideration. The first step, then, was to reconstruct the bucket dredge and adapt it for working to depths of 60 ft. But, although braces and strengthenings were added, breakages occurred to such an extent that the idea had to be abandoned. This was especially caused by the breakage of the spuds and the great expense attending the same. The solution was found in the designing of a special clamshell capable of removing 700 cu. yds. per day of 12 hours on an average with a maximum output of 1,200 cu. yds.

The material to be removed from the river bed and from the approach tunnels was a stiff blue clay, and the total net quantity was about 700,000 cu. yds. The method of removal were dredging from the river bottom and tunneling both with and without a shield in the approaches. It was thought at first that the drifts could be driven without using compressed air and some of the work was done in that manner for the centre wall. A drift was first carried forward for one of the lower quarters and that section of wall built, then the next lower quarter was removed, after which the two upper quarters in succession. A part of this, as already stated, could be done without air, but for much of the work air under pressure of from 10 to 20 lbs. or even more was required.

One of the points brought out in this work was the action of this stiff clay in its production of pressures. Stated in a general way, it was found that these pressures closely followed what would have been produced by a liquid having the specific gravity of the clay. With the depth of cover beneath which the workings were carried this created an enormous pressure; a pressure which, it was found, followed the law of liquids and increased to the bottom. Taking this broadly some of the physical difficulties of the work may be appreciated.

Surface indications of the flow of this material were followed closely and some interesting manifestations and conclusions therefrom were obtained. For example, the present M.C.R. line approaches the river through a cut, and the tunnel line passes beneath it on a slightly divergent line. At one point the centre of one of the tunnels is directly beneath one of the main tracks, while the other is beneath the slope of the cut on one side. The increased weight due to the height of the bank above the track caused it to settle very noticeably, but to a varying degree to a vanishing point out on one side, while there was no settling at all of the track on the lower level. In fact, it was not resurfaced during the whole of the work. It seemed as though the settling of the bank had raised the track enough to compensate for its own settling and held it to grade.

That this is so appears to have been proven by the behavior of a bank upon which a four-story brick building was standing and near which the tunnel passed. The conditions were identical with those previously cited, as the bank on which the building stood was one side of a cut. Adjacent to the brick building was a low shed of no great value. When the tunnel was carried beneath the shed the bank settled about 6 in. Before driving the heading along the building a pile of gravel whose weight was nearly equal to that of the bank was heaped upon the tracks immediately over the line of the tunnel. This load confined settlement to a small area, caused the breaking away of the section loaded from that underlying the building and checked the flow of the material, with the result that the maximum settling of the building was less than ½ in. and no cracks were formed in the walls. After the tunnel had been completed the gravel was removed.

So, in the excavation for the centre wall. The work was done in the order indicated on the diagram. After the two lower quarters had been removed and the wall built one of the upper quarters was taken out and timbered. The work was heavily done and stood all right until the other quarter was removed,

Sketch of longitudinal section, showing partial diaphragms used in sinking tubes.

when the timbering was crushed by the pressure. The suggested explanation of what happened is shown by the illustration. When the timbering was put in, the clay arched over and the two ends rested as indicated by the full line on the remaining quarter and the side. But, when the fourth quarter was removed, the arching took the form indicated by the dotted line, so greatly increasing the load on the timbering that it was crushed.

A final instance of this earth pressure may be cited as shown by the behavior of the timbering in the shafts. When they were first put down they were timbered far more heavily than the contractors considered to be necessary; but, as the work proceeded, even this proved to be insufficient and had to be increased. No measurements of the pressures actually obtaining were made, so that the work leaves no record other than that of the experience. But this is of such a character as to demonstrate that the usual formulas for earthwork pressures were sadly awry in this instance.

In carrying out the excavation on the land sections to the union with the subaqueous portion two distinct methods were employed. On the Detroit side of the river a shaft was sunk at a distance back from the shore, from which the land end of the approach was driven. Outside of this a heavy coffer-dam was built and the excavations carried in the open back to the shaft. The dam was formed of 8 by 16 in. piling, built to tongue and groove and filled in with clay between walls. At the Windsor end, the tunnel was carried out to the point of union with the subaqueous section, and then the trench excavated up to the

Reinforcement at tube joints.

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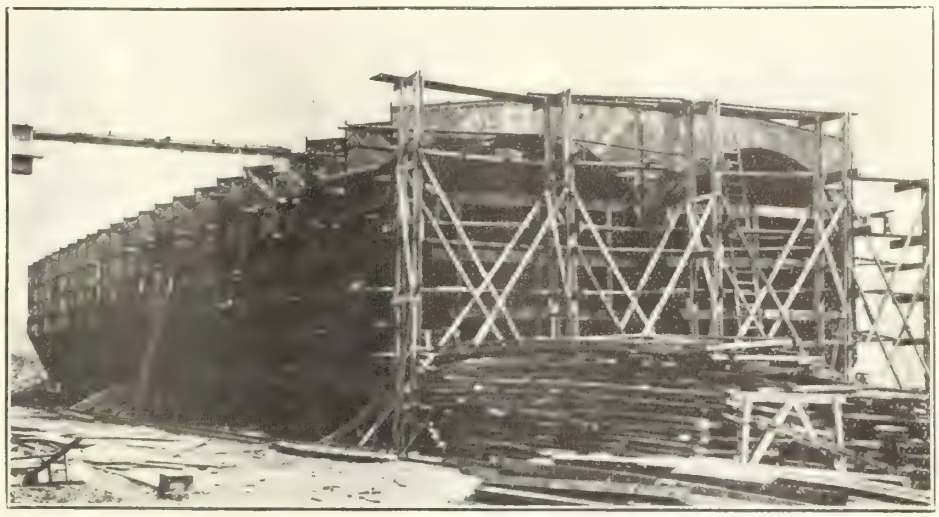
face of the work, and the tubular section attached when sunk.

In all of the approach tunnel work there was nothing novel in the methods of procedure. The work was along lines that had been tried before, and was subject only to such changes as local conditions set up; so that, aside from the special problems that had to be solved it is about the subaqueous section that the real interest centres. The details of these sections had, of course, to be carefully worked out and all conditions were provided for as far as possible. They were designed to be built on the shore, launched like a ship and towed to their location. According to this plan they were built upon the regular ways in the regular manner. The method of launching on the great lakes differs from that of the coast. It is customary to launch ocean-going ships stern foremost, but all lake vessels are launched sideways or broadside on, for good and sufficient constructional reasons. Hence these tubes were built parallel to the shore and launched in the usual manner. With the sheathing up the sides, as shown in the photograph, they offered a much greater resistance to the movement of the whole into and through the water than a ship with its partially rounded hull and greater buoyancy. It was because of this and especially because of the latter deficiency that trouble was experienced, by sticking on the ways and not getting into the water. This trouble was overcome by carrying the sheathing back beneath the tube in the form of a flooring for a distance of 15 ft. from the outer edge, as indicated on the engraving. With this flooring an air space was formed at the outer edge and the buoyancy correspondingly increased. This not only decreased the angle at which the tubes left the ways, but the increased buoyancy lifted them out of the water and so brought about a material lessening of the resistance to movement through the water. It was a matter of no moment whatever, whether this flooring was water-tight at the joints or no, for the movement was so rapid that, under the worst of conditions, sufficient water could not leak in to do any harm either by lowering the buoyancy or increasing the resistance to the motion. Before this precaution was taken some of the tubes were slightly damaged in the launching and had to be sent to drydock. Afterwards there was no trouble whatever.

After the tubes had been launched they were towed about 50 miles down the river to location and there sunk. In the towing there were no difficulties encountered other than those that would naturally arise in the handling of so large and unwieldly a vessel. The sinking, too, was easily accomplished, though it involved the exercise of great care and skill. In this the river currents played an important part.

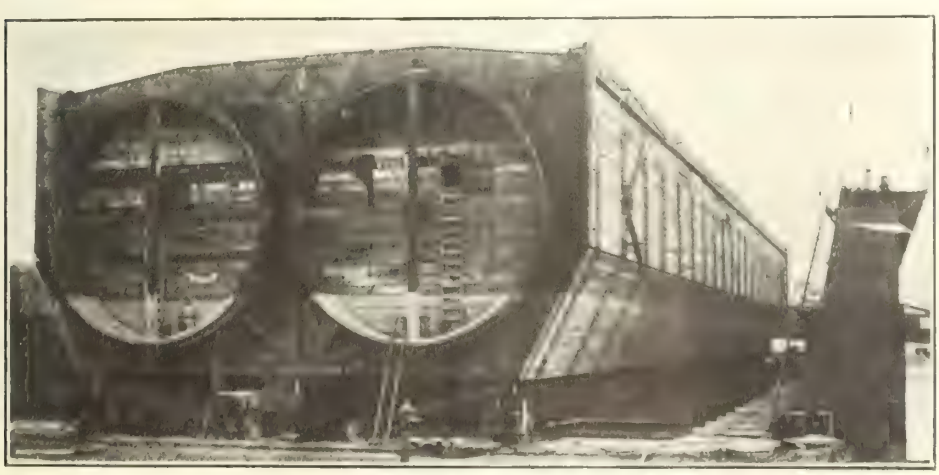


Tubes on ways before sheathing.

It has been found that, in all streams, where accurate current measurements have been made, that the greatest velocity is not at the surface, but a short distance below it, showing that the resistance of the air and the wind sets up a frictional opposition to the flow that modifies it. This was found to be true in a general way in the Detroit River. The current velocities varied from point to point, according to the distances from the bottom and the shore, as well as according to the direction and strength of the wind. The figures given, herewith, can, therefore, only be regarded as approximations. The average surface velocity may be taken at 2.3 ft. per second, increasing to about 2.33 ft. a short distance below the surface and then gradually decreasing to about 1.61 ft. per second at the bottom. It was in this current then of approximately two miles an hour that the tubes had to be sunk. They had to be sunk to a true vertical and horizontal bearing. Their alignment with each other must be exact, and they had to be held accurately in position during the whole process of lowering. No definite measurements were taken of the strain on the holding cables imposed by the current impinging against the exposed sides of the tubes. They were located broadside to the current and the upstream side measured 260 ft. by 29 ft. As velocities of 3.4 ft. per second were observed, this will be taken as the maximum which, if distributed evenly over the whole surface, would produce a pressure of 62,275 lbs., which, with the swaying of the tubes, might well run the load up to from 35 to even 40 tons. As the tubes approached the bottom, the load decreased until at the low velocity of 1.17 ft. per second found in some places it fell to about 7,775 lbs. With these stresses to be carried it is evident that a firm holding was necessary. The ordinary heavy ship anchors were found to be quite inadequate. They were dragged along the bottom by the pull and had to be abandoned. In their place, slabs of concrete from 10 ft. to 12 ft. square and 18 in. thick were formed, fixed in the bottom of the river, and the anchor lines built into them. An ordinary snatch block in these lines with winch engines on anchored and stayed scows was found to be sufficient to hold the tubes in place.

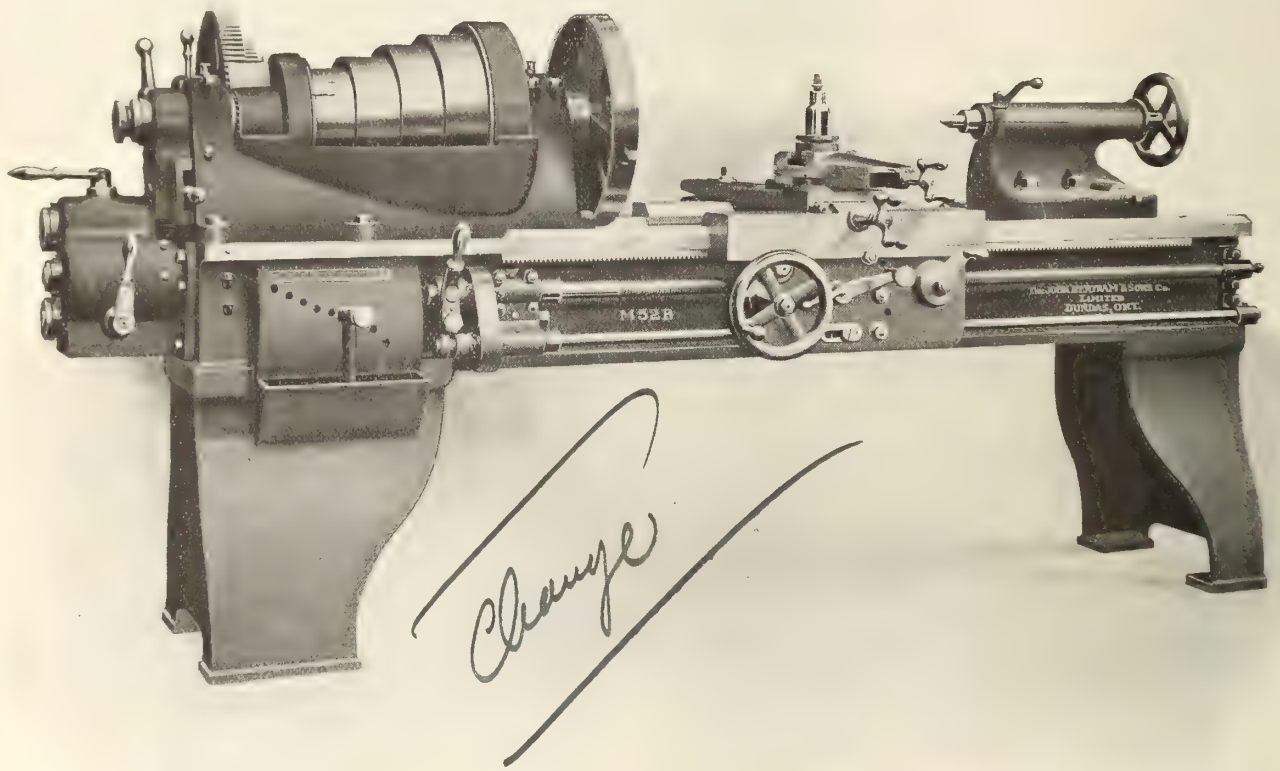
Before starting to sink the tubes grillages were sunk into the trench, and spaced so as to form a bearing and support for the adjacent ends of the tubes. These grillages were formed of 12-in. beams, and were carried on spuds or spurs that were driven into the bottom. They were lowered into place and then tapped with a pile driver until they were slightly below the level that the bottom of the tubes was to occupy.

These preparations made, everything was in readiness for the sinking of the tubes. For floating down the river bulkheads had been built into each end, and every alternate tube was fitted with pressure bulkheads capable of sustaining the pressure due to the head of water. They were towed to location and valves in the two ends were opened and water admitted. As they filled the water naturally accumulated at one end more than at the other and that end settled the faster. The tubes were prevented from up-ending by semi-bulkheads built down from the tops of the tubes into the interior, as indicated on the sketch. Then, as the tubes tilted air pockets were formed in the lower ends, adding to the buoyancy at that point and maintaining an equilibrium. Independent air cylinders were placed on top, so as to keep the whole system on the surface when the tubes had been entirely filled. The balance was very even and the whole was so slightly lighter than the water that it would have floated with only these auxiliary air cylinders just above the surface. The second sinking was



Tubes in dry dock.

BERTRAM ENGINE LATHES



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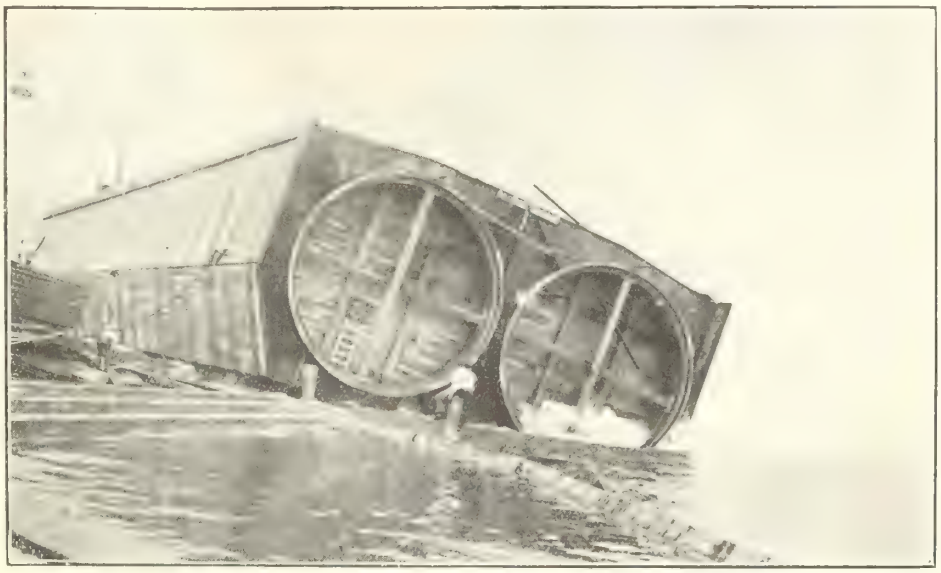
done by lowering a grillage of beams or counterweights down on top of the tubes by means of a floating derrick. As the supporting ropes for this were eased off the weight depressed the tubes, and as they were tautened they came up. The weight so supported was about seven tons, so that by carrying a portion of this seven tons on the hoisting ropes, the whole 550 tons in water or 975 tons in air of tubes were fully controlled. The leveling and alignment of the tubes was done by means of masts rising above the surface and by transits and levels on the shore.

As already stated, the supporting grillage at the bottom was driven down to a level slightly below that of the bottom of the tubes. When the latter were lowered to place, a diver was sent down, who placed wedges on the grillage, by which a proper footing for the tubes was formed. The latter were supported at or near the ends only, and so accurate was the leveling of this whole piece of work done that there was no perceptible variation from true from one end of the tunnel to the other.

The alignment was, if anything, an even simpler matter than the leveling. Four heavy projecting pins were fastened into one end of the tubes. At the other end corresponding holes were formed. Then a line was led out from the tube already down and into the one being sunk. As the tube went down this line was overhauled, drawing the tubes together, until the pins on one entered the dowel holes on the other, when the two were drawn forcibly together. This set one end of the new tube in true and perfect alignment, and it was merely necessary to shift the easily-handled outer end of the fresh one into line and the work was done. A curious incident, illustrative of the ease and at the same time the difficulty with which these tubes were adjusted occurred in connection with the sinking of the first one at the Detroit end. It had been brought to a firm abutment with the approach, at the shore end, but the outer end had swung nearly 2 ft. out of line. Tugs were attached and every effort made to drag it along the grillage into place, but to no avail. The next morning the steamboat from Cleveland came up the river at full speed without slowing down and raised such a swell that the tube was lifted from the grillage and, strange to relate, was dropped in exactly true alignment, so that it did not have to be moved, adding another to the unexpected freaks of inanimate things.



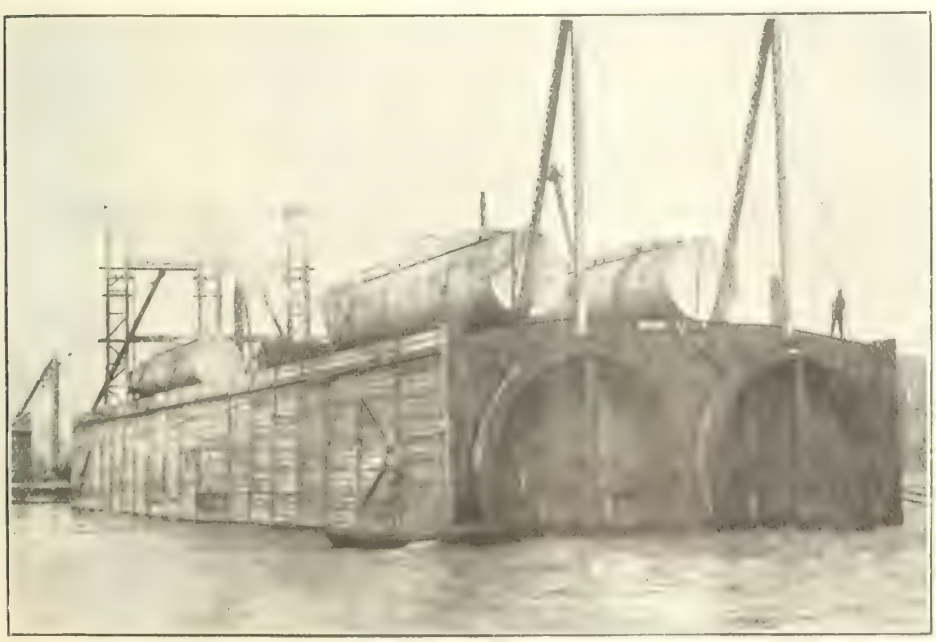
Launching the tubes.

With the tubes down, the first step was to place the connecting bolts through the flanges, and this was done by divers, and involved the only use of compressed air in the subaqueous section. This was easy and quick work, although the men were working in deep water. With the tubes down and bolted, it was necessary to imbed them in their shell of concrete before removing the water for the inside lining. The tubes were carried on the grillage at the ends only; they were clear of the bottom of the trench throughout the central portion, and there was a clear space below them at the grillage at the ends. The concrete was deposited through a long chute from a tremie scow. As a matter of fact, the pressure of the superincumbent water was such that the concrete was very well compacted, and cores taken at a distance from the point of delivery showed that it was fully as dense and strong as that formed in the air, while in the immediate vicinity of the delivery chute, where it was subjected to the direct head of the mixture reaching to above the surface of the water, it was exceedingly hard and was some 50% stronger than the air-formed concrete. Owing to the depth of water and the improbability of interfering with navigation, coupled to the desirability of keeping the approach grades down as low as possible, the top of the tunnel is in some places above the natural bottom of the river. It is protected at such points by rip-rap, so that no anchor grappling it could possibly do any damage.

The forming of the concrete about the tunnels was controlled by the tremie scows above. In the first place a concrete floor of 1-4-7½ mixture was spread beneath the tubes. The excavation had sloping sides and the bottom was readily accessible. The floor A was thus formed up to the bottom of the tubes This firmly supported the tubes from end to end. Three tremies were then set to work to fill in and build up the concrete around the steel tubes. The sheathing at the sides served as the outer forms and the steel tubes as the core. One chute came down just inside the sheathing and one between the tubes, or at the points B, C and D. The concrete was sent down very wet so that it would flow and find its own level, and the chutes were raised as the space filled up. This formed a block of concrete of practically rectangular section with the two tubes running through it. The space between the sheathing and the slope of the banks was then refilled with clay, so that the tunnel stands embedded in the bottom.

With the concrete laid there was, thus, a column of concrete laid out into the river, abutting against the approach walls and capable of withstanding any end thrust to which it might be subjected. It was lined by the steel tubes and cut up into compartments by the diaphragms in the latter. Then, as the work advanced, a section of the tubing would be freed from water, the temporary bulkheads cut away and the workmen would advance into it and put up the inner lining, or tunnel proper, working in the usual manner with wooden forms and without using any compressed air. When the internal lining was placed a concrete mixing plant was erected on the shore at the head of the shaft, and the concrete sent down through a chute to cars on a temporary track in the tunnel. These cars were then hauled out to the point where the work was in progress. The mixture used was a 1-2-4 and was formed of Portland cement with sand and fine gravel. The leveling of the tunnel was true, while the alignment was out but a fraction of an inch. The last tube dropped into place with exactly the calculated clearance between its end and the Windsor approach walls, which was about 18 in.

As it stands the tunnel is 1,570 ft.



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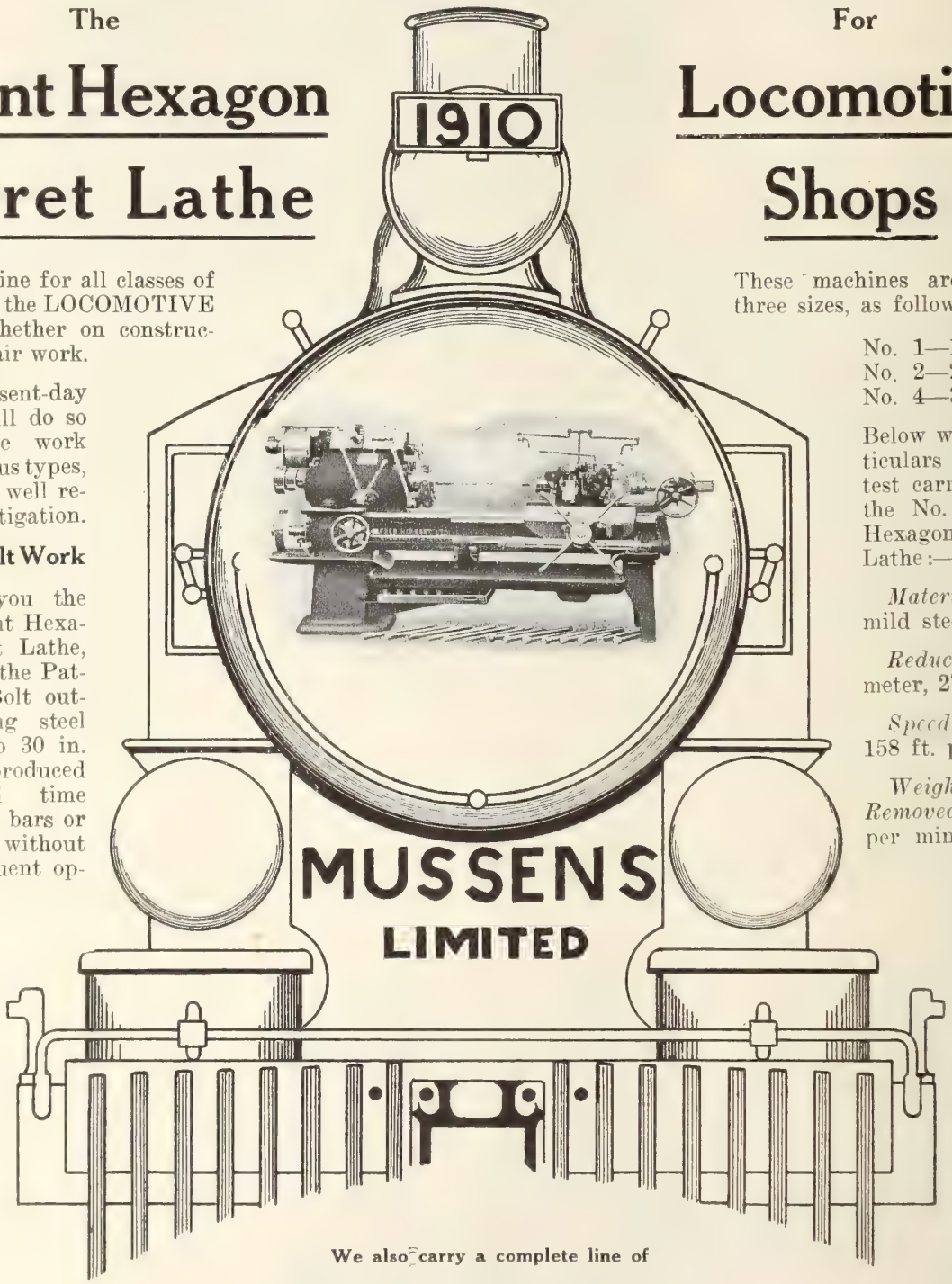

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The steel tubes have served as a waterproofing and are tight. In the approach tunnels the minor leakages are drying of themselves, and in but one or two places will any attention be needed from the contractors. The novel method is, therefore, a success, and a similar plan is being used for one of the tunnels under the Chicago river, where a single section will be sunk. Its success, too, is not limited to its engineering features, but touches the financial side of the question, for not only has the cost been more than $2,000,000 less to the railway company than any other type of construction would have been, but it has been a profitable undertaking to the contractors. In finish the section is one of the largest, if not the largest, subaqueous tunnels in existence. The conduit bench is large, roomy and with ample headroom. There is one upon each side and access is obtained by ladders set staggering at 50 ft. intervals, so that the trackmen have an opportunity to seek refuge every 25 ft.

The track construction is permanent and has been tested in service and under observation for more than two years in the open and has been found to be satisfactory in every particular. It is formed by embedding short wooden ties measuring 36 by 11 by 8 in. in the concrete flooring and spiking the rails to them with the intervention of tie plates. The rail used will be of 100-lb. section.

Outside on the Detroit approach the value of the ground is such that the natural slope could not be used, so that vertical concrete retaining walls are resorted to. But in Windsor the work in the approach cut resembles more the finished product of an old and prosperous road than what we are accustomed, in this country, to associate with a newly constructed line. The tendency of the clay to flow and the probability of trouble with a natural bank led to a complete drainage of the slopes. Drains are carried up at right angles to the track, and the whole slope has been sodded; then, at the bottom, there are the tile drains to carry off the water so that no trouble is anticipated, and when the tunnel is opened to the public it will present the finished appearance, in whole and in detail, of an old and well-established line.

In the preparation of this article great assistance was rendered by W. J. Wilgus, the advisory engineer; W. S. Kinnear, the chief engineer, and B. Douglas, the tunnel engineer, by whom the facts and data were contributed. All unite, however, in laying the burden of the credit for the successful completion of the work upon the shoulders of W. Butler, of the Butler Bros. Construction Co., who were the contractors. As the contract was let, the work became a mutual affair. Instead of offering plans for a hard and fast design upon which bids were to be made and in accordance with which the work was to be done, four alternative plans were presented for competition. The contractors were asked to choose the one from among them that they preferred, or to bid on any other plan of their own; the condition only being that a strong watertight tunnel should be delivered to the tunnel company. The Butler Co. chose the one that has been used, and after having made their selection and submitted plans that were approved they were given a free hand to work out the details as they pleased. On them devolved the detail of the construction of the tubes, their sinking into position, the placing of the concrete and the meeting of the thousands of emergencies that were sure to arise, and that did arise with daily and hourly frequency, with all imaginable variations and inconceivable persistency. And it is in the meeting of these unexpected conditions and the resourcefulness shown in overcoming them that the engineers unite in giving the credit to Mr. Butler. —Railway Age Gazette.

Tubes partly sunk.

June Birthdays.

Many happy returns of the day to—

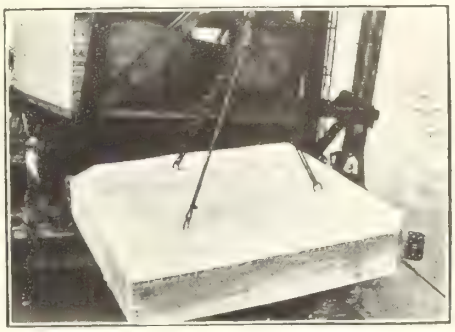
Harry Abbott, ex-General Superintendent C.P.R., Vancouver, B.C., born at Abbotsford, Que., June 14, 1829.

Jas. Anderson, Manager Sandwich, Windsor and Amherstburg Ry., Windsor, Ont., born at Ayr, Ont., June 20, 1851.

W. C. Bowles, General Freight Agent Pacific Division, C.P.R., Vancouver, B.C., born at Montreal, June 3, 1875.

J. H. Boyle, Assistant Superintendent, district 3, Eastern Division, C.P.R., Montreal, born at Waterloo, Que., June 25, 1869.

F. P. Brady, member Government Railways Managing Board and General Superintendent Government Railways, Moncton, N.B., born at Haverhill, N.H., June 22, 1853.



38-ton concrete anchor.

E. Callaghan, Agent Hamilton Steamboat Co., Toronto, born at Kingston, Ont., June 17, 1875.

A. E. Doucet, Division Engineer Transcontinental Ry. Surveys, Quebec, born at Montreal, June 9, 1860.

G. H. Eaton, Assistant Master Car Builder, C.P.R., Western Lines, Winnipeg, born in Staffordshire, Eng., June 9, 1860.

A. A. Goodchild, Auditor of Stores and Mechanical Accounts, C.P.R., Montreal, born at Peckham, London, Eng., June 3, 1866.

H. W. Harding, Local Secretary Canadian Northern Ry., London, Eng., born there June 6, 1869.

F. M. Hawley, city ticket agent G.T.R., Cobourg, Ont., born at Campbellford, Ont., June 22, 1874.

L. R. Johnson, Assistant Superintendent of Motive Power C.P.R. Eastern Lines, Montreal, born at Abingdon, Berks, Eng., June 22, 1855.

L. K. Jones, Secretary Department of Railways and Canals, Ottawa, born at Port Hope, Ont., June 9, 1849.

A. C. Lytle, Assistant Superintendent Orford Branch C.P.R., Eastman, Que., born at Hemmingford, Que., June 6, 1854.

W. R. MacInnes, Freight Traffic Manager C.P.R., Montreal, born at Hamilton, Ont., June 7, 1867.

D. McDonald, Manager Montreal St. Ry., born at St. Thomas de Montmagny, Que., June 17, 1859.

S. J. McLean, Dominion Railway Commissioner, Ottawa, born at Quebec, June 14, 1871.

C. E. McPherson, General Passenger Agent C.P.R., Western Lines, Winnipeg, born at Chatham, Ont., June 7, 1861.

H. J. Maguire, District Baggage Agent, Pacific Division, and B.C. and Pacific Coast Service, C.P.R., Vancouver, B.C., born at Toronto, June 16, 1881.

G. Manson, Assistant to Second Vice President C.P.R., Winnipeg, born at Thurso, Scotland, June 8, 1863.

L. Mulkern, chief clerk General Freight Agent Through Traffic C.P.R., Toronto, born at London, Ont., June 18, 1871.

F. Price, Superintendent Car Service G.T.R., Montreal, born there June 11, 1864.

Allan Purvis, Local Manager B.C. Electric Ry., Fraser Valley Branch, New Westminster, B.C., born at Batavia, Java, June 29, 1864.

D. I. Roberts, General Manager, Quebec, Montreal and Southern Ry., and Napierville Jct. Ry., Montreal, born at Waynesburg, Pa., June 27, 1853.

Jas. Stephenson, ex-Chief Superintendent G.T.R., now of Clevedon, Somerset, Eng., born at Weston Super Mare, Eng. June 2, 1837.

W. Webber, General Agent Passenger Department Atlantic Steamship Service C.P.R., Montreal, born at Liverpool, Eng., June 10, 1872.

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GUARANTEE COST per thousand miles for from one to five years, when conditions warrant it.

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Please write to home office for further particulars.

CHARLES MILLER,

PRESIDENT

A Railway to Hudson Bay.

The Dominion Parliament May 3, voted $500,000 upon construction account for a railway to Hudson Bay. The Minister of Railways, referring to the vote, said the work as proposed will start at Le Pas, on the south side of the river. It is proposed to utilize this vote, or a portion of it, immediately, to ask for tenders for the erection of a bridge across the river at that point. It was intended to do that specific construction at once. It is a little difficult to say what will be the terminus of the line, but whether it be at Nelson or Churchill, the route for the first 160 miles will be the same. The votes passed for the Marine Department provide for sending a steamer round to Hudson Bay by the straits for the purpose of gaining more information in regard to the two ports. From the railway standpoint the route to Nelson would be the shorter, and would afford the easier construction. There is some difference of opinion as to which is the better harbor. The engineer's report that Nelson has the foundation for a safe and larger harbor, while on the other hand, Churchill has a harbor ready made, but not so large. A further sum of $180,000 has also been voted for surveys. (May, pg. 373.)

Recent Dominion Legislation.

The Dominion Parliament at its recent session passed the following acts affecting transportation interests, in addition to those named in our May issue, which were assented to some time prior to the prorogation ceremonies:—

Alberta and British Columbia Ry.—Amending act.

Alberta, Peace River and Eastern Ry.—Incorporation.

Brandon, Saskatchewan and Hudson's Bay Ry.—Extending time for construction.

Buctouche Ry. and Transportation Co.—Respecting company's powers.

Burrard Inlet Tunnel and Bridge Co.—Defining company's powers.

Cables and Telegraphs.—To control rates and facilities of ocean cables, and to amend Railway Act with respect of telegraphs and jurisdiction of Board of Railway Commissioners in regard thereto.

Canadian Northern Alberta Ry.—Incorporation, and providing aid for construction of railway.

Canadian Northern Ontario Ry.—Respecting company's powers.

Canadian Northern Ry.—Extending time for constructing certain branch lines; authorizing construction of additional lines, and otherwise amending powers.

Dry Docks.—To encourage construction of dry docks.

Essex Terminal Ry.—Extending time for construction, etc.

Gatineau and Ungava Ry.—Incorporation.

Government Railways.—(1) Authorizing Government to acquire by lease railways connecting with Government railways; (2) Providing for adjudication of small claims arising in respect to the operation of Government Railways; (3) Amending Government Railways' Act.

Guelph Junction Ry.—Authorizing City of Guelph to acquire interests of stockholders who are alleged to hold shares in trust for the city.

Hamilton, Waterloo and Guelph Ry.—Authorizing extension into Toronto, and extending time for construction.

James Bay and Eastern Ry.—Incorporation.

Kingston, Smiths Falls and Ottawa Ry.—Extending time for construction.

Montreal Harbor Commission.—Providing for further advances by Government for improvements and additional facilities.

Montreal, Kapitachuan and Rupert's Bay Ry.—Incorporation.

Morrisburg Ferry and Dock Co.—Incorporation.

Naval Service.—Respecting Canadian naval service.

Navigable Waters Protection Act.—Amending existing acts.

Nelson River Ry.—Incorporation.

Northern Quebec Colonization Ry.—Incorporation.

Ontario and Ottawa Ry.—Incorporation.

Ottawa and Montreal Transmission Co.—Incorporation.

Ottawa, Rideau Valley and Brockville Ry.—Incorporation.

Prince Albert and Hudson Bay Ry.—Authorizing extension of time for construction, and extension of line.

Railway Act.—Amending provisions.

Rainy River Radial Ry.—Incorporation.

St. John.—Authorizing erection of wharves and buildings in St. John, N.B., harbor.

St. Lawrence Power Transmission Co.—Incorporation.

Subsidies to Railways.—Granting subsidies in aid of construction of certain railways.

Telegraphs Act.—(1) Amending Telegraphs Act; (2) Correcting error in same.

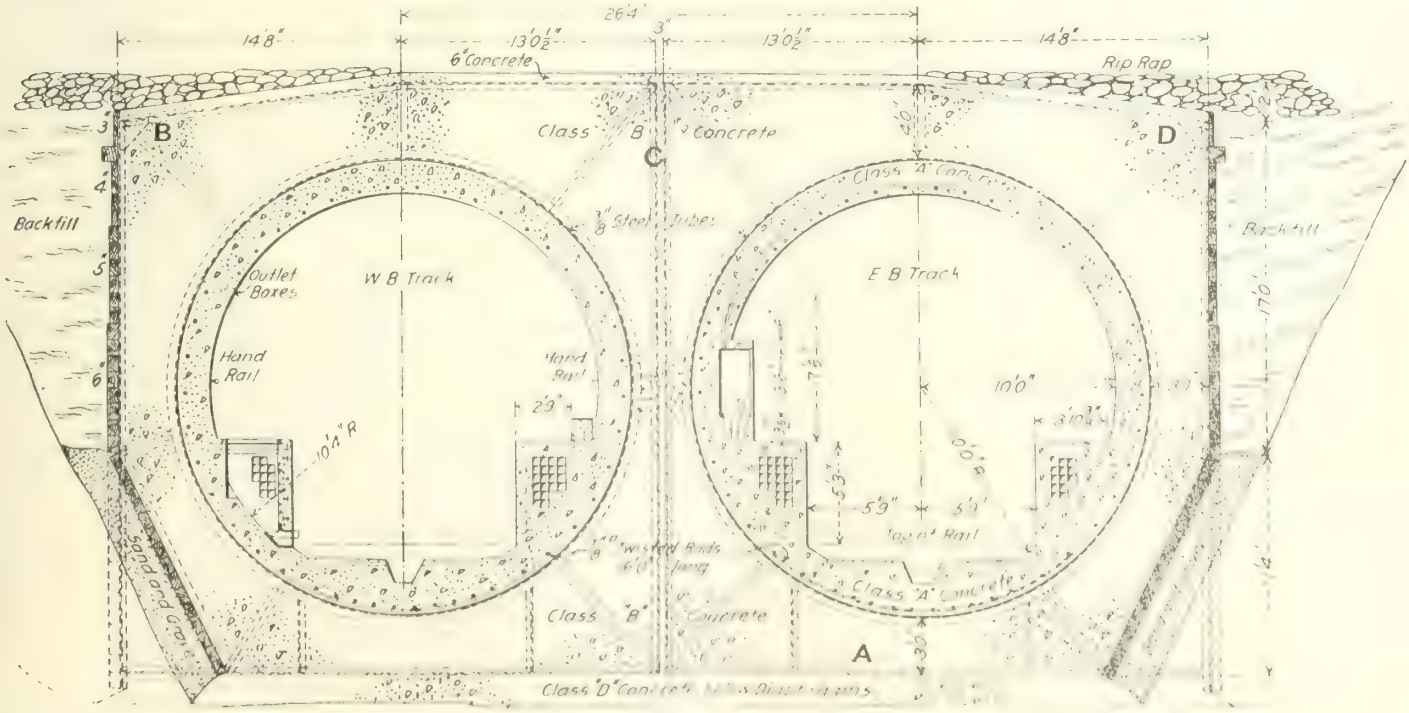
Toronto Eastern Ry.—Incorporation.

Vancouver Island and Eastern Ry.—Extending time for construction.

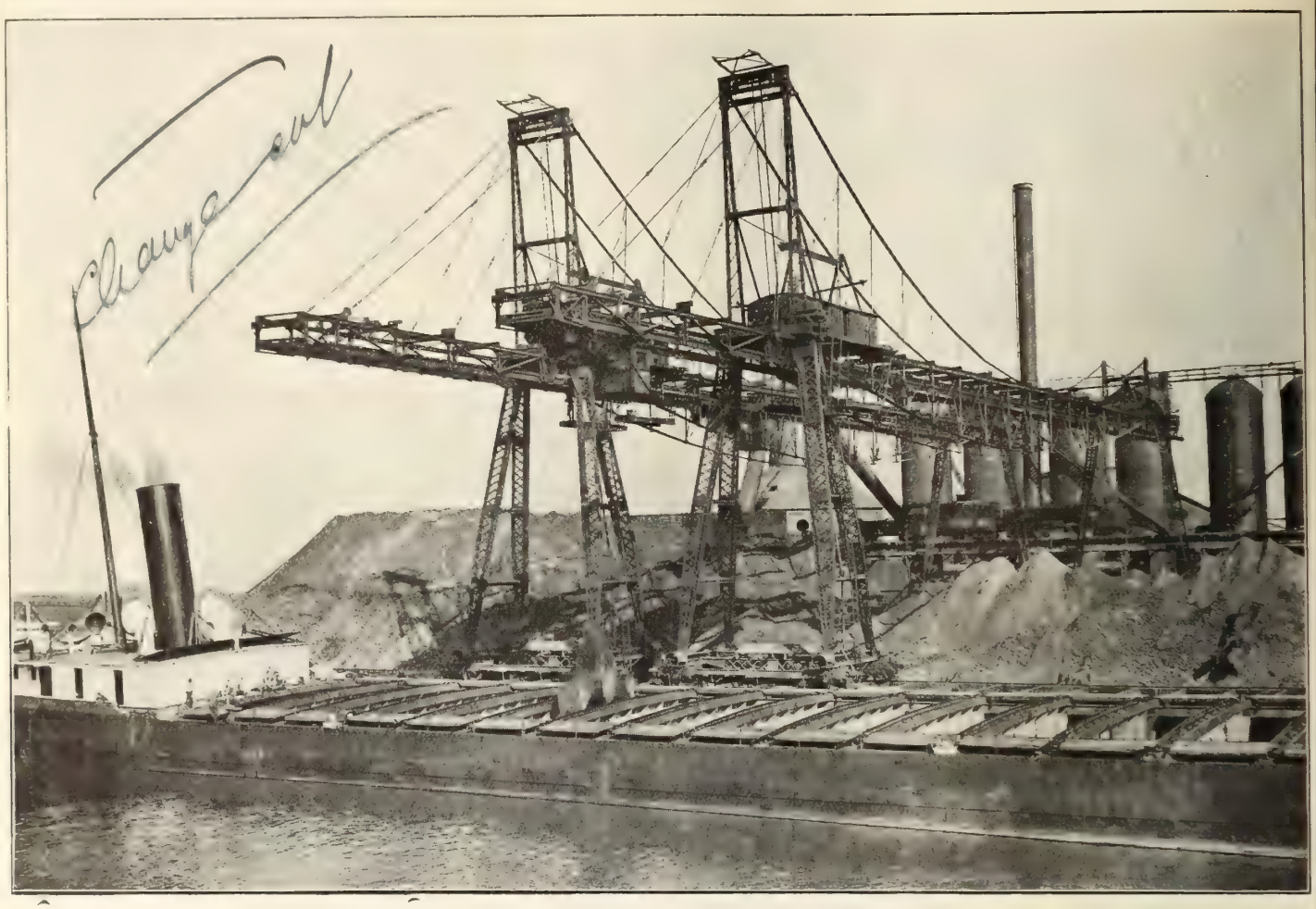
Vancouver, Victoria and Eastern Ry. and Navigation Co.—Extending time for construction.

Water Carriage of Goods.—Act respecting.

Canadian Railway Club.—The annual meeting was held at Montreal, May 3. The report for the past year showed that there were 650 members, and that there was a balance in hand of $2,905 against $2,287 for the previous year. Some discussion took place as to the advisability of utilizing this surplus, and it was decided to appoint a committee to enquire into the question of establishing a reference railway library, and to report to the next general meeting. H. H. Vaughan, Assistant to the Vice President C.P.R., on retiring from the presidency, was presented with an engraved gold ornament, and the formal proceedings were concluded by an address by Grant Hall, Superintendent of Motive Power C.P.R., Winnipeg, President of the Western Canada Railway Club. The following were elected for the current year:—President, A. A. Maver, Master Mechanic Motive Power G.T.R., Montreal; Vice President, A. A. Goodchild, Auditor of Stores and Mechanical Accounts, C.P.R.; Second Vice President, J. Coleman, Superintendent Car Department G.T.R.; Secretary, J. Powell; Treasurer, S. S. Underwood; Executive Committee, A. L. Grayburn, R. W. Burnett, H. C. Butler, C. Kyle, W. McNab and F. Ditchfield; Auditors, H. A. White, J. S. Johnstone and G. I. Evans.



Section of completed Detroit River tunnel.



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The G. T. R. Apprentice System.

The problem of effectually supplying the ever-increasing demand for skilled and thoroughly trained mechanics has been constantly in the foreground and for some years past has caused a great deal of anxiety to the heads of all large industrial corporations, and everywhere was heard sighs of regret that the ranks of the good mechanics were being rapidly depleted. Realizing that this was in part correct, the G.T.R. some years ago endeavored to fill the breach and pioneered a movement for the technical training of its apprentices. The average boy, who from force of circumstances had to leave school in the early stages of his education and take up his life work, had little to look forward to in the matter of education, except by years of unremitting toil, unassisted, unrewarded, and finally arriving at a smattering of a few primary subjects imperfectly learned. Night schools filled in part some of the requirements, but attendance whilst beneficial was mostly drudgery, owing to the subjects taught not bearing directly on their daily work. With this problem before it, the G.T.R. several years ago started a class for its apprentice boys, who were eager to learn; commenced to teach subjects which at once aroused interest among the boys, bearing as it did on the everyday needs of mechanics. In a surprisingly short time, the desire for knowledge being whetted, it was found necessary to increase the scope of the teaching, as the apprentice boy of the day saw within his grasp the very highest position of responsibility in the management and operation of the road. He realized that here was an opportunity to obtain an education little short of a college course, with a minimum exertion on his part and at the same time be independent and self-supporting. From the commencement on a small scale, the system has grown until at present these technical schools are spread at all important centres throughout the entire G.T. system and hundreds of scholars are enrolled, whilst every large railway system of this continent boasts several graduates of the G.T. training schools as their chief mechanical engineers, and more than one of Canada's largest industrial concerns have graduates as their chief draughtsmen.

The subjects taught are graded to suit the student's ability and in dozens of cases boys who left school when in the second book can now do problems which would tax the powers of a high school graduate to the utmost. The subjects taught comprise everything from simple arithmetic to higher mathematics, mechanics, machine design and mechanical drawing, and so well has the course been graded that numerous requests from mechanics' institutes and even the largest technical colleges have been received for complete sets of instruction boks. The entire cost of education at these training schools is borne by the G.T.R., which furnishes all the equipments and engages the instructors, who must themselves have had a thorough technical and practical training, so as to enable them to anticipate the needs of the apprentices. Further encouragement is given the boys to learn by the large number of prizes donated annually, open to competition to all classes on the system, and include free scholarships in engineering at McGill University, as well as handsome cash prizes. These prize competitions are held at different centres to which the best students at the several centres are invited, free transportation, entertainment and all expenses being borne by the company. The appreciation of individual promotions forms one of the strongest features in the system and serves to keep alive the keenest interest in the classes, as the boys realize that as soon as they arrive at a certain standard of excellence, increased pay is their reward, and many of our foremost students of political economy, see in this system, as it is being carried out, the future supply of skilled mechanics, master mechanics, superintendents, etc., being carefully husbanded, and an effective solution to the labor problem, namely, the prompt recognition of individual merit.

Pattern maker apprentice, G.T.R. Pattern Shop, Montreal.

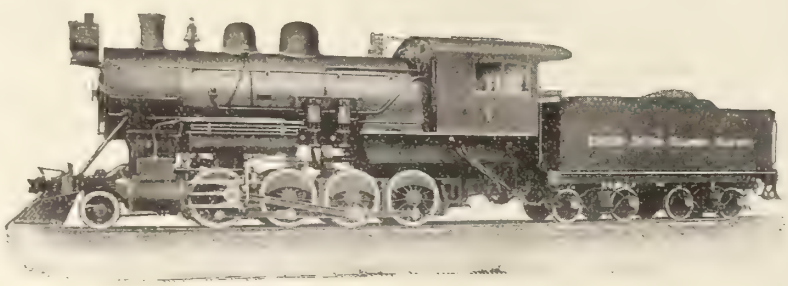
For two evenings a week during the fall and winter months the apprentice must attend mechanical drawing classes, study of practical mechanics and elementary electricity, the most competent instructors procurable being provided. On the staff are two graduates of Canadian and U.S. engineering colleges, McGill and Purdue. The work in the drawing class is outlined in a special text book written by the company's Chief Draughtsman at Montreal, who is also the author of the book used on practical mechanics. During the term frequent examinations are held, and the points gained by each boy are posted so that they may all keep advised as to just what progress they are making, and thereby be able to brush up the weak spots that the examinations have disclosed. The Master Mechanic is constantly in touch with each boy's progress and standing, and if necessary he frequently calls a boy up, and in a kindly manner points out to him the necessity of applying himself more consistently to bring his rating up to the required standard.

PRIZES FOR BEST WORK.

The annual Competitive Examination is always conducted by the Company's Chief Draughtsman from Montreal. Prizes are awarded to the apprentices obtaining the highest average in their respective years. These prizes amount to $40 for each shop, and are distributed over the different years of apprenticeship, thus: the apprentice obtaining the highest average for his last year in mechanical drawing gets $1 and the one obtaining the highest in practical mechanics gets $4 also. Therefore, it is quite possible for one apprentice to obtain both prizes. A keen interest is taken in this examination, which takes the form of a contest between the ap-

Blacksmith apprentice, G.T.R. Smith Shop, Montreal.

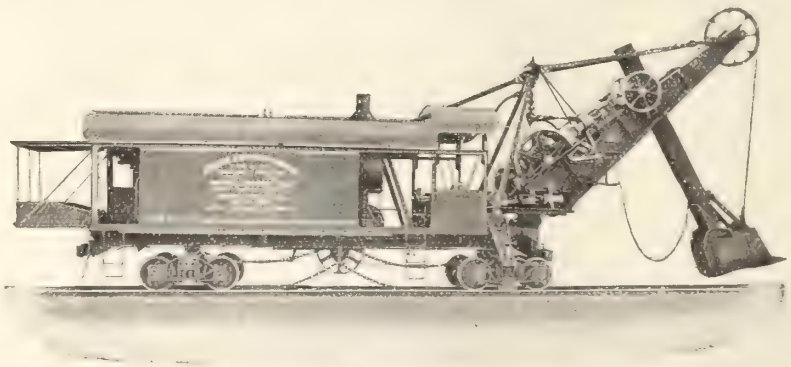
LOCOMOTIVES FOR ALL CLASSES OF SERVICE



Consolidation Type Freight Locomotive, Built for Eastern British Columbia Railway.

Total weight of engine in working order, 186,310 pounds. Weight on driving wheels, 166,100 pounds. Diameter of driving wheels, 51 inches. Boiler pressure, 210 pounds. Cylinders, 20 x 28 inches. Maximum tractive power, 39,200 pounds.

ATLANTIC STEAM SHOVEL



Direct wire rope hoist with but one sheave, instead of chain hoist with from five to seven sheaves, reduces delays and loss of time due to breakdowns, increases the efficiency of the engines, and reduces repair bills as well as fuel consumption.

Finished, interchangeable spare parts always on hand at works.

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ious shops. In addition to the prizes as stated above there is a capital prize offered of $25 for each subject. This is competed for by the apprentices obtaining the highest averages in drawing and practical mechanics at their respective stations. These apprentices are given a trip to some point on the system where the final examinations are held, and the one receiving the highest number of points in each subject receives the amount stated. This, in addition to what he has already received at his station, will make a total of $29, $33 or $58, if he has been successful in all subjects. After the season has closed, the boys at some of the large shops hold what is termed "Apprentice Night." This is the social event of the season. Each one makes a drawing, which is neatly got up and inked in. This is placed on exhibition, and the prizes are awarded for each year of apprenticeship. These prizes are $2.50 for the first, and $1.50 for the second. There are also prizes offered for special colored drawings, $3 for first, and $1.50 for second. This may be competed for by any apprentice, irrespectively of his year, and considerable interest is manifested by those of artistic ability.

The form of apprenticeship which has been adopted by the G.T.R. has been in successful operation for a number of years and has been the means of supplying that company with skilled mechanics in the most satisfactory manner. All apprentices are indentured to machinist's trade for five years, and to blacksmith's, boilermaker's, or other trades for four years. Five cents per day is deducted from the wages of each apprentice, and the total amount is returned to him at the expiration of his apprenticeship with an addition of $25 as a bonus if services have been entirely satisfactory. The first requisite in employing an apprentice is to know that he is morally, physically and mentally capable of filling the requirements of a mechanic. To ascertain this the apprentice is required to make his application direct to the Master Mechanic or the General Foreman, and to be not under 15 or over 18 years. He is required to undergo a medical examination so as to assure the head of the department that he is healthy and likely to be able to follow up the trade after he has completed the term of apprenticeship.

This information being satisfactory, he has to pass an examination in the Master Mechanic's or General Foreman's office. This is usually conducted by the chief clerk or some person specially appointed for that purpose, as follows:—

To be able to read extracts from instructions from end of employes' train time-table, standing 30 inches from same; to be able to hear the ticking of an ordinary open-face watch at a distance of 4 ft.; by writing a letter, from dictation, applying for employment in the shops; to be able to work out correctly similar examples in arithemetic, to the following:—

Multiply 122,983,672 by 527,001.
Divide 723,643,978 by 365.

The applicant is required to write this examination out on foolscap paper, and if satisfactory it is copied by him into the record book kept in the Master Mechanic's or General Foreman's office, so that a complete record of the boy's ability is on file from the day he first enters the service. The apprentice after having passed a successful examination is provided with a text-book for his instruction and guidance. This book contains examinations for the apprentice for each promotion he takes while serving his apprenticeship, and if he fails in any of these examinations he is set back to his old position for another term and the next apprentice passes a satisfactory examination. When another promotion is necessary the apprentice who failed is given another opportunity to qualify. If he fails the second time he is either dismissed from the service or given some minor position he is capable of filling outside of the trade, as it is concluded that he is either not sufficiently intelligent or too indifferent to make a mechanic.

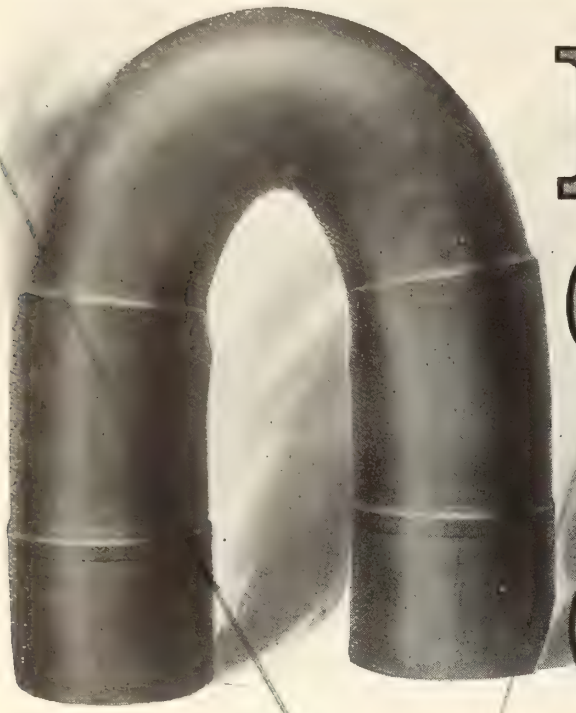
Boiler maker apprentices, G.T.R. Erecting Shop, Montreal.

After passing the first or entrance examination in the Master Mechanic's or General Foreman's office the apprentice is sent out to the boiler, blacksmith or coppersmith shops or other shop as may be required. He stays there from six to nine months, and is taught to be active and obedient, and to prepare himself for future promotions. When a boy is to learn one branch of the business only, for instance, boilermaking, blacksmithing, steam-fitting, etc., he is only required to serve four years, but if he is to learn the machine work and fitting, he is required to serve five years and all the machinists' apprentices are indentured for five years. In the case of any apprentice learning the boilermaking or blacksmithing he is required to pass an examination in the Master Mechanic's office and the first examination in the apprentices' rule book, as it is deemed necessary to have the information contained therein for any branch of the service, and in the case of these four-year apprentices being few in number after the first examination, in comparison to the machinist's apprentices, they are instructed in their business by the foreman in charge, and each year they are required to pass an examination in drawing before receiving their advance in wages, the same as machinists' apprentices.

MAKE THE APPRENTICE THINK.

The object of the text book is to have the boy theoretically conversant with the work that is going to be done by him after his next promotion. For instance, a boy going from the blacksmith to machine shop has to pass his examination before he is promoted to the machine shop, which is called "Examination for promotion of apprentices from other shops to the machine shop." As he is usually put on a drill to commence with, by studying his text book, he learns considerable about it, and also the tools he is to use in connection with

Machinist apprentices, G.T.R. Erecting Shop, Montreal.



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THIS VANADIUM STEEL LOCOMOTIVE DRIVING AXLE

is ten inches in diameter and was bent cold without a fracture or a crack under a 14,000 ton press. Its tensile strength is 100,000 pounds per square inch; elastic limit, 75,000 pounds, and it gave an alternation test of 850.

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Vanadium Steel Castings for frames are as strong and elastic as Carbon Steel Forgings; Vanadium Cast Iron Cylinders run five times as long as ordinary iron without reboring; Vanadium Steel Forgings properly made and properly treated combine the greatest strength and ductility with the properties of resisting fatigue and crystallization.

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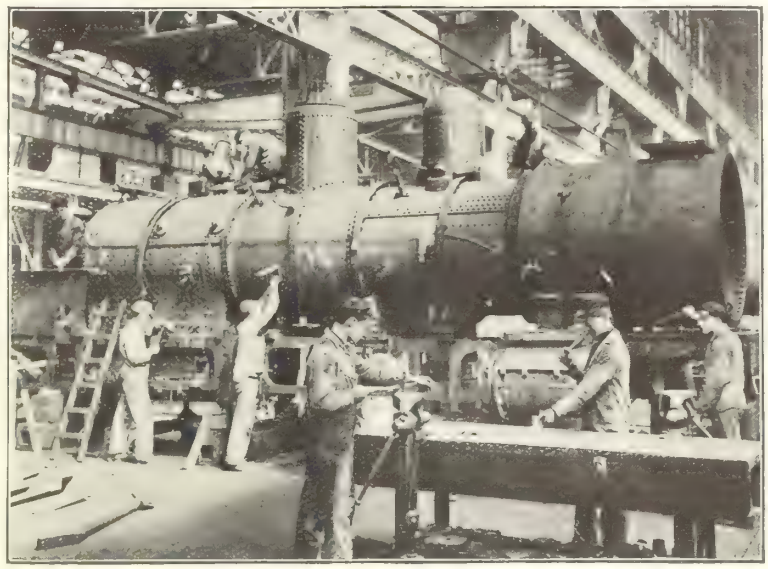
it. The same practice is followed throughout the whole term of apprenticeship, and while the apprentice is working at one machine he is studying as much as possible about the machine he is to go on next. One of the great advantages of this system is that it gets the apprentice thinking, and leads him to reading up in line with his work.

The indenture system has been found of great advantage both to the company and the apprentice. It has a tendency to keep the apprentice satisfied, and steady his energies along the required lines. It also prevents him from being tampered with by outside firms or corporations who desire to obtain the services of the boy as soon as he has become useful to the company who has instructed him. At the completion of his term each apprentice receives a certificate showing that he has served as an apprentice and as a mechanic in the branch of trade that he was apprenticed to. An apprentice is required to serve five years at the following rates: 8c, 10c, 12c, 15c and 17c per hour. Before he is granted each years' advance he is required to pass a written examination on shop work, also make a drawing of some detail part of a locomotive, as specified in the apprenticeship book, which examination and drawing must have the approval of the Master Mechanic, and the Superintendent of Motive Power before his advance is allowed.

This system insures thorough education in all details of the trade, and while some of the work may be specialized it is not done by the apprentice until he becomes a journeyman. For instance, the apprentice comes from the boiler shop to the machine shop, from the machine shop to motion bench, to the side rod bench, to the axlebox gang, to the steam pipe gang, to the valve gang, and finally to the erecting gang, so that after an apprentice is out of his time he is a specialist in any one of these branches.

This system of apprenticeship on the G.T.R. has also been found to be the means of parents giving their sons who desire to enter the service, a better education than formerly. Before its adoption the only requirement was that the boy had to be 15 years of age. It was found that parents took their boys away from school at 12 or 13 years of age, and put them at some other work until old enough to enter the G.T.R. shops. When the examinations were first inaugurated quite a number of the boys were rejected, and had to go back to school again before they could qualify to enter the service. This has not only resulted in prospective applicants getting a better education, but has elevated the moral standing of the apprentices' work, and made the system attractive to boys who have passed the high school entrance examination, and who, although well advanced along the lines of school education, adopt the mechanic's trade in preference to other pursuits. The success of the apprenticeship system is imperatively dependent upon the careful management of the examinations, and the compulsory attendance at the classes provided by the company.

An apprenticeship record is kept. This is filled out by the chargeman under whom the apprentice is working, is scrutinized by the foreman, and then forwarded to the master mechanic.



Apprentices working on a rebuilt engine in charge of one who has recently completed his apprenticeship, G.T.R. Stratford Shops.

G. B. Wyllie, Travelling Passenger Agent, Illinois Central Rd., Buffalo, N.Y., has removed his office from 305 Main St., to room 220 Ellicott Square, on the balcony of the rotunda.

Apprentices' drawing class, G.T.R. Montreal Shops.

Great Northern Ry. Lines in Canada.

Midland Ry. of Manitoba.—After several meetings between representatives of the company and the Winnipeg City Council, a comprise was reached in regard to the route which the company will follow in entering the city, and an agreement is being drawn up for signature. The arrangement was concluded by the Assistant to the President of the G.N.R., and the agreement is being prepared by J. Fisher, K.C., the company's legal representative in Winnipeg. The line proposed to be constructed will start from the terminus of a G.N.R. branch south of the International boundary near Emerson and makes an over line into Winnipeg. It is stated that construction will be started immediately after the agreement is signed. It is also stated that work will be started immediately building a second track on the company's line from Gretna, at the International boundary to Portage la Prairie.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—Construction is being proceeded with on the section between Abbotsford and Hope, B.C., the contractors being J. W. Stewart & Co. A sub-contract for 20 miles from Abbotsford to Chilliwack has been let to M. Welch & Co. and sub-contracts will, it is said, be let at an early date for the mileage between Chilliwack and Hope. It is expected that the work will be completed in about a year and a half. East of Hope Mountain construction gangs are at work between Princeton and Otter Tail, 18 miles. The route between Otter Tail and Hope has not been decided on, the question of tunnel or open construction being still under consideration.

A large force of men is engaged ballasting the line between New Westminster and Port Guichon, New Westminster and Cloverdale, and Port Guichon and Cloverdale.

Negotiations are being carried on with a view of bringing about a sett'ement of the differences between the B.C. Government, the company and the New Westminster City Council, as to the new station at the Fraser River bridge.

Speaking at Vancouver, April 30, J. J. Hill, who was accompanied by his son, L. J. Hill, President G.N.R., said it would be only a few years before his company would have a direct Canadian line between Vancouver and Winnipeg, tapping Calgary and other centres. (May, pg. 361).

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Decision re Pullman Car Charges.

The Interstate Commerce Commission decision in the case of G. S. Loftus v. Pullman Co., et al, is of sufficient importance to warrant its publication in full. Commissioner Lane delivered the Commission's judgment as follows:—

In view of the similarity between the issues involved in these cases, it seems proper to dispose of them in a single report. In number 1084 the complainant challenges the lawfulness of the standard charge of $2 exacted by the Pullman Co. for the use of a berth in a first class sleeping car from St. Paul, Minn., to Chicago, Ill., via the Chicago, St. Paul, Minneapolis & Omaha and the Chicago & North-Western Ry. Request is made that the rate for the lower berth be fixed at $1.50 and the rate for the upper berth at 75c.

In number 1085 the petition puts in issue the lawfulness of the standard charge of $1.50 exacted by the defendants for the use of a berth in a first class sleeping car from St. Paul, Minn., to Superior, Wis. Request is made that the rate for the lower berth be fixed at $1 and the rate for the upper at 50c. It appearing that sleeping cars are not operated over the Chicago, St. Paul, Minneapolis & Omaha Ry. between St. Paul and Superior, as to that carrier the case will be dismissed.

In number 1086 the lawfulness of the first class sleeping car rates from St. Paul, Minn., to Seattle, Wash., and from St. Paul to Fargo and Grand Forks, N. Dak., is called in question. Request is made that the rate for the lower berth from St. Paul to Seattle be reduced from $12 to $8 and the rate for the upper berth from $12 to $4, the rate for the lower berth from St. Paul to Fargo from $2 to $1.25, and for the upper berth from $2 to 75c, the rate for the lower berth from St. Paul to Grand Forks from $2 to $1.50, and for the upper from $2 to 75c.

All the rates of which complaint is made are alleged to be unreasonable, and the exaction of the same charge for the use of an upper berth as is made for the use of a lower berth is alleged to be unduly discriminatory. The defendants answer generally, denying that the rates which are the subject of attack are unreasonable or discriminatory or otherwise in violation of the act.

The Pullman Co. is engaged primarily in the business of operating sleeping cars over various lines of railway throughout the United States, Canada, and Mexico. It is also a large manufacturer of cars, but this phase of its business need not be considered at this time. According to figures submitted by the Pullman Co. the initial cost of the standard sleepers built within the last four years ranges approximately from $17,500 to $19,500 per car. The title to most of this rolling stock is vested absolutely in the Pullman Co., but there are one or two exceptions to the rule. The sleeping cars which are operated over the Northern Pacific Ry. are owned by the railway company and the Pullman Co. jointly, through the medium of a so-called "Association," the revenues being shared upon an agreed basis. The sleeping cars running over the Atlantic Coast Line Rd. have a similar status. The Great Northern Ry. Co., a co-defendant with the Pullman Co. in cases 1085 and 1086, owns and operates its own sleeping cars. The cost of the Great Northern standard sleepers ranges from $13,500 to $16,500.

The Pullman Co. has contracts for the operation of its cars over virtually every important railway system in the country, with the exception of the Great Northern Ry., the Chicago, Milwaukee & St. Paul Ry., and the New York, New Haven & Hartford Rd. The contracts originally entered into by the Pullman Co. and the various railways were so-called "scaled mileage" contracts—that is, they provided that a certain mileage payment should be made to the Pullman Co., the rate varying with the amount of the earnings. The revenue from the sale of seats and berths accrued of course to the Pullman Co. In some of these earlier contracts the mileage payment was at the rate of 3c per mile. A representative modern contract provides that if the average earnings of the sleeping cars operated are less than $5,000 per car-year the railway shall pay mileage at the rate of 2c per mile. If the car earnings average more than $5,000 but less than $6,000 per car-year the mileage payment is at the rate of 1c per mile. If the earnings are in excess of $7,000 per car-year, the railway is exempt from the payment of mileage. It is provided further that if the earnings per car-year fall short of the stipulated amount the railway company may at its election make up the difference in lieu of paying mileage. Other contracts exempt the railways altogether from the payment of mileage, and still others provide that the Pullman Co. shall share with the railway company the earnings from the sale of seats and berths in excess of a certain figure.

For the purposes of this report an extended review of the results of our investigation into the lawfulness of the rates complained of is unnecessary. Suffice it to say that our enquiry has been thorough and that it has led to the following conclusions:—

The present rate of $2 exacted by the Pullman Co. for the use of a lower berth in a first class standard sleeper from St. Paul to Chicago over the Chicago, St. Paul, Minneapolis & Omaha Ry. and the Chicago & North Western Ry. is not found unreasonable, but the rate for the use of an upper berth is unjust and unreasonable to the extent that it exceeds $1.50.

The present rate of $1.50 exacted by the Pullman Co. and the Great Northern Ry. for the use of a lower berth in a first class standard sleeper from St. Paul to Superior, Wis., is not found unreasonable, but the rate charged for the use of an upper berth is unjust and un-

Machinist apprentices, G.T.R. Shop, Montreal.

Air Brake Department, showing four apprentices at work and chargeman, who has just completed his apprenticeship, G.T.R. Stratford Shops.

GUILFORD S. WOOD

RAILWAY NECESSITIES

GREAT NORTHERN BUILDING, = CHICAGO

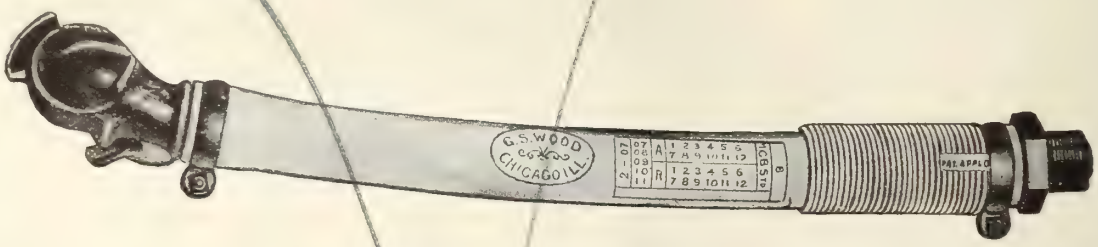
Mechanical Rubber Goods, Car Vestibule Diaphragms

Rolled Steel Tie Plates

Inlaid Linoleum Carpets Cocoa Mats

Upholsterers Leather

Car Curtain Cloth Copper Ferrules



WOOD'S FLEXIBLE NIPPLE END HOSE PROTECTOR

FOR AIR BRAKES AND SIGNAL HOSE

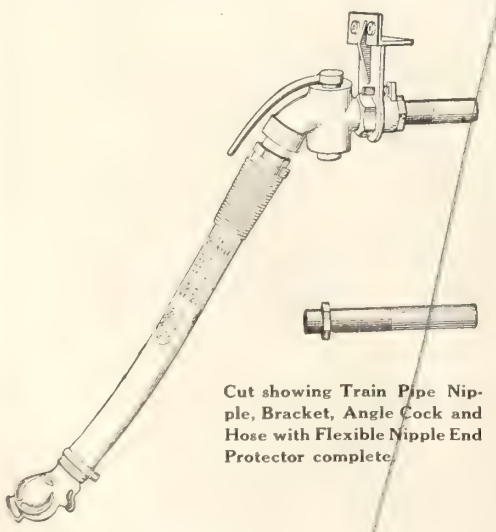
The use of this protector will effect a saving of from 40 to 50 per cent. in cost of maintenance of Air Brake Hose.

PREVENTS CHAFING AND ABRASION

P. & W. HOSE PRESERVATIVE

FOR AIR BRAKE AND PNEUMATIC TOOL HOSE

Prevents cracking and deterioration of rubber cover due to climatic changes especially in the case where vibration is pronounced in Air and Pneumatic Brake Tool Hose. Easily applied, Expense of covering 100 lengths of 1 3-8 inch Standard size Air Brake Hose with P. & W. material including labor, one dollar.



Cut showing Train Pipe Nipple, Bracket, Angle Cock and Hose with Flexible Nipple End Protector complete.

THE MONOGRAM BRACKET

For Air Brake Train Pipes

(illustrated) makes shifting impossible. All of the M.C.B. requirements are obtained and MAINTAINED. The bracket is designed for strength with a liberal factor for safety, and once applied it reduces the cost of maintenance to the minimum.

The hose angle cock is threaded into the end of the train pipe, which is held in the Monogram Bracket located 13½ inches from the center line of the coupler and 13½ inches from the face line of the knuckle and when the angle cock is set at the required angle of 30 degrees, the locking key in the bracket engages the hexagon on the angle cock, holding it in position. The lock nut is tightened with a wrench, holding the key in position locking it into one solid piece of metal, namely the angle cock, bracket and train pipe, all parts in a positive position in a substantial manner, so that pipe shifting is positively prevented.

Correspondence Solicited

reasonable to the extent that it exceeds $1.10.

The present rate of $12 exacted by the Pullman Co. and the Great Northern Ry. Co. for the use of a lower berth in a first class standard sleeper from St. Paul to Seattle is unjust and unreasonable to the extent that it exceeds $10. The rate for the use of an upper berth is unjust and unreasonable to the extent that it exceeds $8.50.

The present rate of $2 exacted by the Pullman Co. and the Great Northern Ry. for the use of a lower berth in a first class standard sleeper from St. Paul to Fargo, N. Dak., is unjust and unreasonable to the extent that it exceeds $1.50. The rate for the use of an upper berth is unjust and unreasonable to the extent that it exceeds $1.10.

The present rate of $2 exacted by the Pullman Co. and the Great Northern Ry. for the use of a lower berth in a first class standard sleeper from St. Paul to Grand Forks, N. Dak., is not found unreasonable. The rate for the use of an upper berth is unjust and unreasonable to the extent that it exceeds $1.50.

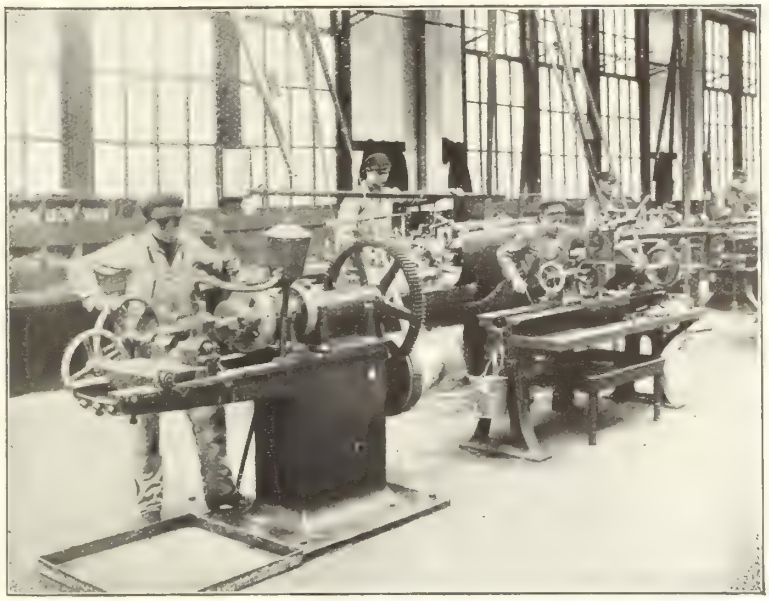
An order will be issued in accordance with these findings.

Chairman Knapp delivered the following dissenting judgment:—

I am unable to concur in the foregoing report and will briefly indicate my reasons for dissenting. Without discussing whether the profits of the Pullman Co. have heretofore been excessive, but expressing my serious disbelief that its current earnings yield more than a reasonable return upon the present value of its property, especially in view of the risks and uncertainties of its business future, I base my objections to the majority report upon altogether different grounds.

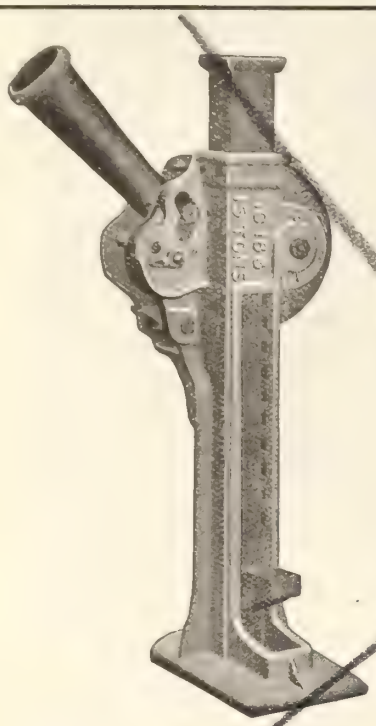
The fact that sleeping-car accommodations are furnished by an independent company, which has had an extremely profitable career and may continue prosperous for an indefinite period, seems to me wholly immaterial, except as sleeping-car earnings may properly be taken into account in determining whether the entire revenue from passenger transportation is excessive. In other words, the question presented in these cases is precisely the same, in my judgment, and should be determined by the same considerations as would govern if sleeping cars were provided in all cases by the railroads themselves and not, as is the general rule, by an outside company. Nor does it matter, save to the same extent, that the few roads which operate their own sleeping cars, as do the Great Northern and the Milwaukee, realize handsome profits from this branch of their business. It is of no appreciable concern to the passenger, either in sleeper or day coach, whether the car he rides in belongs to the road over which he is traveling or to some other company, and he is equally unconcerned as to which of them gets the money paid for his passage. The real question in all cases is whether unreasonable charges are exacted from the public for any service or facility which a railway is bound to provide or undertake to provide; and this question, as applied to sleeping-car rates, must be determined almost wholly by comparison, because there is no other helpful or even available test. What sleeping cars cost, or how much they earn, or what profits are derived from their operation, seems to me of little bearing upon the reasonableness of the charges in question. The facts of controlling weight and the only fair basis of judgment, as I think, are found by comparing sleeping-car accommodations with day-coach accommodations and what it costs to travel in sleeping cars with what it costs to travel in day coaches. When this comparison is made it becomes evident, to my mind at least, that the transportation charges now paid by passengers in sleeping cars are relatively lower than the charges paid by other passengers. The difference in the value of the service is greater than the difference in charge.

The railways in effect furnish two kinds of passenger cars, differing very materially in comfort, convenience, and safety, and passengers may take one kind or the other, as they choose, at the different rates provided. Now, what ought to be paid by passengers who elect



Apprentices at work in Bolt Department, G.T.R. Stratford Shops.

General view, G.T.R. Shops, Battle Creek, Mich.



Geared Lever Jack No. 183

Joyce Crydland Track Jacks

GEARED LEVER TRACK JACK No. 183, with automatic lowering device; has four times the lifting capacity of the Plain Lever Jack. Specially adapted for wrecking work.

TOGGLE TRIP TRACK JACKS, Nos. 38 and 39, for line work and yard duty. The superior construction of these Jacks increases the grip and friction 40 per cent. or more above others of similar type.

FULL AUTOMATIC JACK, strong and reliable, combines highest efficiency with simplicity of mechanism.

Write for Bulletins giving full description of working parts of Joyce Crydland Jacks.

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Full Automatic

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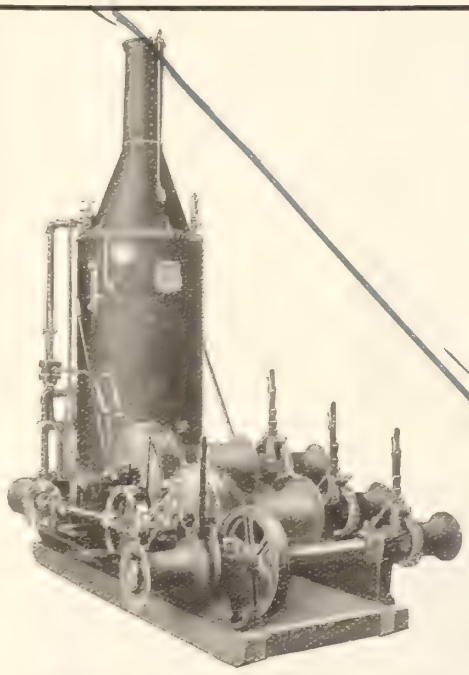
Toronto, Winnipeg and Vancouver. WILLIAMS & WILSON, Montreal



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Steam and Electric Hoists Locomotive Cranes and DERRICKS

Designed for Every Purpose

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AMERICAN HOIST & DERRICK CO.

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to take the superior car in comparison with what must be paid by passengers who take the inferior car because, for the most part, they feel obliged to travel as cheaply as possible? Holding, as I do, that the relation between sleeping-car and day-coach rates is the vital matter of concern to the public, and believing that the present differences are of doubtful justice to the day-coach passenger, I cannot vote to reduce sleeping-car charges, particularly lower-berth charges, and thereby increase the relative advantages now enjoyed by sleeping-car passengers.

A concrete case from the record, which is typical of conditions generally, may serve to illustrate my point of view. The first class fare from St. Paul to Seattle is $48.90. For this sum the passenger can make the journey in a standard day coach and have such conveniences as are ordinarily found in passenger cars of that class. By paying $12 more, or slightly less than 25%, he may travel in a sleeping car so much superior to the day coach as hardly to permit comparison. This car may fairly be called a hotel on wheels, and a hotel of attractive and even luxurious appointments. It is much heavier than the day coach and easier to ride in; its greater strength makes it very much safer. It carries comparatively few passengers, less than half the number that may be crowded into an ordinary car, and its occupants are usually persons of good appearance and unobjectionable manners. In addition to its sleeping accommodations, which are generally excellent in point of comfort and cleanliness, it has commodious toilet and smoking rooms, with other features of convenience and desirability, including the more or less attentive porter. In such a car the journey is made with little fatigue and often with positive enjoyment. Surely all this is cheap by comparison at the cost of only 25% above the day-coach rate. Is not the discrimination in fact against the day-coach passenger?

On many roads there are trains composed exclusively of sleeping cars and parlor cars, which fall in the same category. Such trains often include observation and buffet cars, supplied with books, magazines, and papers, to say nothing of bodily refreshments, and not infrequently carry a stenographer, lady's maid, and barber to wait upon the passengers. For all these conveniences and satisfactions the additional charge appears to me extremely moderate in comparison with the accommodations provided for and rates paid by day-coach passengers, and I fail to see upon what ground these additional charges can be found unreasonable.

If the undisputed facts of comparison and the argument based thereon are given due weight, and they seem to me peculiarly applicable and convincing in these cases, they lead to the conclusion that the sleeping-car charges in question, certainly the lower-berth charges, are not shown to be unreasonable. To reject these facts and their legitimate inferences is, in my opinion, to ignore the element of the value of the service and to leave the conclusions of the majority with little support, except the fact that the Pullman Co. has made a great deal of money, and that the defendant roads which operate their own sleeping cars have found the business profitable, or at least have so kept their books as to indicate that result. In my judgment, the deduction is wholly unwarranted.

It is a matter of common knowledge that the number of sleeping-car passengers compared with the number of day-coach passengers is relatively small. Leaving out all short-distance travel and taking into account only journeys of, say, 100 miles and upward, much the greater number of travelers ride in ordinary coaches. The remaining minority patronize sleeping and parlor cars, paying the additional charge therefor, as most of them are well able to do. It does not accord with my sense of justice or my understanding of the law which the Commission is appointed to administer to reduce the charges voluntarily paid by the limited number of persons who travel in sleeping cars, and I regret a decision which, as I view the matter, will operate unjustly, not perhaps to the Pullman Co., but to the public at large.

On broad grounds of social welfare I have long believed in low passenger fares for everybody, and I shall welcome a material reduction from present rates as soon as it can be made without injustice to the railways. But I would bring this about, if I could, before reducing the extra cost of sleeping-car accommodations for the benefit of a comparatively few persons who, in my estimation, are now distinctly favored.

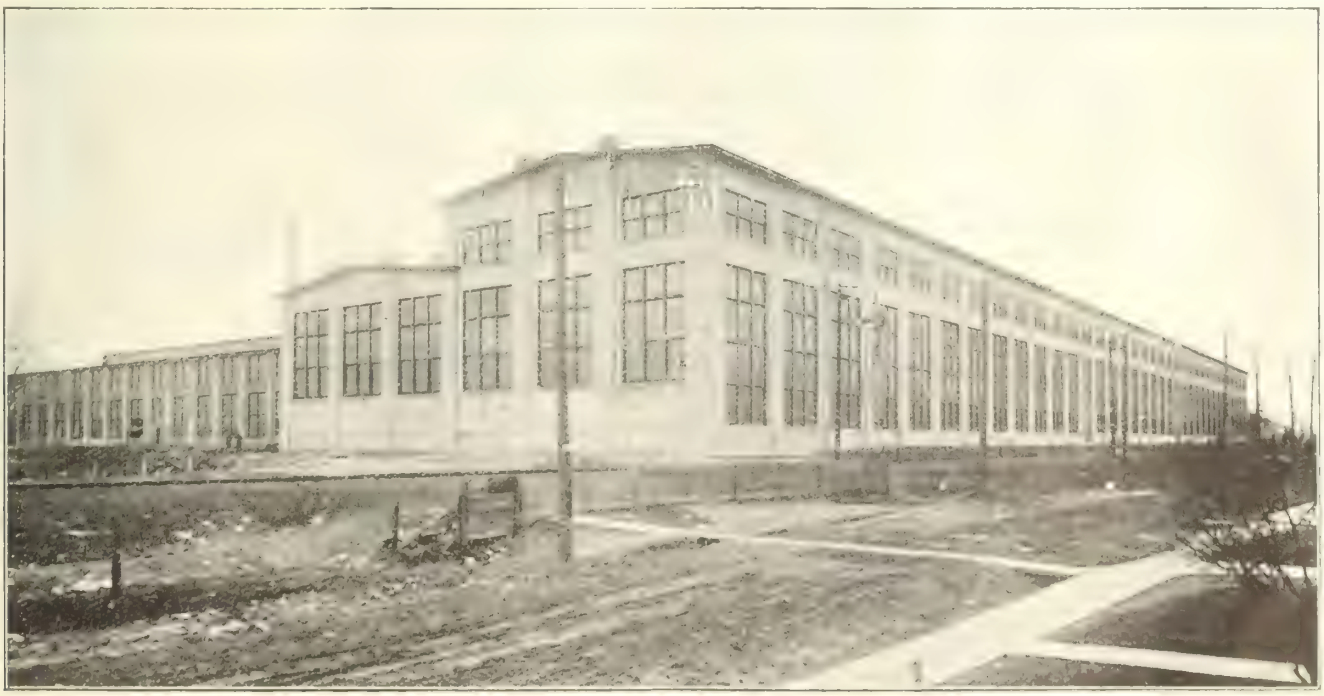
It is evident that the upper berth is less desirable to a substantial degree than the lower berth, and I would agree to some reduction of the upper-berth charges, not because there is any evidence that they are unreasonable per se, but because the same charge for both may be fairly regarded as an unjust discrimination against the upper-berth passenger. I am of the opinion, however, that the difference fixed by the majority report is in some cases too great. For example, when the lower-berth rate is not more than $1.50, I think a charge of $1.25 for the upper berth should be allowed.

Commissioner Harlan also dissented, and said:—

I am unable to assent to the conclusions announced in this proceeding in the report of the majority. While concurring in some of the views expressed by the Chairman in his dissenting report, I place my own dissent upon the general ground that the order directed to be entered is not justified by the record.

Canadian Collieries (Dunsmuir), Ltd., has been incorporated under the Dominion Companies Act, with a capital of $20,000,000 and office at Victoria, B.C., to acquire and operate coal, mineral and other lands, and in connection therewith to own and operate steam and other vessels, wharves, dry docks, bridges, yards, and tracks of every description for the storing and handling of the company's products. The main object is to take over the coal mining, railway and other properties, recently purchased from J. Dunsmuir and Sons, owners of the Wellington Collieries. The provisional directors are:—F. H. Phippen, K.C., G. G. Ruel, G. F Macdonnell, R. H. M. Temple and J. H. Phippen, Toronto, all of whom are connected with the Canadian Northern Ry.

The Board of Railway Commissioners' Secretary has issued a circular requesting that railway equipment reports heretofore addressed to J. Ogilvie, Inspector of Railway Equipment, be in future sent to A. J. Nixon, Chief Operating Officer at Ottawa.



Exterior view, G.T.P. Locomotive Shops, Stratford.

THE ELECTRIC HEADLIGHT

The following letter was received under date of May 8, 1908, from Mr. J. W. Cleary, Travelling Engineer Pyle-National Electric Headlight Co.:

"I learn from_____the Master Mechanic here, that an engineer running between_____ and_____discovered a broken rail with the Pyle-National Electric Headlight and made the stop without ditching his train. One or two pairs of wheels got off, but that was a small affair to what it would have been where a foot of the rail was broken off. Also an engineer running east of here found some cars shoved out on the main line. He saw them with the 'Electric' and made the stop without hitting them."

PYLE-NATIONAL ELECTRIC HEADLIGHT CO.

MONADNOCK, CHICAGO

NOVA SCOTIA STEEL AND COAL CO. LIMITED

MANUFACTURERS OF

Railway and Electric Car Axles, Angle Bar, and Tie Plates, Railway Spikes

Tee Rails 12, 18, and 28 lb. per yard

ALL SIZES BAR STEEL FOR CAR-BUILDERS' USE. Spring, Machinery, Tire, Angles, and Merchant Bar Steel. Heavy Forgings of all Descriptions.

SCOTIA PIG IRON Also Miners and Shippers of the Famous Old Mines "SYDNEY" **COAL**

High in Carbon—Low in Ash. The best Steam Coal for Locomotive, Steamship, and Stationary Boilers.

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RAILWAY DEVELOPMENT.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta and British Columbia Ry.—The Dominion Parliament has extended the time for building the projected line. (April, pg. 271.)

Alberta Central Ry.—We are officially advised that the route of this projected railway from Red Deer to Rocky Mountain House, Alta., approximately 63 miles, has been approved by the Board of Railway Commissioners. The route, as laid out across the Red Deer River, about six miles southwest of Red Deer, by a steel viaduct approximately 2,000 ft. long and 130 ft. above low water. Proceeding north-westerly from the Red Deer River, it crosses the summit of the valley at Burnt Lake passes in the vicinity of Sylvan Lake, about 20 miles from Red Deer. The line crosses the valley of the Medicine River between Evarts and Eckville, and emerges from the Medicine and Horseguard Valleys about 10 miles further on, after which it traverses the plateau which extends from this point to the east bank of the Saskatchewan River. It will cross this river by a steel viaduct 800 ft. long and 75 ft. above low water. The line has been projected with low gradients, the maximum for both east and westbound traffic being not more than 0.40%, and the sharpest curve not more than 3 degrees. The character of the country through which the line will run is, generally speaking, open park prairie country, almost entirely settled. It is expected that construction will be started some time this year. J. G. MacGregor, Red Deer, Alta., is chief engineer. (May, pg. 349.)

Alberta, Peace River and Eastern Ry.—The Dominion Parliament has incorporated a company with this title to build the lines mentioned in the notice of application. The provisional directors are:—A. J. Miller, Pembroke, Ont.; E. Hutton, Montreal; R. L. Snowball, O. E. Culbert, J. O. Carss, Ottawa. (April, pg. 271.)

Algoma Central and Hudson Bay Ry.—We are officially advised that a contract has been let to O'Boyle Brothers, Ltd., Sault Ste. Marie, Ont., to build a spur line, of nine miles, between mileage 7.5 on the Josephine branch and the Magpie Iron Mining location. Work has been commenced and will be pushed forward as rapidly as possible, the contract calling for the completion of the line by Sept. 13. A contract has also been let to O'Boyle Brothers, Ltd., to build the line from Hawk Lake Jct., to Hobon, about midway between White River and Dalton stations on the C.P.R. Transcontinental line, 36 miles. Tenders were received to May 16 for clearing right of way, construction of bridges, cleaning of cuts, and making up of embankments on the portion of the company's line already graded, between the present end of steel, mileage 69, from Sault Ste. Marie and Hawk Lake Jct., approximately 100 miles. The grading on this part of the line which will connect Sault Ste. Marie with the Michipicoten branch, was done in 1902-03.

The company's construction programme involves the expenditure of over $3,000,000 and arrangements for financing this work were completed at a meeting of the shareholders of the Lake Superior Corporation at Camden, N.J., May 6. A meeting of the A.C. and H.B. shareholders was held May 14, to authorize the issue of 5% 50 year gold bonds on mileage constructed, and authorized to be constructed to the amount of $30,000 a mile, the bonds to be secured by a first mortgage of the lines constructed, to be built, or hereafter to be acquired.

The Dominion Parliament has granted subsidies to aid in building the following lines:—From Sault Ste. Marie to C.P.R. between White River and Dalton stations, Ont., not exceeding 200 miles; from Michipicoten harbor towards C.P.R., not exceeding 25 miles; from C.P.R. Transcontinental line northerly towards the National Transcontinental Ry., not to exceed 50 miles.

In connection with press reports to the effect that it was proposed to extend the line across the St. Mary's River into Michigan, we are officially advised that there has not been any discussion among the company's officials on the subject, other than the comment frequently made that there should be a connection with the lines to the south of the International boundary. (May, pg. 349).

Atlantic, Quebec and Western Ry.—The Dominion Parliament has voted a subsidy to aid in building a line from Paspebrae, as near the shore as practicable, to Gaspe, Que., not to exceed 102 miles.

An inspection of the line between Port Daniel and Pabos, has been made by the inspecting engineer of the Department of Railways and Canals, and the section passed for traffic. A regular train service will be put on, and it is expected that a further section between Pabos and Grand River will be ready for traffic by the end of July. Instructions have been received from the director of the company in England to push forward the completion of the line to Gaspe, as fast as possible. (April, pg. 271).

Bracebridge and Trading Lake Ry.—A subsidy has been voted by the Dominion Parliament to aid in building a line from Bracebridge to Baysville, Ont., 16 miles. (May, 1908, pg. 329.)

Buctouche Ry. and Transportation Co.—The provisional directors named in the Act passed by the Dominion Parliament incorporating a company with this title are:—C. T. Roe, New York; A. P. Barnhill, W. A. Ewing, C. F. Sanford, and J. J. Porter, St. John, N.B. The railway authorized to be constructed is as described in the notice of application. The company is authorized to enter into agreements with the Kent Northern Ry., the Buctouche and Rexton Ry., the Buctouche and Moncton Ry., and the Dominion Government in respect of the Prince Edward Island Ry. (April, pg. 271.)

Burrard Inlet Tunnel and Bridge Co.—The Dominion Parliament has incorporated a company with this title, with the powers mentioned in the notice of application. (Mar., pg. 185.)

Canadian Western Ry.—We are advised that it is very doubtful whether any construction will be done on this projected line this season. The company thought there would be no difficulty in the way of obtaining aid by way of a guarantee of bonds from the province of Alberta, but the Government decided not to do anything, and as a result all work in the way of preparing for building was stopped. So far as the company is concerned the matter of construction is in abeyance. This line is projected in the Chicago, Milwaukee and St. Paul Ry.'s interest, to connect with a branch of that line at the International boundary and give access to Alberta coal fields as a source of supply for the C.M. & St. P. R.'s western lines. (Nov., 1909, pg. 829).

The Canadian Western Lumber Co. is the title taken by the Fraser River Co. on its reorganization. Among the properties taken over are the Comox Ry. and Logging Co.'s line. The officers and directors are:—President, A. D. Davidson; Vice President and General Manager, A. D. McRae; other directors, W. Mackenzie, D. D. Mann, R. M. Horne-Payne, D. B. Hanna, P. Jansen; Secretary, J. D. McCormick. (May, pg. 349, see also Fraser River Lumber Co., same page.)

Comox Ry. and Logging Co.—We are officially advised that the railway which is being built in Vancouver by this company, under the authority of an Act passed by the B.C. Legislature, is for the Canadian Western Lumber Co., heretofore the Fraser River Lumber Co. The line as projected will be about 60 miles long, but at present only 17 miles is under construction, which it is expected to have in operation by Sept. 1. The maximum gradient is 0.6%, and the maximum curvature 6 degrees. The line will be used for bringing out logs from the company's timber limits to Comox, at which point boomage facilities capable of holding 10,000,000 of logs are being provided. It is expected that 150,000,000 of lumber will be handled over the line annually. No further extension of the line is contemplated for at least two years.

Connors to Beau Lake, N.B.—The Dominion Parliament has voted a subsidy for a line from Connors, at the terminus of the Temiscouata Ry., to the foot of Beau Lake, on the boundary line between Quebec and New Brunswick.

Dominion Atlantic Ry.—The Nova Scotia Legislature has passed three Acts having reference to the D.A. Ry., two of them having dealings with the company's powers generally, and the third referring to the building of the North Mountain branch. Of the two general Acts the more important is the one authorizing the provincial guarantee to be placed on certain unsold debenture stock of the company, which it is proposed to dispose of in the British market, the control of the money so raised to be in that Government's hands.

The company proposes to carry out a number of betterments on the existing line, to improve the bridges near Digby, and to increase the efficiency of its steamship service, as well as to go on with the building of new lines. The North Mountain branch, starting from Centreville, is one of the lines proposed to be constructed, and the Act passed granted an extension of time for building it.

The Dominion Parliament has voted subsidies as follows:—For a line to the Government pier or wharf at Canning, N.S., not exceeding one mile; for a line from Brazil Lake to Kemptville, N.S., not exceeding 11 miles, and for a line from Centreville, westerly to Weston, N.S., not exceeding 15 miles. (May, pg. 349.)

Eastern Townships Ry. The Dominion Parliament has voted a subsidy to aid in building a line from the Intercolonial Ry. at St. Leonard's Jct., to Dudswell, Que., 36 miles. Dudswell is the terminal of the Hereford Ry. (operated by the Maine Central Rd.), and is a station on the Quebec Central Ry. (May, pg. 349.)

Erie, London and Tillsonburg Ry.—A subsidy has been voted by the Dominion Parliament to aid in building a line from Port Burwell to London, Ont., not to exceed 35 miles. (May, pg. 349.)

Essex Terminal Ry.—The by-law passed by the taxpayers of Windsor, Ont., May 2, authorized the raising of $20,000 by debentures to purchase 40 acres of land along MacDougall St., on the southwesterly side of the city, for factory sites. The E.T.R. proposes to build a spur 1.25 miles from its main line, either along MacDougall St. or further west, to tap this site and furnish railway connections with the trunk lines running into Windsor. The company's line is at present in operation from the G.T.R., east of Walkerville, to the C.P.R., three miles, and crosses the Pere Marquette R.R. at Walkerville. The rights-of-way all purchased, grading completed, and material on the ground for the exten-

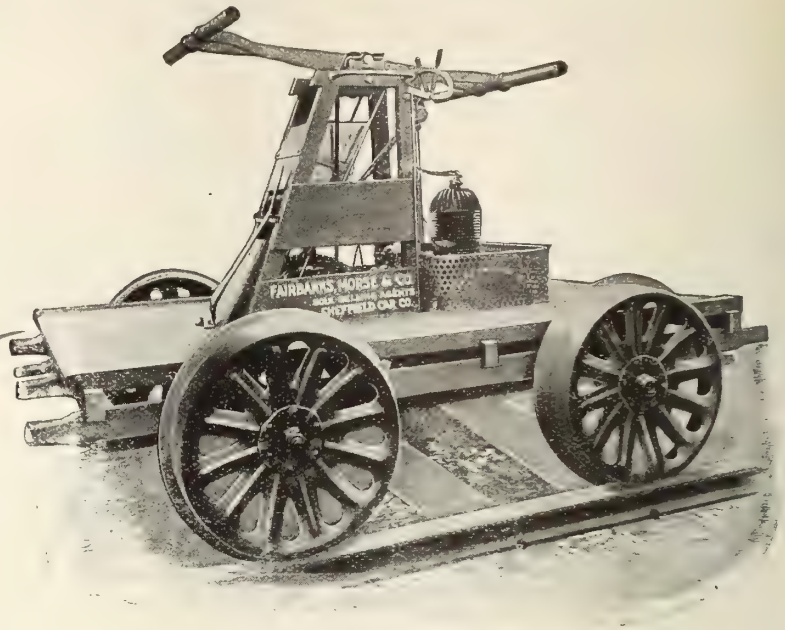
Combination Hand Power and Gasoline Power Section Car

5 H. P. GASOLINE MOTOR

Your men will do more work

—BECAUSE—

They start to work Fresh and Strong. They work harder and longer, for they can Ride Home Quickly. Sections can be lengthened and forces cut down with increased efficiency.



No. 13 Fairbanks-Morse Air Cooled Motor Car

The car rides easily with scarcely any side motion. The parts are all protected, and rain or moisture will not affect the running. Ten minutes daily will keep it in first-class running order. Speed 18 miles per hour.

The Canadian Fairbanks Co. Limited

MONTREAL ST. JOHN, N.B. TORONTO WINNIPEG CALGARY VANCOUVER

CANADIAN RAILWAY EQUIPMENT COMPANY

Manufacturers of

Cast Steel Bolsters for Freight Cars and Tenders

Cast Steel Double Body Bolsters for Passenger Cars

Cast Steel Side Frames and End Sills

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sion of the line from the C.P.R. to the Michigan Central Rd. tunnel, about 1.25 miles. This portion of the line will be put in running order as soon as the point of connection with the M.C.R. track has been decided on. The company has begun the construction of an interlocking plant at the crossing of the P.M.R. at Walkerville, and another near the crossing of the C.P.R. and the Windsor, Essex and Lake Shore Rapid Ry.

The Dominion Parliament has passed an Act amending the company's Act in several details. The capital is increased to $400,000, the date of the annual meeting is altered to the third Tuesday in Jan.; it is authorized to issue bonds to the amount of $40,000 a mile, and to an additional $10,000 a mile in case of double track line. A new section authorizes the company to acquire steam and other vessels, and to operate the same, and to carry on business as forwarding agents, wharfingers and warehousemen.

The Board of Railway Commissioners has issued an order authorizing the company to open for traffic the portion of its line from the junction with the G.T.R. in Sandwich East tp., to its junction with the C.P.R. in Sandwich West tp. (July, 1909, pg. 477.)

Gatineau and Ungava Ry.—The Dominion Parliament has incorporated a company with this title to build a railway from the National Transcontinental Ry. at the crossing of the northwest branch of the Gatineau River to Lake Chibougamau, 140 miles, thence to Lake Mistassini, 60 miles, thence to Homani or Summit Lake on the Quebec-Ungava boundary, 450 miles from the starting point, thence round the sources of Big River to Lake Kaniapiskan and on by either of two routes to Leaf Lake, on Ungava Bay, a total distance of 900 miles, with a branch from Lake Minto to Payne Lake, Ungava, about 200 miles. The provisional directors are:—A. T. Genest, E. B. Devlin, Ottawa; R. B. Masson, Terrebonne, Que.; S. T. Green, Quebec; F. W. Rous, Montreal. (Jan., pg. 19.)

Great Northern Mining Co.—The Nova Scotia Legislature has authorized this company to build from its mill at Cheticamp to Eastern Harbor, on Cape Breton Island. (May, pg. 351.)

Ha Ha Bay Ry.—The Dominion Parliament has voted a subsidy to aid in building a line from Jonquieres, via Laterriere, to Baie des Ha Ha, 24 miles. (Feb., pg. 109.)

Halifax and Eastern Ry.—Subsidies have been voted as follows by the Dominion Parliament:—For a line from the Intercolonial Ry., near Dartmouth, to Dean's Settlement, N.S., not exceeding 80 miles; for a line from Dean's Settlement to Melrose, not exceeding 52 miles, and for a line from New Glasgow to Melrose, thence to Guysborough, with a branch to Country Harbor, not exceeding 116 miles. These subsidies are voted to any company which will build the lines. The H. and E. Ry. Co. had been in negotiation with the N.S. Government in reference to them, as had also the Halifax North Eastern Ry. and its predecessor, the Musquodoboit Valley Ry. (April, 1909, pg. 247.)

Halifax and South Western Ry.—We are officially advised that it is expected to have the branch line from Nictaux to the Torbrook Iron Mines, and the ore shipping plant at Port Wade, N.S., completed early in June. The grading and tracklaying on the branch line was completed last fall, and the ballasting was done this spring. The Canada Iron Corporation has a large ore crushing plant, capable of crushing over 1,000 tons of ore a day, in operation at the mines, and as soon as the branch is opened it will begin shipping the ore to Port Wade, where it will be passed through the ore bins and loading plant to special steamers, which will carry it to the furnaces. As soon as the ballasting on the branch from Nictaux has been completed the ballasting gang will start work on adding additional ballast to the Middleton and Victoria Beach section.

A subsidy has been voted by the Dominion Parliament in aid of the building of a branch railway from Lunenburg to Upper La Have, N.S., not to exceed 12 miles. (Oct., 1909, pg. 743.)

Howe Sound and Northern Ry.—A press report from Vancouver, May 10, states that it is expected to have the first section of this railway completed and ready for operation in about six weeks. The report says:—With the bridging of the south fork of the Squamish river, a little more than a mile from Newport, the southern terminus of the line, and the grading of the gap between that place and the bridge the road will be practically completed. (May, pg. 351).

Hudson Bay and Pacific Ry.—Press reports state that L. Taylor has started work on the north side of the Saskatchewan River, and is proceeding with the work of making a survey in the direction of Fort Churchill, and that L. T. Grice, in charge of a second party, has left to take up the work at another point. The object of these surveys is to find a better route than the one previously surveyed by J. B. Tyrrell, which was via Pas Mission. The route to be followed by the first party will be southeast of Candle Lake, thence to Goose Lake, and will touch the survey for the Government line to Hudson Bay, about 150 miles north of the Pas. The second party will work round the north east of Candle Lake, and thence by an air line to Frog Portage and on to Fort Churchill. H. Spicer, who is stated to be the managing director of the company, is quoted as having stated in an interview at Prince Albert, May 3, that the building of the line will be started this summer, and that there are no financial difficulties in the way of the work being gone on with. He also stated that the headquarters and terminus of the line would be at Prince Albert, and that it was possible the line would be operated in connection with the Government line to Hudson Bay.

We are advised from an independent source that the surveys made during last winter by Mr. May were of a preliminary character, and that the present surveys are for the location of the line northerly. The intention is to obtain a route away from the muskegs in the vicinity of Pas Mission. The company is an English one, its object being stated by a representative of the company to build the road, and that it is not seeking favors from any source. (May, pg. 351.)

Intercolonial Ry.—We are officially advised that the contract with D. G. Kirk for building the division between George's River and Sydney Mines, N.S., calls for its completion by Nov. 30. The construction is light, the maximum gradient 1% and the maximum curvature 5 degrees. There is only one bridge of any size on the line, viz., that across George's River, which will consist of four spans, through plate girders of 86 ft. over all, on masonry abutments and piers. Local press reports state that Wm. McDonald, New Glasgow, has a subcontract on the line.

A new survey has been made for the proposed extension from North Sydney to Leitche's Creek, about seven miles. The first survey was along the shore road, but it was feared that the land damages would be heavy, consequently a new survey at the back of the town has been made.

The Dominion Parliament has voted $1,800 to divert a highway in order to eliminate a crossing at rail level between St. Cyrille and Drummondville, Que.

The Government Railways Managing Board is making an inspection of several of the branch lines in Nova Scotia and New Brunswick, which it is proposed to acquire and operate under lease as I.C.R. branches.

A contract is reported let to F. A. Ronnan & Co., for building a siding from near Rocky Lake, N.S., to the Acadia Powder Co.'s dynamite works, about one mile. (May, pg. 351).

International Ry. of New Brunswick.—The Dominion Parliament has granted a subsidy for 3.5 miles of line between Campbellton and St. Leonards, this being the difference between the mileage actually constructed, and the mileage previously subsidized. A subsidy of $9,375 was also granted towards building a bridge across the St. John River between St. Leonards, N.B., and Van Buren, Me., the State of Maine contributing an equal amount. This bridge will form the connecting link between the I.R. of N.B. and the Bangor & Avoostook Ry. terminating at Van Buren. The press reports state that construction will be started on the bridge at an early date.

The Dominion Parliament also voted $12,500 towards the construction of a railway bridge across the Restigouche River at Metapedia, the provinces of Quebec and New Brunswick to contribute $5,000 each; and $6,250 to pay the Department of Railways and Canals for original superstructure of Restigouche railway bridge. This bridge when constructed will give connection between the I.M. of N.B.'s line at Campbellton, and the Atlantic and Lake Superior, what will in future be known as the Atlantic, Quebec and Western Ry. (May, pg. 351).

Inverness Ry. and Coal Co.—The Dominion Parliament has voted a subsidy for an extension of the company's existing railway from Broad Cove to Cheticamp, N.S., 37 miles. (Sept., 1908, pg. 617.)

Joliette to Lake Manuan.—A subsidy has been voted by the Dominion Parliament to aid in building a line from Joliette to Lake Manuan, Que., 60 miles. Press reports states that the Joliette and Lake Manuan Ry. Co. has opened an office in Joliette, Que., and that—Patton, its Chief Engineer, is making surveys for a route between that town and Lake Manuan. The line, as projected will, it is said, start from L'Assumption River, run to St. Jean de Matha, thence through the mountainous country north of St. Emilie de l'Energie, along the Black River to St. Michel de Saints. The reports state that the necessary capital for the line is being found in England. (July, 1908, pg. 403).

Kettle Valley Lines.—Subsidies have been voted by the Dominion Parliament to aid the Kettle River Valley Ry. to build the following lines:—From Midway to a junction near Merritt, B.C., with the Nicola, Kamloops and Similkameen Ry., 250 miles; from near Coldwater River to the Fraser River, not exceeding 50 miles.

W. P. Tierney stated in Phoenix, B.C., April 28, that his firm had a contract to build a 10-mile extension of the line up the north fork of the Kettle River to the Franklyn camp; to complete certain work along the west fork of the Kettle River, to extend the line a further distance of 10 miles up the valley to Beaverdell, and beginning at the other end to build 30 miles from Merritt up the Coldwater Valley. He expected that work would be started on these lines May 15. (May, pg. 351.)

Lac Seul, Rat Portage and Keewatin Ry.—The Dominion Parliament has voted a subsidy to aid in building a line from Kenora, Ont., to the National Transcontinental Ry., 22 miles. The subsidy voted in 1908 was for 18 miles only. (April, pg. 271.)

L'Avenir and Melbourne Ry.—The Do-

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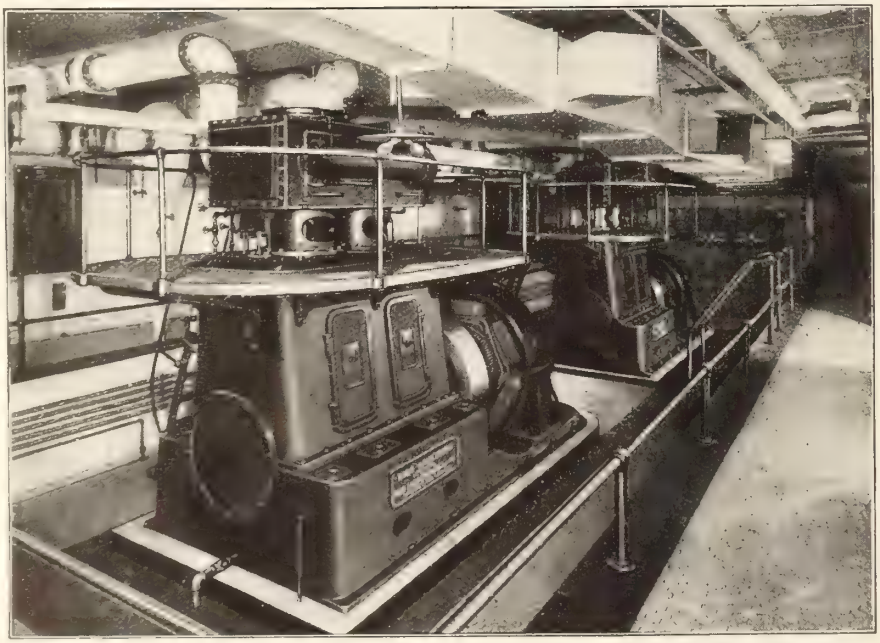

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minion Parliament has granted a subsidy to aid in building a line from Melbourne to Drummondville, Que., 28 miles. A press report states that preparations are in progress for beginning construction, and that as soon as the line is completed the G.T.R. will take it over. (June, 1908, pg. 403).

Little Nation Ry.—A subsidy has been voted by the Dominion Parliament to aid in building a line from Papineauville, on the C.P.R., Montreal-Ottawa line, northerly towards Lake Nominingue, Que., about 30 miles. (Mar., pg. 211.)

Lotbiniere and Megantic Ry.—A subsidy has been voted by the Dominion Parliament to aid in building an extension of this line southerly from near Lyster to Lime Ridge, Que., 50 miles. Lime Ridge is the terminus of the Dudswell-Lime Ridge branch of the Hereford Ry. (constructed by the Dominion Lime Co.) which is operated by the Maine Central Rd. A subsidy has also been voted to aid in building a line from some point on the existing line in Inverness tp. to the Quebec Bridge, not to exceed 30 miles. (See Quebec Eastern Ry., Oct., 1909, pg. 745.)

Mabou Coal and Ry. Co.—The Nova Scotia Legislature has extended the time within which the company may complete its projected line. (June, 1908, pg. 405.)

Manitoulin and North Shore Ry.—Subsidies have been voted by the Dominion Parliament in aid of the following lines:—From the line between Little Current and Sudbury, westerly towards the Algoma Central and Hudson Bay Ry., not exceeding 76 miles; from Little Current, crossing the C.P.R. at Stanley, to Sudbury, not exceeding 88 miles; from Sudbury northerly, 30 miles. (May, pg. 351.)

Margaree Coal and Ry. Co.—Subsidies in aid of the building of 50 miles of the projected lines of this company have been voted by the Dominion Parliament, as follows:—From near Orangedale, on the Intercolonial Ry., by the east side of Lake Ainslie, and St. Rosa to Chimney Corner Cove, 46 miles; and from the I.C. Ry. between Orangedale and Point Tupper to Caribou Cove, on Inhabitants River or Bay, N.S., four miles.

The Nova Scotia Legislature has extended the time, and otherwise amended the conditions of the agreement under which the Government was to aid in the construction of lines, for which the Dominion Parliament has revoted the subsidies mentioned above. (Jan., pg. 21.)

Maritime Coal and Ry. Co.—The Nova Scotia Legislature has granted an extension of time for the construction of the lines authorized to be built.

New ties are being put in along the company's line between Maccan and Joggins Mines. Other betterments will be done during the summer. (Dec., 1909, pg. 883.)

Michigan Central Rd.—Two train loads of 100 lb. steel rails have been delivered, one at Essex and the other at Courtright, Ont., for use in relaying the tracks between Essex and Tilbury, 23 miles. The track is being raised several inches in connection with the laying of this heavier track. The 80 lb. rails taken up are being relaid on other portions of the company's lines. (April, pg. 271).

Montreal, Kapitachuan and Ruperts Bay Ry.—The Dominion Parliament has incorporated a company with this title. The projected route of the line, as laid out, on paper, from the Back River to Lake Kapitachuan, on the National Transcontinental Ry., is 194 miles long. Surveys are being made by E. J. Reambooth, and it is stated that so far as the route has been examined there are no difficulties in the way of construction, although several large bridges will have to be built. The point of junction with the N.P. Ry. is 140 miles west of that proposed for the Joliette-Lake Manuan Ry., and 63 miles east of the route said to be preferred by the G.T.R. (Mar., pg. 187; see also Montreal northerly; and Joliette and Lake Manuan Ry.)

Montreal Northerly.—The Dominion Parliament has voted a subsidy to aid the building of a line from Montreal to the National Transcontinental Ry., not to exceed 200 miles.

A Montreal dispatch states that the granting of this subsidy was arranged for after an interview between the Minister of Railways and C. M. Hays, President G.T.R. and G.T. Pacific Ry. It is stated that three routes have been considered by the company and submitted to the Department. The first is via Joliette and St. Gabriel to join the National Transcontinental Ry. at Ribbon River, a tributary of the St. Maurice. Another goes directly north-westerly parallel with the C.P.R. Nominingue branch, continuing north-east from Nominingue to the N.T.R. about midway between Lake Abitibi and La Tuque. The third route would give Montreal connection via Ottawa to the N.T. Ry., a little to the west of Obaska Lake. The first of these lines, from Joliette, is that being surveyed by the Joliette and Lake Manuan Ry., and its total length from Montreal would be about 157 miles. The second route is 225 miles long and is the one favored by the G.T.P.R., its point of junction with the N.T.R. being 203 miles west, which would be of advantage in bringing grain into Montreal for ocean shipment. (See also Joliette and Lake Manuan Ry.; and Montreal, Kapitachuan and Ruperts Bay Ry.)

Nelson River Ry.—The Dominion Parliament has incorporated a company with this title in the terms of the notice of application. (Jan., pg. 21.)

New York and Canadian Pacific Rd.—The people who are endeavoring to keep alive this company incorporated under the laws of the State of New York, are working on a new tack. For some years the Governor has refused to sign the acts passed by the Legislature permitting the company an extension of time for completing the line. On May 11, a resolution was referred to the Senate Judiciary Committee, authorizing the company to take any and all steps necessary for the completion of its railroad and approaches and connections, and the public service commissions are directed to issue such certificates as shall facilitate the construction of the road. Power and authority is given the Supreme Court to hear orders upon the application of the railroad company to enforce this resolution of the Legislature.

Ontario, Northern and Temagami Ry.—A subsidy has been voted by the Dominion Parliament for a line from Sturgeon Falls north-westerly to the westerly shore of Lake Timagami, not to exceed 50 miles. (Sept., 1908, pg. 617.)

Owen Sound and Meaford Ry.—An unconfirmed local press report states that Cleveland, Ohio, capitalists are looking over the district with a view of financing the construction of this projected railway. It is stated that if they take up the project the line will be extended from Meaford, via Collingwood to Orillia, there making a connection with the C.P.R., the G.T.R., and the Canadian Northern Ry. (Nov., 1909, pg. 829).

Port Hood-Richmond Ry.—The Nova Scotia Legislature has extended the time within which the company's authorized lines of railway may be built. (April, 1908, pg. 245.)

Prince Edward Island Ry.—A statement was recently made in the House of Commons by the Minister of Railways that a survey was made in 1908 for a branch line from Montague to the Murray Harbour branch in Queen's county, and plans and estimates for the line are under the consideration of the Department. Surveys were made over two routes, one direct, the other by way of Kinross.

A return made to the House of Commons as to surveys made for the proposed branch line between London and north shore point, shows that the estimates for the various routes and sections were as follows:—West side of Stanley River to main line, at or near Bedford, 31.4 miles, $1,257,618.14; Royalty Jct. to junction with last mentioned route at Brackley Point road, $210,003.95. (This may be made part of the main loop line which would then be from the west side of Stanley River to Royalty Jct.) West side of Stanley to Kensington, via French River, 19.48 miles, $713,281.75; west side of Stanley River to Kensington, via Long River, 16.88 miles, $601,645.54; west side of Stanley River to Kensington, via Malpeque, 28.34 miles, $976,496.78; Emerald Jct., via Clinton and Clinton, 13.5 miles, $446,787.78; Emerald Jct., via Granville and Stanley Bridge to Clifton and Clinton, 13 miles, $490,000. (April, pg. 273).

Quebec and New Brunswick Ry.—A subsidy has been voted by the Dominion Parliament to aid in building a line from Chaudiere Jct., on the Intercolonial Ry. for 62 miles to the international boundary between Quebec and Maine. (July, 1909, pg. 481.)

Queen's Central Ry.—The Nova Scotia Legislature has incorporated a company with this title to build a line through the centre of Queen's County.

Reid Newfoundland Co.—Construction has been started on the 70 mile branch from Shoal Harbor to Bonavista, Nfld., several gangs having been sent out from St. John's at the beginning of May. H. Burton, Perth, Ont., who was with the late Sir Robt. Reid on his C.P.R. and other contracts, is in charge of construction. (May, pg. 359).

Roberval, towards James Bay.—A subsidy has been voted by the Dominion Parliament for a line not to exceed 100 miles, from Roberval, Que., the present terminus of the Quebec and Lake St. John Ry., westward for 100 miles in the direction of James Bay.

St. Agathe, Que., Southerly.—A subsidy has been voted by the Dominion Parliament in aid of the construction of a line from St. Agathe des Montes station, on the Laurentian branch of the C.P.R., passing Lake St. Joseph and St. Mary, not exceeding 15 miles.

St. Joachim to Seven Islands.—The Dominion Parliament has granted a subsidy to aid in building a line from St. Joachim towards Seven Islands, with branches to Murray Bay and Baie St. Paul, Que., not to exceed in all 170 miles.

St. John River Valley Ry.—A subsidy has been voted by the Dominion Parliament for a line from Grand Falls to St. John, N.B., not exceeding 228 miles. The New Brunswick Legislature has authorized a guarantee of bonds to aid in the building of a line between the same points, and the Premier recently stated that surveys will be proceeded with at once. Two survey parties are being equipped for the field, one to work from Fredericton to Welsford, and the other between Woodstock and Andover. All the necessary data are available for the route between Fredericton and Woodstock. It is expected that the surveys will be completed during the summer, and that a decision will be reached as to building the line—either by the Provincial Government, or by a private company—in the fall. (May, pg. 353).

St. Lawrence and Ungava Ry.—The application to the Dominion Parliament for an Act incorporating a company

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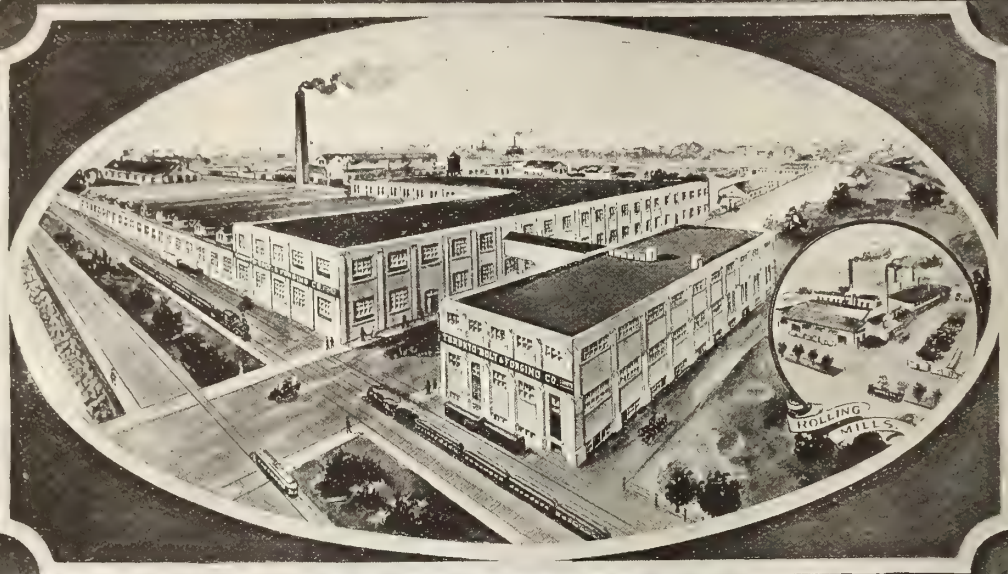

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with this title did not pass. It was sought to obtain power to build a railway from the St. Lawrence River, in Berthier County, north-easterly to Ungava Bay, the persons named as provisional directors in the application being G. D., W. M. and J. K. Condie, R. Bickerdike, and F. Munro, Montreal.

Sharbot Lake to Carleton Place.—The Dominion Parliament has voted a subsidy to any railway company building a line from Sharbot Lake or Bathurst station, on the C.P.R. Toronto-Montreal line, via Lanark Village, to Carleton Place, Ont., on the C.P.R. transcontinental line, 41 miles.

Southern Central Pacific Ry.—Subsidies have been voted by the Dominion Parliament to aid in building the following lines:—From two miles west of Pincher station on the C.P.R. Crow's Nest Pass branch, north-easterly for 10 miles, and for another line from the same point south-westerly for 40 miles. (July, 1909, pg. 481.)

Sydney and Louisburg Ry.—The Nova Scotia Legislature has incorporated a company with this title with power to build lines on Cape Breton Island. We are advised that the line known as the Sydney and Louisburg Ry., now owned and operated by the Dominion Coal Co., will still continue to be an integral part of the enterprise, which now also includes the Dominion Iron and Steel Co., but will be operated separately under this new charter.

The company has under consideration the building of a spur line from the proposed North Sydney-Leitches Creek line of the Intercolonial Ry. to new collieries at Point Aconi. (Feb., 1909, pg. 105.)

Temiskaming and Northern Ontario Ry.—Tenders are under consideration for the erection of three standard houses for section men at Gillies' Depot, Uno Park and Charlton, Ont.; and for additional sectionmen's houses "for bachelors" at various points on the line.

Tenders are to be asked at an early date for the building of a permanent general traffic road from Charlton to Elk Lake. The settlers and prospectors in the Gowganda districts are petitioning for a railway into the country, but at present the Commissioners will not undertake anything more than an ordinary roadway, as far as Elk Lake. Plans are being prepared for the general improvement of the yard and station at Cobalt.

Replying to a question in the House of Commons, April 30, the Minister of Railways said there was at present no intention of granting a subsidy in aid of this railway. If the Dominion Parliament voted a subsidy, he would be inclined to say that the line should come under Dominion jurisdiction—under the Board of Railway Commissioners—and the Ontario Government would not care to permit that. (May, pg. 353).

Toronto, Lindsay and Pembroke Ry.—A subsidy has been voted by the Dominion Parliament to aid in building a line from Golden Lake to Bancroft, Ont., not exceeding 51 miles. (Jan., 1904, pg. 9.)

Tusket Wedge to Riverdale, N.S.—The Dominion Parliament has revoted a subsidy to aid in building a railway from Tusket Wedge to Riverdale station, on the Halifax and South Western Ry., not exceeding eight miles.

The Halifax and South Western Ry. has power to construct branch lines, and the Nova Scotia Legislature has incorporated the Tusket Wedge Ry. Co. to build a line between the points named.

Vancouver, Fraser Valley and Southern Ry.—The location plans of this projected railway have been approved by the Board of Railway Commissioners for the portion of the line from the east boundary of Vancouver to the northwest boundary of New Westminster, B.C. (July, 1909, pg. 481).

York and Carleton Ry.—The Dominion Parliament has voted a subsidy for a line from its present terminus to the National Transcontinental Ry., not exceeding nine miles. (Mar., 1909, pg. 177.)

Western Canada Power Co.—The Board of Railway Commissioners has approved location plans for the company's projected railway from Ruskin station on the C.P.R., to Stave Falls, B.C. (Mar., pg. 187).

Canadian Northern Ry. Earnings, Etc.

Gross earnings, working expenses, net profits, increases or decreases from 1908-09, from July 1, 1909:

	Earnings.	Expenses.	Net Earnings.	Net Increase or Decrease.
July	$ 843,500	$613,900	$229,600	$26,700+
Aug.	807,100	602,700	204,400	18,300+
Sept.	1,076,800	765,300	311,500	60,400+
Oct.	1,384,200	903,500	480,700	60,600+
Nov.	1,517,600	970,100	547,500	134,000+
Dec.	1,160,300	825,900	334,400	49,300+
Jan.	792,200	669,700	122,500	22,200+
Feb.	698,900	567,400	131,500	35,100+
Mar.	934,100	661,800	272,300	67,800+
	$9,214,600	$6,580,300	$2,634,300	$478,200+
Inc.	$ 1,812,000	$1,333,800	$478,200	.....

Approximate earnings for Apr. $1,153,100, and for two weeks ended May 14, $579,000, against $741,200 and $335,300 for same periods 1909.

C.P.R. Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits, increases or decreases over 1908-9, from July 1, 1909:

	Earnings.	Expenses.	Net Profits.	Net Increase or Decrease
July	7,140,029.93	4,660,159.20	2,479,870.73	205,297.48+
Aug.	7,426,984.62	4,462,926.75	2,964,057.87	385,159.16+
Sept.	8,323,178.03	4,891,288.86	3,431,889.17	1,317,281.40+
Oct.	9,744,596.87	5,358,299.68	4,386,297.19	1,731,030.48+
Nov.	9,075,963.93	5,383,625.98	3,692,337.95	1,471,258.60+
Dec.	8,214,758.01	5,099,334.94	3,115,423.10	918,671.53+
Jan.	6,104,426.90	4,787,830.51	1,316,596.39	926,846.56+
Feb.	5,992,052.14	4,505,032.00	1,487,019.24	724,874.46+
Mar.	7,796,337.54	5,085,164.15	2,711,173.39	907,465.26+
	$69,818,328.00	$44,233,662.97	$25,584,665.03	$8,587,884.93+
Inc.	$12,859,839.08	$4,271,954.15	$8,587,884.93	.....

Approximate earnings for Apr., $7,830,000, and for two weeks ended May. 14, $3,649,000, against $6,260,000 and $2,702,000 for same periods 1909. Mileage operated increased to 10,276.

DULUTH, SOUTH SHORE AND ATLANTIC RY.—Operating revenue for March, $276,893.18; operating expenses, $175,047.59; net revenue, $101,845.59, against $217,138.07 operating revenue; $153,169.32 operating expenses; $63,968.75 net revenue for March, 1909. Aggregate operating revenue for nine months ended Mar. 31, $2,421,665.56; operating expenses, $1,648,929.79; net revenue, $772,735.77, against $1,993,583.83 aggregate operating revenue; $1,456,795.24 operating expenses; $536,788.59 net revenue for same period 1908-09. Approximate earnings for April, $276,763, and for two weeks ended May 14, $134,889, against $224,968 and $109,312 for same periods, 1909.

MINERAL RANGE RD.—Operating revenue for March, $68,453.92; operating expenses, $64,115.66; net revenue, $4,338.26, against $70,918.16 operating revenue; $60,183.23 operating expenses; $10,734.93 net revenue for March, 1909. Aggregate operating revenue for nine months ended Mar. 31, $640,124.27; operating expenses, $553,409.98; net revenue, $86,714.29, against $622,173.17 aggregate operating revenue; $518,758.08 operating expenses; $103,415.09 net revenue for same period, 1908-09. Approximate earnings for April, $60,816, and for two weeks ended May 14, $28,279, against $67,785 and $31,247 for same periods, 1909.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RY.—Operating revenue for March, $1,132,994.49; expenses and taxes, $725,914.01; net operating income, $407,080.48, against $1,022,015.65 operating revenue; $643,168.89 expenses and taxes; $378,846.76 net operating income for March, 1909. Aggregate operating revenue for nine months ended Mar. 31, $11,781,611.73; expenses and taxes, $6,635,588.88; net operating income, $5,146,022.85, against $9,600,109.53 aggregate operating revenue; $5,690,139.49; expenses and taxes, $3,639,970.04 net operating income for same period, 1908-09. Approximate earnings for April, $1,827,945, and for two weeks ended May 14, $838,168, against $1,521,236 and $701,066 for same periods, 1909.

CHICAGO DIVISION.—Operating revenue for March, $868,915.81; expenses and taxes, $554,764.04; net operating income, $314,151.77, against $666,544.69 operating revenue; $482,395.79 expenses and taxes; $184,148.90 net operating income for March, 1909. Aggregate operating revenue for nine months ended Mar. 31, $6,522,178.89; expenses and taxes, $4,554,449.90; net operating income, $1,967,228.99, against $5,669,430.00 aggregate operating revenue; $4,088,326.34 expenses and taxes; $1,581,103.66 net operating income for same period, 1908-09.

Grand Trunk Ry. Earnings, Expenses, Etc.

The following figures show the earnings of the G.T.R., C.A.R., G.T. Western Ry., and D.G.H. and M. Ry., separately, for March, as compared with March, 1909:—

GRAND TRUNK RAILWAY.

	1910.	1909.
Earnings	$2,887,400	$2,423,200
Expenses	2,088,200	1,743,100
Net earnings	$ 799,200	$ 680,100

CANADA ATLANTIC RAILWAY.

	1910.	1909.
Earnings	$165,000	$129,200
Expenses	125,000	127,600
Net earnings	$ 40,000	$ 1,600

GRAND TRUNK WESTERN RAILWAY.

	1910.	1909.
Earnings	$582,650	$528,882
Expenses	399,400	364,500
Net earnings	$183,250	$124,500

DETROIT, GRAND HAVEN AND MILWAUKEE RY.

	1910.	1909.
Earnings	$158,100	$126,000
Expenses	122,600	109,200
Net earnings	$ 35,500	$ 16,800

Approximate earnings for April, $3,570,367, and for two weeks ended May 14, $1,672,673, against $3,142,748 and $1,456,700 for same periods, 1909.

TRAFFIC RECEIPTS OF THE SYSTEM.

Aggregate from Jan. 1 to Apr. 30:—

	1910.	1909.	Incr.
Grand Trunk	£2,097,064	£1,799,139	£297,925
Can. Atlantic...	119,710	100,252	19,458
G.T. Western...	427,198	360,114	67,084
D.G.H. & M...	125,756	99,416	26,340
Totals	£2,769,728	£2,358,921	£410,807

Requirements for Dominion Railway Legislation.—A sub-committee of the Railway Committee of the House of Commons prepared a report, April 8, recommending a number of changes in the procedure to be observed by promoters of bills. The report recommends that hereafter all private bills proposing to amend an Act of Parliament shall not merely refer to but recite in full any section or clause to be amended. All bills introduced for time extensions must be so framed as to recite not only the powers existing but shall also define the route, mention the terminal points and branches and indicate the principal places through or near to which the line is to pass. When it is proposed to repeal any section or clause of an act such section or clause must be recited. The same rule is to apply to any bill proposing to empower a corporation to give effect to powers contained in any provincial statute, letters patent or municipal ordinance. Where it is proposed to extend or renew an Act of Parliament of ten years' standing an absolutely new bill will be required, setting forth all the privileges sought except in cases where substantial progress has been made in the exercise of the original powers.

G.T.R. locomotive drivers and firemen have been conferring with the company's officials, with a view to re-arranging the wage schedule, on the expiry of the existing one in July.

The G.T.R. building and exhibit at the International Exposition at Brussels, Belgium, contains a number of things chiefly relating to the G.T.P.R., including oil paintings of scenes in the Yellowhead Pass and along the Skeena River, with a cinematograph of western scenes.

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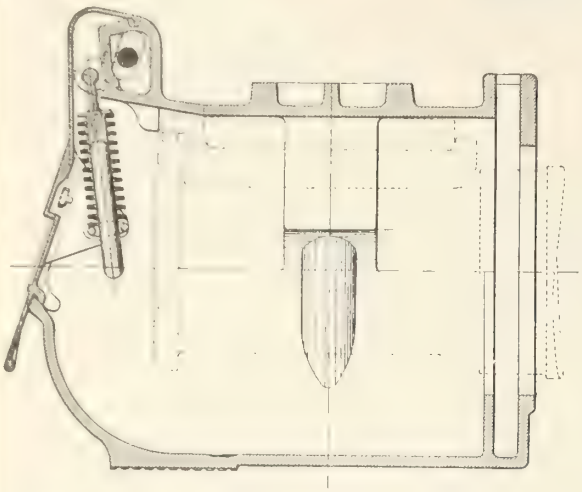

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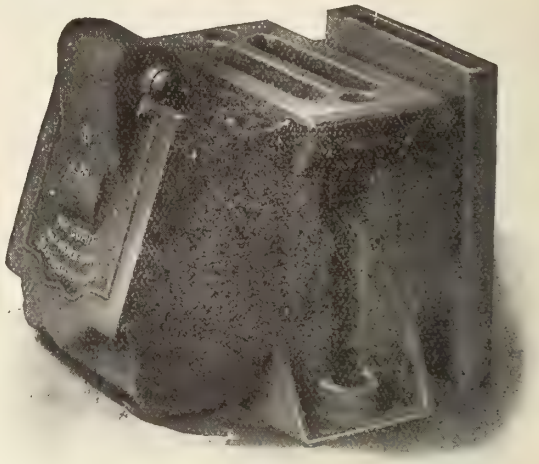

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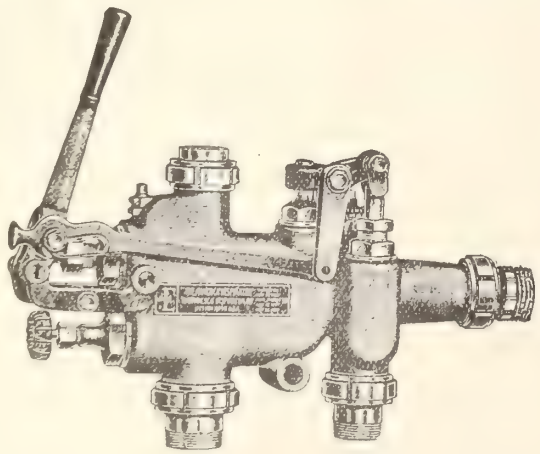

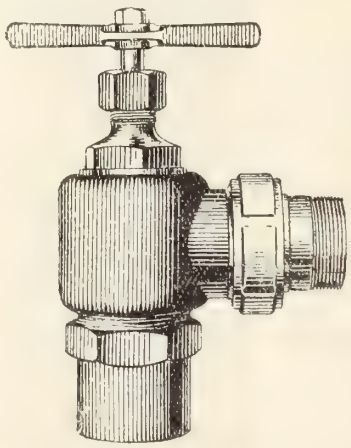

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C. P. R. Mallet Articulated Locomotive.

In our March issue we published a very important paper by G. I. Evans, describing the experimental Mallet articulated locomotive built by the C.P.R. In the discussion which followed the reading of the paper before the Canadian Railway Club, H. H. Vaughan, Assistant to the Vice President C.P.R., said in part:—

On the C.P.R. our bridge strengths do not admit of our running a heavy engine, such as those recently introduced into the U.S., of from 200 to 225 tons. Our engineering department is exceedingly particular about the weights of locomotives running over the bridges, and holds the mechanical department to the limits set. Of course, there is nothing novel about the arrangement of these cylinders, but when the arrangement was gone into, it was found that the long wheel-base allowed the engine had a total weight about 5% larger than the regular American Locomotive Co.'s Mallet design. Whether the feeling we had 5% made us want 10%., I don't know, but the engine was that much heavier than estimated, and this was the reason of some unpleasant remarks in the papers at that time. Another thing was, a Mallet engine could be made of the six-wheeled coupled type, and yet be turned on a 70 ft. turntable and housed in an 80 ft. roundhouse. The other arrangement was about 77 ft. over all, which was larger than could be handled in our present roundhouses and as this meant extra expense, it was decided to try and avoid this, hence the alteration referred to. In regard to the spreading of trucks, we went into this question carefully as to the action of the flange stress on a curve with a given amount of pressure between boiler and front of engine, or with a given action of centrifugal force tending to throw the boiler outwards, and we found in either case the pressure is exactly the same whether the trucks are 10 or 15 ft. apart. The pressure on the rail, of the boiler has a tendency to lurch, is also independent of the distance between the trucks. As Mr. Evans has described, the location of the cylinders in the centre certainly reduced the amount of movement in each of the pipe joints, and practically reduced the number on account of the small movement allowing the telescopic joint to be done away with. The objections evident were that, in this engine, the weight of the boiler is transmitted to the front truck at a point between the first and second pair of wheels, whereas in the usual design of Mallet it is transferred between the second and third pair of wheels, which means that the friction caused by the weight of boiler resting on the truck is acting on a longer bow arm than the ordinary type. This difficulty was overcome by the arrangement described in the paper, in which only a part of the weight of the boiler rests on the friction plates on the front truck, the remaining part being carried by the roller, which is designed to act as a centering arrangement, and practical experience shows that this device is satisfactory. Another possible disadvantage is the effect that might be caused on entering a curve. Evidently, when an engine of this type enters a curve, there is one point at which the pivot pin is at the junction of the tangent of the curve, and at this point the effect of any separation of the trucks is most objectionable. In other words, a consideration of the action of the engine at this point shows that the effective rigid wheel-base is practically from the end driver to the pivot pin in place of being a driving wheel-base on either truck. We find that what we may call the rigid wheel-base was not increased on this engine over that which has been used in other Mallet engines having four drivers coupled together. As a matter of fact, the action is entirely different. The driving wheel entering the curve is displaced about the pivot point as a centre, and not about the driver and other end of the truck. This accounts for the way in which this engine will take comparatively sharp curves with ease. Consideration will show that, when regarded in the light of this explanation, the more equally the centre of the boiler is over the pivot pin the easier the engine curves. Another point that came up was the fact that this design of engine throws the boiler forward. The action of the Mallet engine entering a curve is looked upon as similar to that of a switching engine. There does not, therefore, seem to be any real disadvantages connected with this arrangement other than the question of appearance. I did not much care for the appearance of this engine, but, outside of this, I do not see any reason for going back to the arrangement with the cylinders at the end. One point is the use of the sectional boiler, that is, cutting it into two parts. The front end is really more than a feed-water heater in this type of boiler, as, although the temperature of the water in it averages probably lower than in the back section, it must evaporate a portion of the steam. It is questionable what effect the centre chamber is going to have on the draft. The cards are taken at very low speeds, but one of them, test no. 1, shows considerable pressure in the low press cylinder, which is a common trouble with the Mallet engines. I saw some cards from a large Mallet the other day at a speed between 15 and 20 miles an hour, which did not give any greater tractive power than a large consolidation engine. The engine gave excellent results at low speeds, but in the higher speeds it was different. I think the speeds given ran from 4 to 6 miles per hour. I see in Mr. Evans' report on the Field Hill he shows a speed of 25 miles per hour coming into Stephen, and I would be glad if he would tell us whether he has noticed if the engine showed any sign of choking.

Jas. Powell, Chief Draughtsman, Locomotive Department G.T.R., said: It certainly required a great deal of courage and confidence to depart from the generally accepted forms and designs of this class of locomotive, and Mr. Vaughan and those associated with him in the construction of this engine are to be congratulated for the courage of their convictions. Whether the results will be borne out by experience remains to be seen, but, I sincerely hope so. I note the engine has been designed to be able to be turned on the turntables at present in use, and that it will be possible to house the engine in the present roundhouses. This is a good feature. It seems to me that, with the arrangement of cylinders as shown, the weight would not be equally distributed. Perhaps Mr. Evans could enlighten us on this point. In the description of the flues and superheater between, I would imagine that this would be a receptacle for cinders, but the writer states that this is not the case, otherwise there must be an excessive wear on the tube sheets and a difficulty in keeping the flues tight. The engine, of course, has not yet been in service long enough to demonstrate this. I presume it is not the company's intention to build any more of this type until such time as it has been proved that the engine is a success for the service it is intended for. Has a comparison been made of the cost of operating this type with the increased return for the haulage?

J. W. Harkom, said: I certainly approve of the departure from the ordinary type in so far as the distance of the drawbar from the centre of the truck is concerned. No doubt the Mallet compound generally is very defective in this respect. Any of us who have had an opportunity of seeing locomotives in service can realize what is meant by an overhang of this description, as it affects the cars badly, and whenever I have been asked what I thought of the Mallet locomotive, I have pointed out that feature as being objectionable. I do not see any reason why the cylinders should not be brought together. I would refer particularly to the diminuition of the number of packed joints as proving the benefit of this arrangement, as also the packing arrangement, which in itself, to any man who has to take care of a locomotive, means a great deal. The behavior of the boiler is too deep a subject and too complex to form a matter for discussion offhand, and I really do not feel in a position to discuss it tonight. One point about it which appeals to me is the feed-water feature. The utilization of some such method as that must result in improved steaming, as the heat is carried into the boiler and a certain amount of steam in the shape of latent heat must be generated in the front section, and, if I understand aright as to the behavior in service, the principle is justified by the results, the boiler being quite capable of furnishing steam to the cylinders. The reduction in weight is a serious matter, and, to some, may be considered an objection in comparison with other locomotives of that type, but I like the reduction in the packed joints, vibration, facilities for maintenance, and reduction in the overhang. I believe that the effect of the flange friction is rather reduced than increased by the arrangement, and flange friction is the biggest factor we have in reduction of the effective power of the locomotive. When the whole truck is able to accommodate itself to the curves, as these are, there certainly is, to my mind, very much to commend it. I think the Fairlie locomotive was certainly the precursor of the Mallet type. The former had, I know, many defects, but it seems to me that the Mallet compound is a development of the Fairlie, although the Mallet is a great advance on it.

H. Tandy, Canadian Locomotive Co., said: I do not profess to know very much about this Mallet engine, as I have not given it the amount of study I might have done, but I certainly think that the departure which you have made in that engine will fully pay for all your trouble. Mr. Vaughan said that the only thing he could see to find fault with was its appearance. I think its appearance is really the better with the cylinders bunched together, and, even if it is not, it is so much more pleasing in service that that alone should recommend it. To my mind, the additional truck placed on some Mallet engines is absolutely unnecessary.

A. A. Mayer, Master Mechanic G.T.R., said: We have heard [illegible] this engine from time to time, but this is the first opportunity we have had of getting a proper understanding as to its construction. It differs in a number of respects from the Mallet engine as generally constructed, and the departures from the general method of construction appear to me to be well founded. The general details also seem to have been worked out with skill and ingenuity. It seems to me the chief features are the location of the superheater and the turning around of the front engine, thereby bringing the cylinders closer together, reducing the length of the exposed pipes, and thereby lessening the tendency to condensation. The decrease of joints in these pipes is a commendable feature, and the shortening up of the engine over all by the cylinder arrangement is also another good point gained, enabling the engine to be housed in the different roundhouses without trouble.

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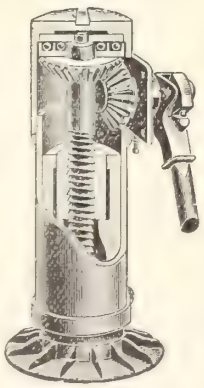
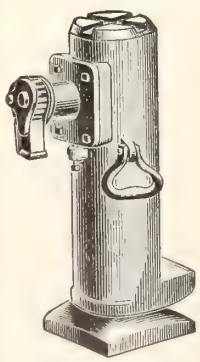


Sectional View



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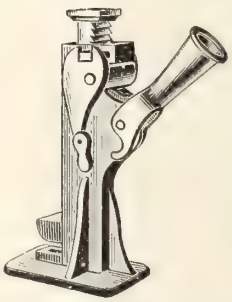

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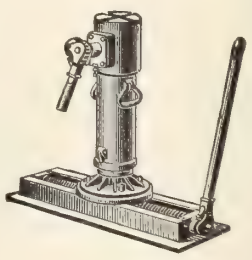
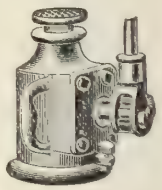


Traversing Jack



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G. I. Evans in reply, said: A speed of 20 miles an hour has often been reached, due to downgrade or a light train. On fig. 12 (see Railway and Marine World, March) this speed is reached between Hector and Stephen, where the grade is small, and, as there was a consolidation assisting, 20 miles an hour was easily attained. It is rather difficult to say whether there was any excessive back pressure on the l.p. pistons or not. The train was handled so easily by the two engines that the throttle was opened only slightly. Regarding Mr. Powell's remarks about the cinders cutting the tube ends, of course we cannot say definitely what will happen in the superheater compartment in future, but up to the present no trouble of this kind has developed. The superheater pipes will, to a certain extent, protect the tubes by taking the wear themselves, but, as they are easily removed for repair, it will not be a very serious matter if they do wear out occasionally. The steaming capacity of the boiler, as Mr. Harkom says, is entirely satisfactory, and no difficulty is experienced in maintaining full boiler pressure. When the locomotive was first put into service some adjustment was necessary in the smokebox on account of the change in coal.

The Railways and Forest Fires.

The Forestry Committee of the Conservation Commission has made the following recommendations to be added to the Railway Act, regarding the provisions relating to forest fires along railway routes:—

For each and every case in which a fire is started by sparks from a locomotive, and either begins outside the right-of-way or spreads therefrom to adjoining land, the company operating the railway when the fire is started, shall be liable to a fine of $1,000, to be recovered by summary prosecution before a stipendiary magistrate or two justices of the peace, provided that it shall be a sufficient defence if it be shown (1) that the company has used upon the locomotive the best available modern appliance for preventing sparks spreading; (2) that no negligence has been shown by the engineer or fireman of the locomotive, or any other servant of the company, conducing to the starting or spreading of the fires; and (3) that the company has maintained an efficient staff of fire rangers properly equipped with suitable appliances for fighting fires and proper and efficient means of traveling along the line, and that the staff has been prompt and diligent in taking all possible means to prevent the fire from spreading. The committee further recommended that the act respecting Government railways be amended to provide (1) that the Government railways maintain an efficient staff of fire rangers properly equipped with all suitable appliances for fighting fires and proper and efficient means of traveling along the line, and (2) that the Government railways, shall provide free transportation for all provincial fire guardians properly certified while traveling in the discharge of their official duties.

The Dominion Parliament has voted $2,500 to the Montreal Polytechnic School for the advancement of learning in connection with railway engineering and transportation in general, on condition that the railway companies contribute an equal amount. The C.P.R. and the G.T.R., prior to the passing of the vote, had promised to contribute to the funds, and the Quebec Legislature has promised to increase its contribution to an amount equal to that contributed by the Dominion Government and the railway companies.

Dominion Railway Subsidies for 1910.

The Dominion Parliament at its recent session voted subsidies in aid of railways at the rate of $3,200 a mile when the cost does not exceed $15,000 a mile, and increasing to $6,400 in proportion as the cost of construction increases. It is provided that all the lines for the construction of which subsidies are voted, unless already commenced, shall be begun within two years from Aug. 1, 1910, and completed within a reasonable time, not to exceed four years from Aug. 1. Other railways than the one securing the subsidy, may secure running powers over the lines to be constructed upon terms and conditions laid down by the Board of Railway Commissioners. In any contract entered into the Government may make it a condition that the line to be built shall be laid with new steel rails, made in Canada, and that the construction material, rolling stock and other equipment shall, as far as possible be of Canadian manufacture. The cost of the line includes all bridges not exceeding $25,000, but does not include right of way in cities, cost of terminals, or rolling stock. The subsidies granted are revotes of those granted in 1906 and 1908, which have not been earned, or in respect to which contracts have not been entered into between the Government and a company. In some instances, however, there has been a change in one or other of the terminal points, and in others there is a difference in the mileage, as compared with the votes of 1908. Following is a list of the lines to be aided arranged in provinces:—

NOVA SCOTIA.

DOMINION ATLANTIC RY.—To Government pier or wharf at Canning, one mile; from Brazil Lake, to Kemptville, 11 miles; from Centreville to Weston, 15 miles.

HALIFAX AND SOUTH WESTERN RY.—Lunenburg to Bridgewater, via Upper La Have, 12 miles.

INVERNESS RY. AND COAL CO.—From Broad Cove to Cheticamp, 37 miles.

MARGAREE COAL AND RY. CO.—From Orangedale to Chimney Corner Cove, 46 miles, and from Orangedale to Caribou Cove, four miles.

DARTMOUTH TO DEAN'S SETTLEMENT.—Not exceeding 80 miles.

DEAN'S SETTLEMENT TO MELROSE.—Not exceeding 52 miles.

MELROSE, ETC.—From New Glasgow to Melrose, Melrose to Guysborough, and a branch to Country Harbour, not exceeding 116 miles.

TUSKET WEDGE TO RIVERDALE.—Not exceeding eight miles.

NEW BRUNSWICK.

INTERNATIONAL RY. OF N.B.—To cover difference in mileage between Campbellton and St. Leonard's, as subsidized in 1908, and as actually constructed, 3.5 miles.

YORK AND CARLETON RY.—From present terminus to National Transcontinental Ry., nine miles.

CONNORS TO GRAND LAKE.—Not exceeding 18 miles.

GRAND FALL TO ST. JOHN.—Not exceeding 228 miles.

PLASTER ROCK TO RILEY'S BROOK.—Not exceeding 28 miles.

QUEBEC.

ATLANTIC, QUEBEC AND WESTERN RY.—From Paspebiac to Gaspe, along the shore, not exceeding 102 miles.

CANADIAN NORTHERN QUEBEC RY.—From Arundel to Preston-Hartwell tp., not exceeding 30 miles, and from Montreal to Hawkesbury, Ont., not exceeding 65 miles.

EASTERN TOWNSHIPS RY.—From St. Leonard's Jct., on the Intercolonial Ry., to Dudswell, 36 miles.

HA HA BAY RY.—From Jonquieres to Baie des Ha Ha, not exceeding 24 miles.

L'AVENIR AND MELBOURNE RY.—From Melbourne to Drummondville, not exceeding 28 miles.

LITTLE NATION RY.—From Papineauville towards Nominique, not exceeding 30 miles.

LOTBINIERE AND MEGANTIC RY.—From Lyster to Dudswell, 50 miles, and from Inverness tp. to the Quebec Bridge, 30 miles.

QUEBEC AND LAKE ST. JOHN RY.—From Valcartier station to St. Catherine, not exceeding 3.8 miles; from Valcartier station towards Gosford, 5.50 miles; from the end of the 35th mile of the branch to La Tuque on the St. Maurice River, to La Tuque Falls, 5 miles; from La Tuque Falls to the mouth of the River Croche, 5 miles; from the La Tuque branch to the steamboat landing near La Tuque, not exceeding 1.6 miles; from Chicoutimi, south, or southeast, not exceeding 5 miles; from Herbertville to St. Joseph d'Alma, not exceeding 10 miles.

QUEBEC AND NEW BRUNSWICK RY.—From Chaudiere Jct. to the international boundary between Quebec and Maine, not exceeding 62 miles.

JOLIETTE TO LAKE MANUAN.—Not exceeding 160 miles.

MONTREAL NORTHERLY.—From Montreal to the National Transcontinental Ry., not exceeding 200 miles.

ROBERVAL TOWARDS JAMES BAY.—Not exceeding 100 miles.

ST. JOACHIM TOWARDS SEVEN ISLANDS.—Not exceeding 170 miles, including branches to Murray Bay and Bari St. Paul.

STE. AGATHE DES MONTS TO HOWARD TP.—Not exceeding 15 miles.

ONTARIO.

ALGOMA CENTRAL AND HUDSON BAY RY.—From Sault Ste. Marie to White River or Dalton, 200 miles; from Michipicoten Harbor towards C.P.R., not exceeding 25 miles; from White River or Dalton towards the National Transcontinental Ry., 50 miles.

BRACEBRIDGE AND TRADING LAKE RY.—For a line from Bracebridge to a point near Baysville, not exceeding 16 miles.

ERIE, LONDON AND TILLSONBURG RY.—From Port Burwell to London, not exceeding 35 miles.

KINGSTON, SMITH'S FALLS AND OTTAWA RY.—From Kingston to Ottawa, not exceeding 101 miles.

LAC SEUL, RAT PORTAGE AND KEEWATIN RY.—From Kenora to the National Transcontinental Ry., not exceeding 22 miles.

MANITOULIN AND NORTH SHORE RY.—For lines from the M. and N.S.R., between Little Current and Sudbury, westerly towards the Algoma Central and Hudson Bay Ry., not exceeding 76 miles; from Little Current, thence crossing the C.P.R. near Stanley, thence to Sudbury, not exceeding 88 miles; from Sudbury, northerly, not exceeding 30 miles.

NIPIGON RY.—From near Nipigon station on C.P.R., to Nipigon Lake, not exceeding 30 miles; from Nipigon Bay to the west side of Lake Helen, on line of Nipigon Ry., not exceeding 3½ miles; from the Nipigon Ry., near crossing of Fraser River to Lake Jesse, by Cameron Falls, not exceeding 1½ miles; from north shore of Lake Nipigon, northerly, not exceeding 45 miles.

ONTARIO, NORTHERN AND TIMAGAMI RY.—From Sturgeon Falls, northwesterly, to the westerly shore of Lake Timagami, not exceeding 50 miles.

ST. MARY'S AND WESTERN ONTARIO RY.—From Embro to Exeter, not exceeding 26 miles.

TORONTO, LINDSAY AND PEMBROKE RY.—From Golden Lake to Pamphro[illegible] exceeding 51 miles.

SHARBOT LAKE TO CARLETON PLACE.—From Sharbot Lake or Bathurst to Lanark, to Carleton Place, not exceeding 41 miles.

ALBERTA.

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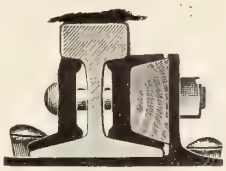
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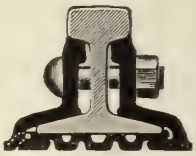
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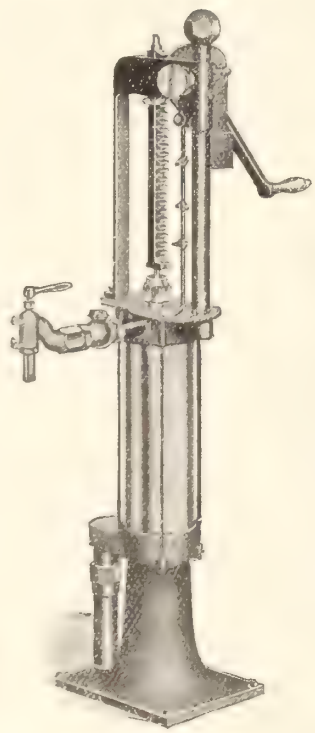

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The Minister of Railways stated that the total mileage for which the Act provided subsidies was 3,277.4. At a subsidy of $3,200 a mile that mileage would call for $10,487,680, while if the total amount of $6,400 was necessary, an expenditure of $20,975,360 would be involved.

Recent Nova Scotia Legislation.

The Nova Scotia Legislature last session passed Acts affecting transportation interests as follows:—

ACADIA COAL CO. Amending acts of Incorporation.

DOMINION ATLANTIC RY. Two Acts amending company's powers, and one with respect to building North Mountain division.

DOMINION IRON AND STEEL CO.—Amending chap. 139, statutes of 1899.

DRYDOCK, ETC.—To enable city of Sydney to furnish free site for drydock, shipbuilding plant and ship repair shop.

EGERTON TRAMWAY CO.—Amending chap. 137 of statutes of 1902. (The E. T. Co. is now operated as the Pictou County Electric Co.)

GREAT NORTHERN MINING CO.—Respecting company's powers.

INTERCOLONIAL RY.—Amending chap. 98 of statutes of 1909 respecting cost incurred by North Sydney for extension of I.C.R. to that town.

INVERNESS.—Amending chap. 93, statutes of 1909, respecting construction of a railway in Inverness county.

LIVERPOOL AND MILTON TRAMWAY CO.—Two Acts amending chap. 88 of statutes of 1896.

MABOU COAL AND RY. CO.—Amending chap. 135 of statutes of 1908.

MARGAREE COAL AND RY. CO.—Amending Act of 1909 confirming agreement between N.S. Government and company.

MARITIME COAL AND RY. CO.—Amending chap. 153, statutes of 1903-04.

MARITIME TELEGRAPH AND TELEPHONE CO.—Incorporation.

NOVA SCOTIA IRON AND STEEL CO.—Amending chap. 137, statutes of 1898.

PACIFIC WHALING CO.—Amending and consolidating acts relating to company.

PORT HOOD-RICHMOND RY. COAL CO.—Respecting company's powers.

QUEEN'S CENTRAL RY.—Incorporation.

SYDNEY AND LOUISBURG RY.—Incorporation.

SYDNEY SHIP CHANDLERY CO.—Incorporation.

Manitoba's First Locomotive.—The first locomotive ever seen in Manitoba, returned to Winnipeg, April 27, from Golden, B.C., on a flat car. It is proposed to give the locomotive an overhauling, and then place it on exhibition as a relic in the park facing the C.P.R. station on Higgins Ave. The story of the bringing of this locomotive to Winnipeg in 1877, together with an illustration, and details of its subsequent history will be found in our issue of Feb. and April, 1904

How to Improve the Roadbed.

Our last issue contained a paper bby E. Desharnais, Roadmaster C.P.R. in Medicine Hat, Alta., on this subject. Following are the main points of its discussion by the Western Canada Railway Club:—

H. Rindal, Assistant Engineer C.P.R.: The construction department has certain rules for increasing the height of a dump so as to allow for settling, and these rules are followed on all new lines. I think, however, that even a dump widened in accordance with this, will be found in after years to be too narrow at the subgrade, as the rain will wash a certain amount of material off the shoulder, especially if the dump is made of material, which will not allow the grass to grow readily. Mr. Desharnais' remarks about trimming ballast are in my opinion correct. There is no doubt that trimming ballast down to three inches below top of ties has a tendency to destroy the ties, by letting the sun get at too much of the ends, and splitting them. I was out with Mr. Dixon on his inspection trip last summer and think that his recommendation regarding a tie inspector was justified. We found a certain piece of track that had just been re-tied, where quite a number of the ties taken out had enough life left in them to last another year. If there had been a tie inspector on the particular section, this would not have happened. From Mr. Desharnais' paper I take it that he thinks the inspector is supposed to be "A little tin god on wheels." This is not the intention, for the inspector will always confer with the section foreman and roadmaster, and I think that we would have a more uniform rate of tie renewals through this system, as two section foremen will hardly ever have the same idea about the remaining life of a tie. As far as discovering bad ties when lifting is concerned, the foreman is just as badly handicapped as the inspector would be. The proposed guard rail over muskegs will be too expensive. It will cost about $17 per 30 ft. rail length, and this is too much even for the C.P.R. East of here, on the double track, the creeping is stopped by using anti-creepers, about eight to 10 per rail length, at a cost of about $1.75 per rail length. These, in addition to 12 ft. ties will make as good a track as can be obtained over a muskeg. Mr. Desharnais ends up with a dig at the engineers. An engineer who will put in a centre stake in the morning and pull it up in the afternoon, to adjust the height, is hardly worthy of the name. I think Mr. Desharnais will find that the trouble is with his extra gangmen. If a man walking on the track sees a stake sticking up, he must kick it to see if it is loose. The next man will do the same, and the stake gets pretty loose after a few such attempts. My idea of placing centre stakes is that they should be left at a height which brings the top a couple of inches below the top of the finished ballast.

J. G. Legrand, Bridge Engineer G.T.P.R.: I think that the engineer who puts stakes down and then pulls them up again, can hardly call himself an engineer. He may have to drive them down again after taking them up to cut them and tried to put them into the same hole. This is the only way I can explain it.

H. Patten: Our company, at Fort William, is accumulating a lot of hard coal screenings, which is of no use for making steam. Would this be any good for ballast purposes, say yard-ballast?

E. Desharnais: Anything coming from coal, such as slack from the mines, is no use for track purposes. It does not bind, and on that account is not suitable. Coal dust, slack or cinders moves under weight, forming dust and the centre under the ties gives way. It is no good on the main line as a ballast, for the ties continually work loose.

H. Patten: Would it not be of any use for yard purposes?

E. Desharnais: Twenty years ago we used all kinds of ballast, because the trains were much lighter and ran a great deal slower than they do to-day. The rails were also much lighter, and consequently the heavier ballast was not required. I approve of cinders for yards and sidings, because there is no fast running on these rails, and the grass and weeds will not grow in the cinders, which is a saving on the ties.

T. Duff Smith: Regarding the life of ties being nine years. I think that is somewhat higher than the average. It appears to me that seven years on the main line is nearer the average?

E. Desharnais: Five years ago we were very much discouraged with the quality of the ties supplied, but now we get good ties which last on an average of nine years. Tamarac, especially black tamarac ties from swamps, are the best. There are many complaints about the changing too many ties, but it is due to the higher speed, also heavier power and rails. I allow 18 to 19 ties to a rail, or 270 to 280 to the mile.

J. Hillis: Have you had any experience with creosote or preservative being used on ties, and has the same been successful?

E. Desharnais: None at all. There is no doubt that something of this kind will have to come, as ties are getting scarcer all the time.

W. S. Fallis: How will creosoted ties wear after they have been treated in this manner? I think creosoting is one of the coming innovations in ties, that will tend to lengthen their life. This is exemplified in the process of creosoting shingles for roofs. Creosoted shingles will last three or four times as long as those not so treated. The procedure is to dip about 6 ins. of the butt of the shingle in creosote, which quickly penetrates the tissue of the wood, making it absolutely impervious to moisture and decay, rendering the life of the shingle very much longer. The process of creosoting ties is much the same. They are dipped in creosote liquid, which penetrates all parts of the tie to about half an inch. I have recently heard of a new method, by which the ties are placed in some kind of a retort containing creosote, and the liquid is forced into the very heart of the tie, rendering it almost beyond decay. As timber becomes scarcer in the future, which is not by any means improbable, no doubt some method such as this will be adopted to lengthen the life of ties.

A. E. Cox, General Storekeeper C.N.R.: An eminent professor from England gave a series of lectures, in U.S., on this subject. He stated that some creosoted ties on one of the railways in the United Kingdom had been lifted up after 23 years service, and were afterwards used for fences. It is claimed that it doubles the life of the tie, but it also doubles its cost.

W. E. Skinner: In Hawaii, on 70 miles of coast railway track, one of the superintendents has been experimenting on the ties by boring holes for driving spikes, and pouring a certain amount of creosote into them. I learn that he is having very good results. I think he has had some ties in use for about 11 years.

E. Fisher: We have been talking about the life of the tie, but nothing has been said about the life of the locomotive in this discussion. For example, take a locomotive running through sand hills [illegible] detrimental to the working parts of the locomotive, cutting and wearing them out before their time. Why could not something be done to keep the sand and [illegible]

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kind of a creeper be planted on the face of the cuts? It would of course take a few years to do it, but it is done in other parts of the country. I was, at one time, in a part of the country composed of red loam where stones and earth were continually falling down on the track. The company kept planting creepers until they got one to grow, with the result that eventually they stopped the earth from falling on the track and dust from flying. I think it would be a good idea to have this tried in this western country.

A. E. Cox: What percentage of new spikes do you figure on in re-laying new steel, especially where steel has been laid for ten or fifteen years?

E. Desharnais: Ten boxes of spikes to the mile, providing you have good men to pick up on the line, but I find that where tie plates are used they cut into the spikes, and in that case it will take about 16 boxes to the mile.

CANADA'S RAILWAY BUILDING.

A Vast Construction Programme Decided On.

A careful consideration of contracts let, and engagements entered into with the Dominion and Provincial Governments, shows that the various Canadian railway companies expect to complete and bring into operation about 7,000 miles of new lines within the next five years. This estimate is made on the basis of contracts already entered into and construction work immediately in sight, and does not include various projects which may reach the active construction stage within that time, neither does it include the mileage of yard and terminal lines, and the second track work in progress or contemplated by the C.P.R.

From the contracts already in hand it would appear that track will be laid this year on not less than 1,500 miles, about the same as last year; and from the engagements entered into with the different governments, it appears as if there will be very little diminution of that rate of railway building for the following three or four years. British Columbia will probably show the heaviest increase in mileage during the next few years, for it has contracted with the Canadian Northern Pacific Railway to build 600 miles, and with the Kettle Valley Ry. to build about 230 miles by the end of 1914. The C.P.R. has either under contract on Vancouver Island or in contemplation about 200 miles of line, the G. T. Pacific Ry. has under contract 200 miles, and will place under contract the remaining 500 miles of its system within a year; and the Great Northern Ry., through its subsidiary company, the Vancouver, Victoria and Eastern Ry., has a considerable mileage under contract and survey. In Alberta and Saskatchewan the Canadian Northern Ry., and the G. T. Pacific Ry., are under agreement with the Dominion and Provincial Governments to build over 1500 miles of main and branch lines, and of these, some 600 miles have been placed under contract. In these new provinces, the next few years will see a large mileage constructed of the Alberta and Great Waterways Ry., on which work is at present temporarily suspended; the line to Hudson Bay, for which the Dominion Parliament has granted a first construction vote, and the Hudson Bay and Pacific Ry., for which surveys are at present in progress in view of, as the Managing Director says, a start this summer. Next to these provinces, Ontario will show the largest increase in mileage for the next few years, principally in connection with the Canadian Northern Ontario Ry., and the National Transcontinental Ry.

The National Transcontinental Ry., when completed, will extend from Moncton, N. B., to Price Rupert, B. C., 3,550 miles. The first portion of this line, which is being constructed by the Dominion Government, through a Commission, extends from Moncton to Winnipeg. Contracts have been let for the grading, etc., for the whole distance of 1804 miles, and upon this mileage there are 742 miles of grading and 1,183 miles of track laying to be completed within the next two or three years, in this part of the line is situated the Quebec Bridge, for which the Dominion Government is preparing to receive tenders. The western division of the line which is being constructed by the G. T. Pacific Ry. Co., extends from Winnipeg to Prince Rupert, 1746 miles. Of this mileage track has been laid on 915 miles from Winnipeg to Wolfe Creek, west of Edmonton, Alta., and a train service is being operated to Edmonton. A contract has been let for over 200 miles of the line easterly from Prince Rupert, and track is being laid on the first 100 miles, while contracts are expected to be let during the year for the remaining 500 miles, situated almost entirely in British Columbia. A subsidiary company, known as the G. T. Pacific Branch Lines Co., has just placed on the British market an issue of £1,270,500 of 4 per cent. bonds, guaranteed by the province, for the construction of branch lines in Saskatchewan as follows:—Regina to the International boundary near Portal, 155 miles; Regina to Moose Jaw, 110 miles; from Biggar, in a south-westerly direction, 50 miles; Prince Albert branch, 110 miles; Cut Knife branch, 50 miles. These lines are to be built in addition to others previously arranged for, upon which 55 miles of track was laid in 1909. Contracts have been let for an extension of 30 miles on the Melville-Yorkton line; 60 miles on the Melville-Balcarres line, and it is expected that work will be gone on with on the projection of this line southerly from Regina to the International boundary this year, for the grading of about 50 miles from Biggar to Battleford. Under an agreement with the Alberta Government, the company has undertaken to build about 600 miles of line in that province, and has started construction on one line, viz., from Tofield to Calgary, upon which track was laid to Cambrose, 26 miles, in 1909. A contract has been let for the extension of the line into Calgary this year.

The Canadian Northern Ontario Ry. has under construction 100 miles from Toronto to Trenton, as the first section of its line to Ottawa. It is expected that contracts will be placed during the year for the balance of the line, and also for the grading of the line from Toronto to Buffalo, along the Toronto-Niagara Power Co.'s right-of-way. The extension of the line from north of Sudbury to Port Arthur is projected, but it is not likely that any extensive work will be done on it for a year or two. In a recent interview, President Mackenzie stated that the C.N.R. expected to add some 600 miles to its lines on the western prairies this year. There were about 200 miles of grading done in 1909, upon which track was not laid, and contracts have been let for 230 miles of new work in Manitoba, Saskatchewan and Alberta. Other contracts will be let in the near future. It is however, in British Columbia, that the C. N. R. will, through the C. N. Pacific Ry., be most active during the next few years. The company has undertaken to build 600 miles by 1914, of which 50 miles are to be constructed on the mainland, and 20 miles on Vancouver Island during the current year. So far as other Mackenzie, Mann & Co. lines are concerned, the only one upon which construction will be gone on with this year is the Portland Canal Short Line, from Stewart along the valley of the Bear River, B. C., for 15 miles.

The C. P. R. construction programme for the current year, includes in addition to the laying of track and the completion of lines graded in 1909, the building of a second track between Winnipeg and Portage La Prairie, and the construction of 459 miles on six different lines, in Manitoba, Saskatchewan, Alberta and British Columbia, for which contracts have been let for completion this season. The extension of other lines has been decided upon, but it is uncertain what further contracts will be let this season.

The Kettle Valley Ry., which has a small mileage in Canada, has entered into an agreement with the British Columbia Government to build 230 miles of line of which 25 miles is to be completed this year, 50 miles in 1911, and the remaining mileage by the end of 1914. Contracts have been let for 50 miles upon which work has been started.

The Alberta and Great Waterways Ry. let a contract for the first section of its 350 mile line from Edmonton to Fort McMurray, Alta., but construction has been suspended for the present. The Dominion Government has provided funds for making a start on the 600 mile line from Pas Mission to Hudson Bay, and the Hudson Bay and Pacific Ry. promises a start on its projected line between Prince Albert and Fort Churchill this year.

The Great Northern Ry., through various subsidiary companies has a large programme in Canada, but the only point at which active construction is going on is between Abbotsford and Hope, B.C., pending decision upon the question of tunneling the Hope Mountains or constructing a round about line over them. The probabilities of construction on G.N.R. lines is always an unknown quantity, and it is impossible to conjecture what is likely to be done.

Of the lines outside the above the Dominion Government has under construction a 10 mile branch of the Prince Edward Island Ry.; a diversion of 9 miles at Sydney Mines, N.S., and a 10 mile cut-off at Chatham, N.B., on the Intercolonial Ry.; the Dominion Atlantic Ry. has in contemplation the construction of a 35 mile branch from Centreville, of which 10 miles will, it is said, be placed under contract at an early date. Construction is being proceeded with on the Ha Ha Bay Ry., from St. Alphonse, Que., about 24 miles; the Central Ontario Ry. is building a 10 mile extension northerly from Maynooth, and the Algoma Central and Hudson Bay Ry., will connect up its Michipicoten branch with the C.P.R., and complete its main line, these two sections representing about 150 miles of work, while the Manitoulin and North Shore Ry. has a 12 mile extension under contract.

In Newfoundland the Reid Newfoundland Co. has agreed with the Government to construct 280 miles of branch lines of which at least 50 miles has to be completed annually. For the purposes of construction rails and fastenings are to be admitted duty free, as also will be the material necessary for the construction of rolling stock, which has to be manufactured on the Island.

The immense amount of railway construction which is being done in Canada, in proportion to its population will be more fully realized by pointing out that in 1909, according to official returns made by the various steam railway companies to the Railway and Marine World, 1,588.47 miles of new line were laid with track. In the same period only 3,135 miles of new track were laid in the whole of the United States. Second track, etc., is not included in the figures given for either country.

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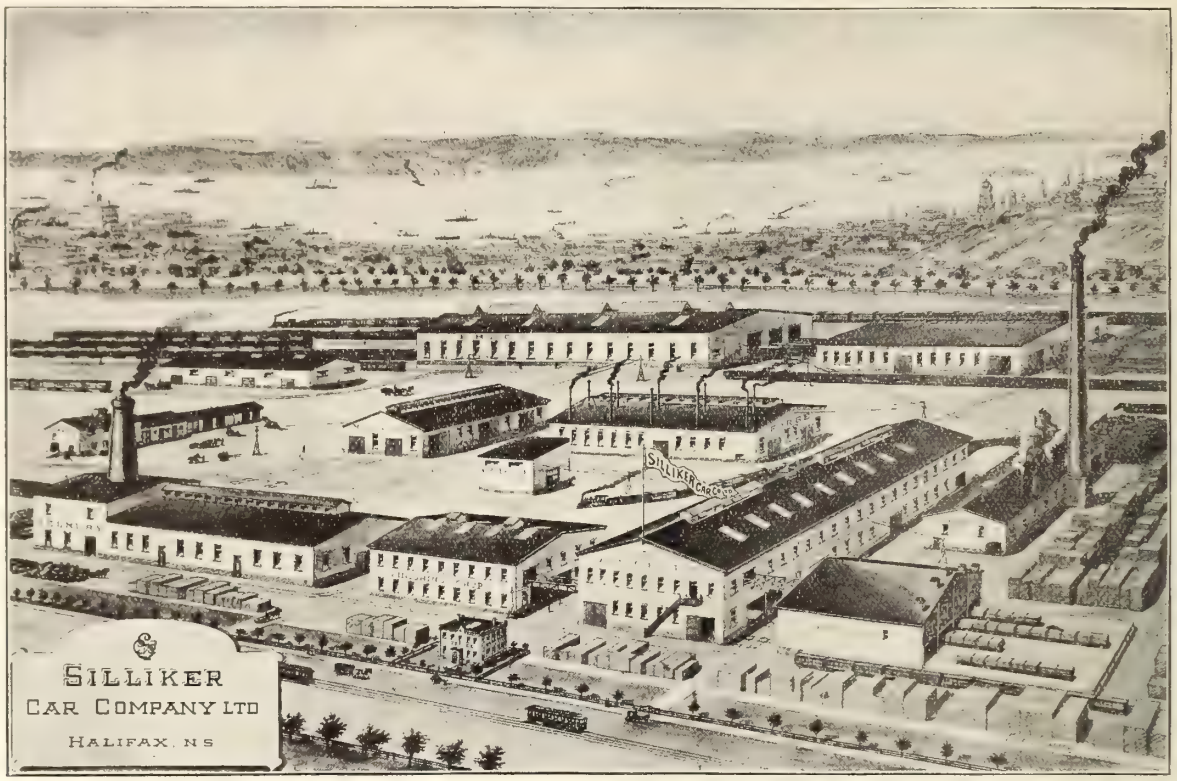

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Efficiency in Transportation.

In our May issue we published a paper on this subject by D. Crombie, Assistant to the General Transportation Manager G.T.R. Following are the main points of the discussion on it by the Canadian Railway Club:—

H. H. Vaughan, Assistant to the Vice President C.P.R.: I am rather doubtful whether the comparison of the English and German operating ratios is entirely fair. Mr. Crombie assumes that a greater density of traffic leads to a lower ratio. I do not think that is quite right. It seems to me that greater density has led to an increased ratio. I have noticed this, while the traffic on the C.P.R. has increased about 50 to 60%, as the traffic got congested the expenses would tend to increase. If you bear in mind the staff that English roads have to maintain to manage their traffic, and that in addition their length of haul is very much less than ours, you can understand that their terminal expenses are exceedingly high and terminal expenses are an important factor in operating costs. I would like to supplement Mr. Crombie's statement as to the cheapness of transportation by another remark, and that is, that whether coal is used efficiently or not, still, a shovelful of coal will now carry 200 tons one mile. This seems remarkable, and certainly we are not so very inefficient when a shovelful will do that.

It seems to me that, in connection with the service obtained from cars, Mr. Crombie has left himself very little room for improvement. In the paper I read myself recently about the efficiency of coal consumption, I was very careful to leave myself room for about 25% improvement, but in Mr. Crombie's statement he has shown that the time the cars are handled by railroads is only about 10% of the total, so that no amount of speed could reduce the total average days per load of less than 90% of the figure he has given. When you take Mr. Crombie's statement and one or two other cases he has mentioned later, it seems to me that the traffic department is responsible for all the trouble, as apparently, only about 2% improvement is possible by the car and transportation departments.

I think that Mr. Crombie must have thought that this was a club of almost entirely mechanical men from the easy way he has dealt with the troubles caused by locomotive and car equipment. There is a certain amount of truth in this, however, and I am beginning to think that the question of coal economy is just as much a transportation as a mechanical matter. The engine may be all that it should be, and the handling of it as good as possible, and then the big difference between economical and uneconomical operation is largely in the hands of the transportation department.

I feel hardly able to discuss Mr. Crombie's proposed reorganization. Personally, I agree with him that the Hines system is not likely to be extended. It looks very well in the concentration of officers into one office, instead of being scattered, and I see no objection to calling each officer a superintendent, but the advisability of allowing each one to handle each other's work is very questionable, and the only way it seems to me the system could be run is by each man keeping to his own work pretty well. There is very little difficulty about various men on a division learning each other's work. In fact, it always seems to me that when one speaks to a man he is generally liable to know all about the other fellow's work and exactly how it ought to be run. I do not quite know the idea of the proposed organization. It seems to me we should get the same thing by splitting up a district so that the superintendent would get in touch with the public and his men in the same way as a divisional agent is supposed to do, and that the only way in which this can be effected would be by getting a division small enough for the superintendent himself to do this work.

J. Pullen, Freight Traffic Manager G.T.R.: Mr. Crombie has pointed out that, although the capacity of cars has increased very considerably in late years, the average loading of cars has not increased in the same proportion, and suggests that the freight traffic department should adjust the minimums, following closely the increase in car capacity. This is a question to which the railways have given, and are giving, a good deal of consideration. Within the last few years the minimum weight for standard box cars in the territory in the U.S. covered by the Official Classification, that is to say, east of the Mississippi River and north of the Ohio, has been increased from 30,000 lbs. to 36,000 lbs. In Canada, with the exception of some heavy commodities, the classification minimum has remained at 24,000 lbs. It is largely a matter of education of the public to the needs of transportation companies, and much good work is being done by the freight officers in this direction. The Canadian Freight Association has now under consideration a proposal to increase the minimum weights wherever possible to do so. Generally speaking, the railway commissions hold to the view that the minimum weight for any article should not be in excess of the quantity that can be loaded in a standard box car. The public, well content with this view, would resist any efforts of the carriers to go beyond that point because it means an increase in freight charges. Then there are the commercial conditions to be considered. Frequently the consignee has not warehouse accommodation sufficient to take in a large car, and therefore insists on buying only a small car. For example, 60,000 lbs. of salt could readily be carried in one of our modern 36 ft. box cars, but only 100 barrels of 300 lbs. each, or 30,000 lbs. in all, could be loaded on end on the floor of the car. Shippers object to tiering the barrels up, partly on account of the labor involved and partly by reason of the damage to the lower tiers. Furthermore, the small country dealer does not want to buy more than 100 barrels at a time.

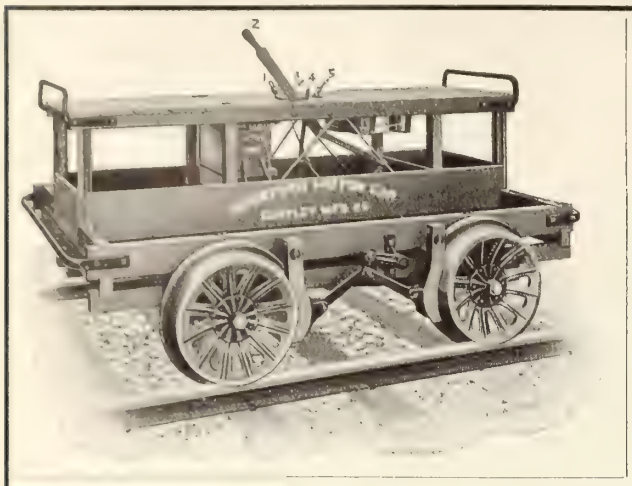
Mr. Crombie has suggested that the reasons for the continued existence of demurrage bureaus are not apparent. Possibly, from the standpoint of a transportation officer, this may be true, but I am sure all freight officers will agree with me that we do not want to go back where we were before the car service associations were organized. Car service has been legalized both in Canada and the U.S., nevertheless there are amongst the shipping public a good many who would not hesitate to evade the car service rules if they could get a willing station agent who would help them to do it. The car service associations have removed from the sympathetic station agent and the freight officer, who are expected to cultivate the goodwill of the public, all opportunity for evasion of the rules. We are getting better use of our equipment becase shippers are delaying cars at terminals less than formerly. Still, as Mr. Crombie says, there is room for much improvement, but we do not think the time has come for doing away with the the car service associations until the public have been more thoroughly educated as to the advantage of the rules both in their interests and that of the carriers.

Mr. Crombie has suggested the transfer from the freight to the transportation department of the freight claim agent's forces in order that the department at fault may promptly and fully be put in a position to correct the fault. I am sorry not to be able to agree with him on this point. Personally, the freight officers would only be too glad to be relieved of one of their most disagreeable duties, namely, the investigation and settlement of loss and damage claims. One of the most abused officers of the staff is the freight claim agent. He may do his work ever so well and be ever so conscientious in his duties, and treat everyone with the fullest possible consideration, but it is always impossible to fully satisfy an unreasoning, to say nothing of a dishonest claimant. From that point of view we should not object to transferring this work to the transportation department, but I fear that the interests of the patrons of the company would not be as carefully cared for as is now done by the freight department. This is not intended to be any reflection upon the transportation department The officers of the freight department especially are expected to cultivate the goodwill of the shipping public, and in dealing with loss and damage claims the use of tact is necessary. I should not want to be responsible for the relations between the public and the railway company if the settlement of loss and damage claims had to be entrusted to some of the transportation officers I have known.

I am much pleased to note the consideration Mr. Crombie has given to the question of systematic loading of less than carload freight. I suppose [illegible] on the face of the globe has there been evolved a more complete and successful system of handling carload movements than in the U.S. and in Canada, but when it comes to the handling of merchandise in less than carload quantities we seem to be woefully behind the times, and I hope the transportation officers will continue to give this important subject more attention. The less-than-carload traffic represents the high-class freight, upon which higher rates and greater revenues are secured. It is of the utmost importance, both to the shipper and the consignee, that he should know approximately when he is likely to receive his goods, so that he can arrange for his sales accordingly. Any failure of the transportation companies to handle such goods with regularity is the cause of much annoyance and disturbance to commercial men. If some arrangement could be made whereby the merchandise could be depended upon to arrive at destination without transfer en route, the public would get a very much better service and the railways be relieved of much adverse criticism.

G. T. Bell, Passenger Traffic Manager G.T.R.: Mr. Crombie was very careful, in opening his paper, to announce that he was dealing more particularly with the freight department—car and fast freight service, train loading, fuel, and station service. In his different headings, perhaps station service appeals to me more than anything else. I think the quantity and quality of help is very frequently criticised, and sometimes with good cause. The men at stations often have too much to do, and better pay and prospects encourage them to enter other fields. Of course, I am speaking of passenger service entirely.

As far as the district agent is concerned, I think Mr. Crombie probably misunderstands the nature of the work now done by district and other passenger agents. There are many things that the poor district agent would find it quite out of the question to give his attention to at all, although he would find some of them very enticing. I have no doubt, for example, it would be very pleasing to him to go regularly to the local theatres to see that the chorus girls travel [illegible] the right route.



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The dates given of orders, immediately following the numbers, are those on which the hearing took place and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the date assigned to them.

10173. Apr. 18.—Approving C.P.R. Standard Freight Tariffs Supplement 3 to C.R.C., w. 2; Supplement 3 to C.R.C., w. 3, and Supplement 2 to C.R.C., 7, adding stations on new lines.

10174. Apr. 19.—Authorizing C.P.R. to build spur for the Okanagan Lumber Co., Okanagan Landing, B.C.

10175, 10176. Apr. 18.—Authorizing C.N.O.R. to build across road overhead, on lot 24, con. 3, Pickering tp., at station 2761, and similarly to cross Dawes' Road, York tp.

10177. Apr. 15.—Authorizing Manitoba Government Telephones to place wires across C.N.R. near Oakburn station.

10178. Apr. 15.—Authorizing G. E. Higginson, to place wires across C.P.R. near Calumet station, Que.

10179. Apr. 15.—Authorizing Waterloo Water and Light Commission to place wires across G.T.R. on Queen St., Waterloo, Ont.

10180. Apr. 19.—Authorizing Western Counties Electric Co. to place wires across T.H. & B. Ry. at Mohawk St., Brantford, Ont.

10181. Apr. 19.—Authorizing Dominion Light, Heat and Power Co. to place wires across C.P.R. at its Hochelaga yards, Que.

10182. Apr. 18.—Authorizing Seymour Power and Electric Co. to place wires across Bell Telephone Co. wires at Campbellford, Ont.

10183. Apr. 18.—Authorizing Uxbridge and Scott Telephone Co. to place wires across G.T.R. on Brook St., Uxbridge, Ont.

10184, 10185. Apr. 18.—Authorizing Ottawa Electric Co. to place wires across C.P.R. at two points.

10186 to 10189. Apr. 18.—Authorizing Wahnapitae Power Co., Dominion Nickel-Copper Co. and Moose Mountain, Ltd., to place wires across C.N.R., C.P.R., at four points in Ontario.

10190 to 10197. Apr. 19.—Authorizing Ontario Hydro-Electric Power Commission to place wires across various railways at eight points.

10198 to 10201. Apr. 19.—Authorizing Bell Telephone Co. to place wires across various railways at four points in Ontario.

10202 to 10212. Apr. 19.—Authorizing Saskatchewan Government Telephones to place wires across C.P.R. at 11 points.

10213. Apr. 14.—Authorizing Water and Light Commission of Waterloo, Ont., to relay gas main across G.T.R. on Queen St.

10214 to 10217. Apr. 18.—Authorizing C.P.R. to open for traffic its Weyburn-Lethbridge Branch from mileage 0 to 26; Kipp-Aldersyde Branch from mileage 0 to 28.2; Wynyard section from mileage 88.3 to 125.3, between Wynyard and Lanigan, and Pheasant Hills Branch from mileage 430.39 to 561.63 between Wilkie, Sask., and Hardisty, Alta.

10218. Apr. 18.—Authorizing C.N.O.R. to build across Division St., Colborne.

10219. Apr. 18.—Approving C.N.R. plan of standard masonry abutments for highway crossings.

10220. Apr. 19.—Authorizing C.N.O.R. to build across public road between lot 32, con. 1, and lot 33, con. 2, Cramahe tp.

10221, 10222. Apr. 18-19.—Approving C.N.R. location from mileage 28.54 to 58.27, through tps. 10-13, r. 21-23, w. 2 m.; and mileage 0 to 28.54, through tps. 6-10, r. 18-20, w. 2 m., Sask.

10223. Apr. 18.—Approving M.C.R. plan of bridge at Cataract St., Niagara Falls, Ont.

10224. Apr. 12.—Authorizing C.P.R. to build spur across Tweed St. and lot 37 in D.G.S. 65 and 66, St. Boniface, Man.

10225. Apr. 19.—Authorizing C.P.R. to use bridges 83.0, 85.2, 99.88, 114.1, and 119.7 on its Smith's Falls Section, Ont.

10226. Apr. 19.—Approving G.T.R. plan of proposed additions to masonry at each end of bridge 21, at m. p. 76.02, District 20, Ont.

10227. Apr. 19.—Relieving G.T.R. from providing further protection at crossing of first public road south of Drew station, Ont.

10228, 10229. Apr. 19.—Ordering G.T.R. within 60 days to install electric bell at crossing just west of Ridgeway station, Ont., and ordering C.N.R., similarly respecting crossing at Gore St., Fort William, Ont.

10230. Apr. 20.—Authorizing C.N.O.R. to build across public road between lots 24 and 25, con. 1, Scarboro tp.

10231. Apr. 19.—Relieving G.T.R. from providing further protection at crossing of Haggerty St., Newbury, Ont.

10232. Apr. 20.—Approving location of G.T.R. proposed station at Waterloo, Ont.

10233. Apr. 12.—Authorizing G.T.R. to build spur to Stratford Manufacturing Co.'s premises, Stratford, Ont.

10234. Apr. 19.—Authorizing Galt, Preston and Hespeler Ry. to operate interlocking plant at Hespeler, Ont.

10235, 10236. Apr. 18-20. — Authorizing P.M.R. to reconstruct bridges over Canard River, in Colchester North tp., near New Canaan station, and over Whitebread drain, Sombra tp., Ont.

10237. Apr. 19.—Approving M.C.R. plans of proposed station at Tecumseh Road, Ont.

10238. Apr. 19.—Approving M.C.R. plan of proposed changes in bridge at Park St., Niagara Falls, Ont.

10239. Apr. 19.—Authorizing M.C.R. to reconstruct overhead bridge at Murray St., Niagara Falls, Ont.

10240. Apr. 20.—Approving M.C.R. plan of proposed changes in bridge at Clifton Ave., Niagara Falls, Ont.

10241. Apr. 19. — Approving proposed changes in Canadian Classification 14, viz.: Elimination of item 23, page 57, covering ratings on evaporated potatoes; elimination of item 8, page 65, covering ratings on evaporated vegetables; and addition of an item under heading of Groceries, reading: vegetables, desiccated or evaporated, in bags, boxes or barrels, L.C.L. 3, C.L. 5.

10242. Apr. 19.—Approving location of proposed C.P.R. station at Carlstadt, Alta.

10243. Apr. 19.—Authorizing Abernethy village, Sask., to place wires across C.P.R., and to install a telephone in station there.

10244. Apr. 20.—Authorizing Manitoba Government Telephones to place wires across C.P.R. at Archibald St., St. Boniface.

10245 to 10255. Apr. 19.—Authorizing Saskatchewan Government Telephones to place wires across various railways at 11 points.

10256 to 10260. Apr. 19.—Authorizing Ontario Hydro-Electric Power Commission to place wires across various railways at five points.

10261, 10262. Apr. 18.—Authorizing city of Winnipeg to lay water mains under C.P.R. West Selkirk branch, at Manitoba and Selkirk Aves.

10263. Apr. 18.—Authorizing town of Dunnville, Ont., to place sewer under G.T.R. at Tamarac St.

10264 to 10268. Apr. 18.—Authorizing Weston village, Ont., to lay pipe across G.T.R. and C.P.R., at five points.

10269. Apr. 19.—Authorizing Saskatchewan Government Telephones to place wires across C.P.R., between secs. 27 and 22, tp. 17, r. 7, w. 3 m., at Ernfold.

10270. Apr. 18.—Authorizing city of Winnipeg to lay water pipe under C.P.R., West Selkirk branch, at Pritchard Ave.

10271. Apr. 19.—Rescinding order 3979, Nov. 19, 1907, which authorized a C.P.R. crossing at point marked A on plan filed with the Board; and authorizing a crossing at point marked C on said plan, and ordering C.P.R. to fence off crossing at point marked B.

10272. Apr. 19.—Ordering G.T.R. within 60 days to install electric bell at Beverley St., Galt, Ont.

10273. Apr. 21.—Ordering C.P.R. to install within 60 days, electric bell at crossing of Martin St., Milton, Ont.

10274 to 10299. Apr. 19 to 21.—Relieving G.T.R. from providing further protection at crossings at Murray St., Pembroke; second public highway west of Moose Creek; Hunter's Crossing, Galt; Talbot road, Middleton tp.; Barley side road, Middleton tp.; 2½ miles west of St. Mary's Jct.; Thomas St., Arnprior, Ont.; St. Liboire road, Quebec, Que.; three miles north of Port Dover, Ont.; second highway east of St. Mary's Jct.; near Wingham Jct.; 1½ miles south of Dunkfield; Waterloo road, 3½ miles north of Hespeler; ½ mile south of Paisley; 1½ miles north of Mildmay; three miles west of Fort Erie; ¾ mile west of Stoney Point; St. John's crossings, near Clinton; Ferguson's crossing, near Admaston, Ont.; and similarly relieving C.P.R. in respect of crossings at Turgeon St., Ste. Therese; Bridge St., Three Rivers; Cote des Perrons (Chemin de Base), Ste. Rose parish; Cassidy's crossing, Wakefield tp.; Canjllon St., Sauveur, Quebec, Que.; one mile south of Claresholm, Alta.; Government road, Pembroke tp., Ont.

10300. Apr. 5.—Ordering that Guelph & Goderich Ry. (C.P.R.) remove mound on south-east side of highway at crossing between cons. 9 and 10, Morris tp., Ont.

10301. Apr. 19.—Extending for 30 days' time, within which interlocking plant required under order 8110, Sept. 14, 1909, be installed—made upon Vancouver Power Co.'s application, and authorizing it to cross with its railway the New Westminster & Southern Ry. at Cloverdale, B.C.

10302. Apr. 21.—Authorizing C.P.R. to build two additional tracks across Centre Ave., Claresholm, Alta.

10303. Apr. 21.—Authorizing Esquimalt & Nanaimo Ry. to build across highway at mileage 6.40 of its Comox extension, from mileage 0 at Parksville, on its Wellington-Alberni branch, to mileage 34.79 at Union Bay, Vancouver Island, B.C.

10304. Apr. 18.—Authorizing C.P.R. to build spur in Winnipeg across lot 1 and the lane in block 31, parish lot 35, St. John's.

10305. Apr. 20.—Authorizing C.P.R. to build spurs for Saskatchewan Flour Mills Co., and Rat Portage Lumber Co., Moose Jaw, Sask.

10306. Mar. 19.—Authorizing C.P.R. to build spur through blocks 10 and 7 and across 18th St., Saskatoon, Sask.

10307. Apr. 21.—Authorizing G.T.R. to substitute plan for plan approved by order 6980, May 10, 1909, which authorized building of spurs for Consumers' Gas Co., Toronto.

10308. Apr. 14.—Authorizing G.T.R. to build spurs to Gibson, McCormack, Irvin Co.'s premises, Weston, Ont.

10309. Apr. 19.—Authorizing G.T.R. to build spur lines, with sidings, to Laprairie Brick Co.'s premises, Laprairie, Que.

10310. Apr. 20.—Rescinding order 9648, Feb. 17, and ordering Niagara, St. Catharines & Toronto Ry. to install full interlocking plant at G.T.R. crossing between Clifton Jct. and Stamford, Ont.

10311. Apr. 21.—Extending for three months from date time within which G.T.R. shall build branch line in Humberstone tp., Ont., as provided in order 9398, Jan. 29.

10312. Apr. 20.—Approving Chatham, Wallaceburg & Lake Erie Ry. standard freight tariff, C.R.C. 116.

10313. Apr. 19.—Authorizing C.N.O.R. to divert and cross public road between lot 13, con. 3, and lot 13, con. 4, Clarke tp.

10314. Apr. 19.—Authorizing Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co. to build spur line on Lauriston St., Saskatoon, Sask.

10315. Apr. 21.—Ordering C.N.O.R. to build subway across road through lot 3, con. 2, Hope tp., and pay all costs of closing Cavan rd., except land damages.

10316. Apr. 21.—Ordering G.T.R. to clean approaches at crossing of public road which forms boundary between Ops tp. and Lindsay, Ont.

10317. Apr. 21.—Refusing C.N.O.R. application for approval of site and side elevation of bridge over Port Hope Creek and G.T.R., lot 3, con. 2, Hope tp., and ordering that the opening in the embankment be at the other side.

10318. Apr. 22.—Approving C.N.R. plans of bridge over Assiniboine River at Winnipeg.

10319 to 10320. Apr. 21.—Authorizing the C.N.O.R. to build across public roads between cons. 1 and A, Hamilton tp., and between lots 10 and 11, con. 3, Hope tp.

10321. Apr. 12.—Ordering C.P.R. within 60 days to install electric bell with light attached at crossing at mileage 81.28, Toronto section, Markham tp., Ont.

10322. Apr. 22.—Approving strain sheet for 39 ft. girder span to be provided by Lincoln Mills Paper Co. for intake at Lybster Mills, Merriton, Ont.

10323. Apr. 23.—Approving revised location of Tillsonburg, Lake Erie & Pacific Ry. and highway crossings between Ingersoll and Code Jct., Ont.

10324. Apr. 22.—Approving C.N.O.R. strain sheets for bridge over Dixie Creek, Ont.

10325. Apr. 23.—Declaring that C.P.R. crossing at Maitland St., London, Ont., is protected to the Board's satisfaction.

10326 to 10337. Apr. 22.—Relieving G.T.R. from providing further protection at crossings at Garnet, in Walpole, 10th con. Haldimand tp.; second road west of Wainfleet; third road west of Dunville; 1½ miles east of Tillsonburg; one mile south of Palmerston; 1½ miles east of Walsh; two miles north of Rymal, Ont.; similarly relieving C.P.R. in respect of crossings at Chemin Frederick, between lots 466 and 504, St. Felix de Valois, Que.; mileage 40.66 east of Harrison, Ont.; Le Rang de Lacadie, Pointe du Lac Parish; 2½ miles east of St. Basile Station, Que., and similarly relieving M.C.R. in respect of crossing at first highway west of Appin Jct., Ont.

10338. Apr. 21.—Ordering form of protection to be provided by G.T.R. at Darcy St. crossing, Cobourg, Ont.

10339. Apr. 22.—Authorizing Canadian Niagara Power Co. to carry wires across M.C.R. at Gilmore St., Bridgeburg, Ont.

10340. Apr. 28.—Ordering that C.P.R., from May 1 to Oct. 1, in each year, operate all passenger trains, north and south on its Gatineau Branch, from and to Sapper's Bridge, Ottawa, and furnish suitable accommodation for passengers there.

10341. Apr. 26.—Ordering that G.T.R. crossing at St. Charles St., Belleville, Ont., be protected by electric bell.

10342. Apr. 21.—Ordering that highway at

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mileage 20 C.P.R. main line, about two miles south of Lindsay, Ont., remain where it is, ditches within right of way to be tiled and filled to widen road as suggested in petition of ratepayers of Ops tp.

10343. Apr. 23.—Ordering that G.T.R. within 60 days install improved type of electric bell at crossing just west of Nells Corners station, Ont.

10344. Apr. 21.—Ordering that G.T.R. build bridge at crossing between cons. 3 and 4, Ops tp., Ont.

10345, 10346. Apr. 23.—Ordering that C.P.R. be relieved from providing further protection at crossings between cons. 8 and 9, Euphemia tp., and at highway between cons. 4 and 5, Garafraxa tp., Ont.

10347. Apr. 25.—Authorizing Fingal Telephone Co. to place wires across P.M.R. between lots 33 and 34, Southwold tp., Ont.

10348. Apr. 26.—Authorizing Addison, Greenbush and Bookspring Telephone Co. to place wires across C.P.R. at Jelly's crossing, con. 10, Elizabethtown tp., Ont.

10349 to 10351. Apr. 25.—Authorizing Ontario Hydro-Electric Power Commission to place wires across various railways at three points.

10352, 10353. Apr. 26.—Authorizing Nipissing Power Co. to place wires across C.P.R. at two points in North Bay, Ont.

10354. Apr. 25.—Authorizing town of Palmerston, Ont., to lay sewer under G.T.R. at Henry St.

10355. Apr. 26.—Authorizing C.P.R. to build spur to Winnipeg Oil Co.'s premises, Moose Jaw, Sask.

10356. Apr. 26.—Re rates on petroleum and its products in Ontario. This order is given in full on another page.

10357, 10358. Apr. 21.—Ordering that C.N.O.R. build subways between cons. 3 and 4, and between lots 12 and 13, con. 3, Hope tp.

10359, 10360. Apr. 25.—Declaring that C.P.R. crossings of Laliberte St., Quebec, and Waterloo St., London, Ont., are protected to the Board's satisfaction.

10361. Apr. 25.—Ordering that C.P.R. within 30 days make approaches to highway crossing between cons. 8 and 9, Puslinch tp., Ont., 20 ft. wide and re-fence approaches to conform to Board's requirements under its General Regulations Affecting Highway Crossings.

10362. Apr. 27.—Authorizing Bell Telephone Co. to place wires under C.P.R. at Pall Mall and Waterloo Sts., London, Ont.

10363. Apr. 27.—Authorizing city of Revelstoke, B.C. to place wires across C.P.R.

10364 to 10366. Apr. 27.—Authorizing Saskatchewan Government Telephones to place wires across C.N.R. at three points.

10367. Apr. 27.—Authorizing Ontario Hydro-Electric Power Commission to place wires across G.T.R. at lot 5, con. 1, London tp., Ont.

10368. Apr. 26.—Authorizing Northern Navigation Co. to lay gas main under G.T.R. at Sarnia, Ont.

10369. Apr. 26.—Authorizing C.P.R. to build spur for Crow's Nest Pass Coal Co., near Crow's Nest station, B.C.

10370. Apr. 26.—Authorizing C.N.O.R. to build across public road between lots 24 and 25, con. B, Brighton tp.

10371. Apr. 26.—Authorizing C.N.O.R. to cross, overhead, road between lots 4 and 5, con. 4, Scarboro tp.

10372. Apr. 26.—Ordering that time within which the Vancouver, Victoria and Eastern Ry. and Navigation Co. build spur to Daly Reduction Co.'s works at Hedley, B.C., be extended for six months from date.

10373. Apr. 27.—Authorizing C.P.R. to build extension of spur to premises of Enterprise Hardware Co., A. Carruthers Co., and Gordon Ironsides and Fares, to extend across lot 12, block 15, registered plan Q. 10 of Saskatoon, Sask.

10374. Apr. 26.—Ordering that crossing of Perth St., Brockville, Ont., by C.P.R. and Brockville, Westport and Northwestern Ry. be protected by a flagman.

10375. Apr. 27.—Ordering that C.P.R. be relieved from providing protection at crossing eight poles north of mileage 2, Maniwaki Branch, Que.

10376, 10377. Apr. 28.—Ordering C.P.R. within 60 days to install improved electric bell at crossing first road west of Britannia station, Chalk River Section, Eastern Division, and at first road west of Stittsville station, Ont.

10378 to 10380. Apr. 28.—Ordering that G.T.R. be relieved from providing protection at crossing east of St. Mary's Jct., Ont., and that C.P.R. be similarly relieved respecting crossing at first road west of Leonard station, Ont., and at Dubuc, Sask.

10381. Apr. 27.—Authorizing G.T.R. to build extension of siding east of Greenwood Ave., Toronto.

10382. Apr. 23.—Temporarily approving, pending final determination by Board of tariffs of tolls which Bell Telephone Co. may charge, and form of agreement with other companies to be approved, also Bell Telephone Co.'s agreement with Burgessville Telephone Co.; providing it is not taken to authorize the Bell Telephone Co. to charge higher tolls than it was, immediately previous to May 13, 1906, authorized to charge.

10383. Apr. 27.—Approving plan of G.T.R. station at Vinelands, and authorizing G.T.R. to build siding across town line between Clinton and Louth tps., Ont.

10384. Apr. 28.—Authorizing Ontario Hydro-Electric Power Commission to place wires across Hamilton and Brantford Electric Ry. at lot 55, con. 2, Ancaster tp.

10385. Apr. 28.—Authorizing Mallorytown Independent Telephone Corporation to place wires across G.T.R. near Lyn station, Ont.

10386, 10387. Apr. 28.—Authorizing Bell Telephone Co. to place wires across G.T.R. near Georgetown station; and across Central Ontario Ry. near Wellington, Ont.

10388, 10389. Apr. 28.—Authorizing McTaggart Rural Telephone Co. to place wires across C.P.R. at two points, in Saskatchewan.

10390 to 10416. Apr. 28.—Authorizing Saskatchewan Government Telephones to place wires across C.P.R. at 27 points.

10417. Apr. 26.—Amending order 10237, Apr. 19, which approves location of M.C.R. station at Tecumseh Road.

10418. Apr. 26.—Amending order 6148, Jan. 21, 1909, fixing stop-over charge of 25c. per car a day for first 48 hours, and car service toll thereafter on lumber, shingles, timber and other forest products in carloads, originating in B.C. and consigned to Sarnia Tunnel, Ont., "for orders," by striking out "twenty-five cents" in line 9, of operative part and substituting "one dollar."

10419. May 2.—Approving location of Western Canada Power Co.'s line from Ruskin station on C.P.R., to Stave Falls, B.C.

10420. May 2.—Ordering G.T.R. within 60 days to install electric bell at crossing of William St., Cobourg, Ont.

10421 to 10424. May 2.—Authorizing C.N.O.R. to build across road between lots 16 and 17, con. 1; between lots 11 and 12, con. 1, Cramahe tp.; between lots 4 and 5, con. 1; and between lots 6 and 7, con. 1, Brighton tp.

10425. May 2.—Ordering that C.P.R. trains be flagged at crossing of Beverley St., Galt, Ont.

10426, 10427. May 2.—Ordering that G.T.R. be relieved from providing protection at crossing 2½ miles west of Burford; and that C.P.R. be similarly relieved respecting crossing at mileage 20, south of Lindsay, Ont.

10428. Apr. 28.—Authorizing Ontario Hydro-Electric Commission to place wires across G.T.R. at Allanburgh.

10429. May 3.—Authorizing Essex Terminal Ry. to open for traffic portion of its line from junction with G.T.R. in Sandwich East tp. to junction with C.P.R. in Sandwich West tp., Ont.

10430. May 3.—Approving location of G.T.P.R. Young-Prince Albert Branch from section 28, tp. 32, r. 27 to sec. 31, tp. 40, r. 26, w. 2 m., Saskatoon District, Sask., from mileage 0 to 55.148.

10431. May 3.—Approving plan of Great Northern Ry. shelter sheds.

10432. May 2.—Authorizing C.P.R. to build industrial spur for I. Desormeau, Cote St. Francois, Que.

10433. May 3.—Authorizing C.P.R. to build across 32 highways on its Langdon north Branch from mileage 0 to 39.45 Alta.

10434. May 2.—Authorizing C.P.R. to build spur for British Columbia Fir and Cedar Lumber Co., Vancouver, B.C.

10435. May 3.—Authorizing C.P.R. to cross road allowances and change its Pipestone Extension at Schwitzer Jct., Man.

10436 to 10438. May 3.—Authorizing C.N.O.R. to build between lots 26 and 27, con. 1; through lots 35, con. 2; and between lots 28 and 29, con. 1, Cramahe tp.

10439 to 10441. May 3.—Authorizing C.N.O.R. to build between lots 12 and 13, con. A; between lots 13 and 14, con. A; between lots 8 and 9, con. A, Haldimand tp.

10442. May 3.—Authorizing C.N.O.R. to build between lots 21 and 22, con. 1, Cramahe tp.

10443. May 3.—Authorizing city of Brantford to lay sewer under G.T.R. at Marlborough St.

10444. May 2.—Authorizing United Gas Companies, St. Catharines, to lay gas pipe under G.T.R. at lot 3, Wainfleet tp., Ont.

10445. Apr. 29.—Authorizing Citizens' Electric Co. to place wires across C.P.R. at Smith's Falls, Ont.

10446. May 3.—Authorizing G. E. Higginson to place wires across C.P.R. near Calumet station, Que.

10447. May 3.—Authorizing Montreal Light, Heat and Power Co. to place wires across C.P.R. at Hadley St., Cote St. Paul, Que.

10448. May 2.—Authorizing Walkerville, Light and Power Co. to place wires across Essex Terminal Ry.

10449. May 3.—Authorizing Bolton Telephone Co. to place wires across G.T.R. at lot 20, between cons. 1 and 2, Albion tp., Ont.

10450. Apr. 28.—Ordering C.P.R. within 60 days to erect gates at St. Louis St., Farnham, Que.

10451. Apr. 28.—Ordering G.T.R. within 60 days to erect gates at Bourdage St., St. Hyacinthe, Que.

10452. Apr. 28.—Ordering C.P.R. to put into proper condition crossings through St. Mathieu South, St. Jean Baptiste North, St. Leon South, St. Leon North, St. Mathieu North and St. Joseph, Que.

10453. May 3.—Ordering that all G.T.R. passenger cars shall, on or before June 1, 1911, be equipped with marker sockets in the lower position, and where passenger cars are so equipped markers shall be carried there.

10454, 10455. Apr. 28.—Dismissing application of town of St. Louis, Que., for order authorizing it to extend highway across C.P.R. where it intersects Park Ave., and authorizing it to cross by a subway instead.

10456. May 4.—Approving location of Vancouver, Fraser Valley and Southern Ry. from east boundary of Vancouver to north-west boundary of New Westminster, B.C.

10457. Apr. 28.—Ordering G.T.R. to build overhead bridge at Lachine Road crossing, Rockfield, Que.

10458. May 3.—Fixing compensation to be paid by C.P.R., G.T.R., city of Ottawa and Carleton county, in connection with the Richmond road viaduct, Ottawa.

10459. May 4.—Extending until June 1, time within which C.P.R. shall install electric bell at Merry St. crossing, Magog, Que.

10460. Apr. 28.—Adding city of Montreal and Montreal Turnpike Trust as parties to question of protection at C.P.R. crossings at Prud'homme and Decarie Aves.

10461. Apr. 28.—Ordering C.P.R. to continue watchman at Main St. crossing, Farnham, Que.

10462. May 3.—Respecting equipment of electric railway cars with power brakes. This order is given in full on another page.

10463. Apr. 28.—Ordering C.N.Q.R. to stop its trains inbound and outbound at Pointe Aux Trembles.

10464. May 4.—Amending order 10285, Apr. 21, respecting C.P.R. crossings at Cote des Perrons, Que.

10465. May 4.—Ordering G.T.R. within 60 days to install signal bell at Victoria St. crossing, Thamesville, Ont.

10466. Apr. 28.—Dismissing J. S. Buchan's application for order for the sale of Montreal Central Terminal Co.'s assets.

10467. May 4.—Extending until June 1, time within which C.P.R. shall install electric bell at crossing at lot 10, con. 10, Medonte tp., Ont.

10468. May 4.—Extending until Aug. 4, time within which G.T.R. may build branch to W. Knechtel & Son's premises, Hanover, Ont.

10469 to 10476. May 4.—Authorizing C.N.O.R. to build between lots 24 and 25; lots 16 and 17, con. A., Haldimand tp.; lots 31 and 32, con. 4, Darlington tp.; lots 22 and 23; lots 34 and 35; lots 31 and 32; lots 4 and 5; lots 18 and 19, con. A., Haldimand tp.

10477, 10478. May 3-4.—Authorizing C.P.R. to build bridges at 21 points.

10479. May 3.—Authorizing Bell Telephone Co. to place wires across G.T.R. near Walkerville station, Ont.

10480 to 10486. May 3.—Authorizing Farmers Telephone Co., Windsor, N.B., to erect wires across C.P.R. at seven points.

10487. May 4.—Authorizing C.N.O.R. to build between lots 16 and 17, con. B., Murray tp.

10488. May 4.—Authorizing C.P.R. to build spur for Crow's Nest Pass Coal Co., near Michel station, B.C.

10489 to 10491. May 6.—Authorizing C.N.O.R. to build between lots 4 and 5, con. A.; lots 18 and 19, con. B., Murray tp.; and between Murray and Brighton tps.

10492. May 3.—Dismissing C.N.O.R. application for approval of location through Lanark county, mileage 29 to 41.

10493, 10494. May 3.—Dismissing C.N.O.R. applications for authority to build across certain highways in Smith's Falls, and for approval of revised location through Smith's Falls, mileage 38.3 to 42.1.

10495. May 6.—Authorizing C.N.O.R. to build between lots 12 and 13, con. B., Murray tp.

10496. Apr. 28.—Authorizing town of St. Lambert, Que., to build highway crossing at intersection of Montreal and St. Lambert Terminal Development Co., St. Antoine de Longeuil parish.

10497. May 6.—Authorizing Nelson Telephone Co. to place wires across G.T.R. at Ash station, Ont.

10498. May 4.—Authorizing Manitoba Government Telephones to place wires across C.N.R. at Stephenfield station.

10499. Apr. 21.—Authorizing Seymour Power

(Continued on page 471.)

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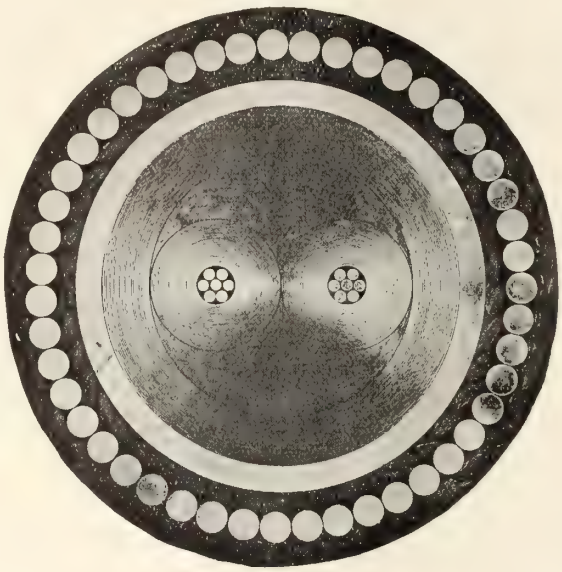

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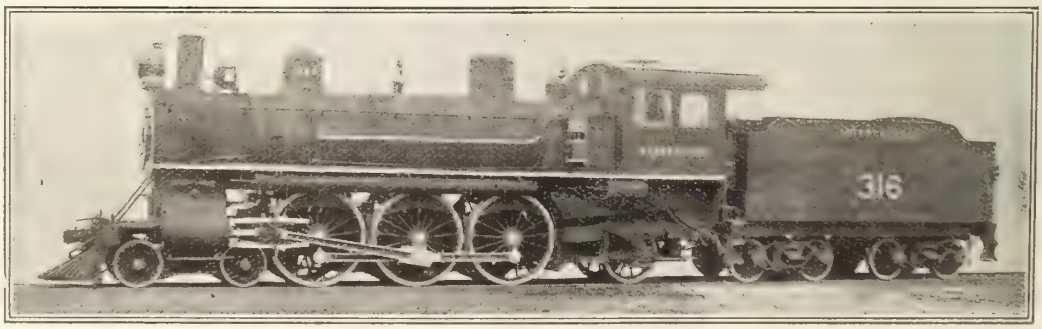

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(Continued from page 467.)

and Electric Co. to place wires across C.P.R. near Sulphide, Ont.

10500 to 10504. May 6.—Authorizing Bell Telephone Co. to place wires across various railways at five points.

10505. May 6.—Authorizing Ruby Lake Lumber Co. to place wires across C.N.R. Pas Mission branch, near mileage 6, Sask.

10506. Apr. 28.—Authorizing town of St. John's, Que., to open highway at Queen St. across G.T.R., and ordering G.T.R. to install within 60 days a signal bell there; also that G.T.R., within 30 days file plan showing location of gates at St. James St., St. John's, Que.

10507. May 3.—Ordering C.P.R. within 60 days to erect gates at crossing near Matthews Pork Factory, Hull, Que.

10508. May 6.—Ordering G.T.R. to install within 60 days, gates at William St. crossing, Brockville, Ont.

10509. Apr. 21.—Authorizing C.N.O.R. to build across Division St., Cobourg, and ordering G.T.R. to build subway and approaches to carry the street under both railways.

10510. May 7.—Ordering that G.T.R. be relieved from providing protection at the crossing 1¼ miles south of Hespeler, Ont.

10511. May 4.—Amending order 10036, Mar. 31, which authorizes J. A. Coleman to lay gas pipe under M.C.R., near Montague station, Ont.

10512, 10513. May 6.—Authorizing C.P.R. to build bridges over Alexandria River, on its White River sec., Ont., and at 4th crossing of Michel Creek on its Crambrook section, B.C.

10514. May 6.—Approving revised location of G.T.R. branch from mileage 90 from Colwell to Penetanguishene, and on south half of lot 13, con. 2, and north-easterly to lot 92, con. 1, Tiny tp., Ont.

10515. May 4.—Approving revised location of G.T.R. branch from near Tiffin, and on lot 16, con. 3, Tay tp., extending southwesterly through the township to lot 92, con. 1, Tiny tp., Ont.

10516. May 6.—Authorizing Toronto, Hamilton and Buffalo Ry. to build a spur for Sawyer-Massey Co., Hamilton, Ont.

10517. May 6.—Authorizing Bell Telephone Co. to place wires across C.P.R. near Guelph station, Ont.

10518. May 9.—Authorizing Ontario Hydro-Electric Power Commission to place wires across G.T.R. at lot 22, con. 1, West Flamboro tp.

10519, 10520. May 7.—Authorizing Montreal Light, Heat and Power Co. to place conduit and gas main under G.T.R. Lachine Canal bank siding, at Cote St. Paul, Que.

10521. May 6.—Authorizing town of Renfrew, Ont., to lay sewer under C.P.R. at Ann St.

10522. Apr. 27.—Authorizing C.P.R. to build across 24 highways on its Weyburn-Lethbridge Branch, from mileage 0 to 26.2.

10523-24. May 9.—Ordering C.P.R. to install within 60 days an electric bell at crossing of Colborne and William Sts., London, Ont.

10525. May 9.—Authorizing proposed drainage works of Tilbury East tp., across C.P.R. lands.

10526. May 9.—Authorizing C.P.R. to build bridge 91.7 over Snake River on its Chalk River section, Ont.

10527. Mar. 1.—Ordering that in terms in its tariff on file with the Board, the Bell Telephone Co. is entitled to compute extra mileage and charge only from Ottawa limits as at present existing, in connection with complaint of Dr. J. T. Nelson, of Westboro, Ont.

10528. Apr. 19.—Re rates on lumber. This order is given in full on another page.

10529. May 7.—Ordering that time within which interchange track at intersection of C.P.R. and G.T.R. at Brampton, Ont., was required by order 9877, Mar. 14, to be ready for operation, be extended to July 1.

10530. May 9.—Approving plans of G.T.R. station at Moose Creek, Ont.

10531. May 7.—Ordering that time within which G.T.R. branch to Davis and Doty premises, Oakville, Ont., as required by order 10048, Mar. 22, be removed, be extended for six weeks from May 22.

10532. May 9.—Authorizing Ontario Hydro-Electric Power Commission to placee wires across Bell Telephone Co.'s wires at lot 55, con. 1, Ancaster tp.

10533 to 10535. May 9.—Authorizing Bell Telephone Co. to place wires under G.T.R. at three points in Ontario.

10536, 10537. May 9.—Authorizing Bell Telephone Co. to place wires across G.T.R. at two points near Galt, Ont.

10538. May 9.—Authorizing Stiver Brothers, Stouffville, Ont., to lay drain under G.T.R.

10,539. May 12.—Approving revised location of C.P.R. Regina, Saskatoon and North Saskatchewan Branch, from s.w. ¼ sec. 29, tp. 17, r. 19, w. 2 m., mileage 0. to sec. 23, tp. 20, r. 21, w. 2 m., mileage 21.9, Sask.

10,540. May 12.—Authorizing C.N.O.R. to build across public road between lots 28 and 29, con. B, Brighton tp.

10,541. May 12.—Authorizing Wahnapitae Power Co., Dominion Nickel Copper Co., and Moose Mountain, Ltd., to erect wires across C.N.O.R. between Toronto and Sudbury, near mileage 255.8, north from Toronto.

10,542. May 12.—Ordering C.P.R. within 60 days to install an electric bell at Saskatchewan ave. crossing, Winnipeg.

10,543. May 12.—Authorizing G.T.P.R. to build across Aldboro and Westcana sts., West Winnipeg, Man.

10,544. May 12.—Authorizing P. F. Quinlan, Stratford, Ont., to place wires across G.T.R. between cons. 8 and 9, Ellice tp., Ont.

10,545, 10,546. May 12.—Authorizing Greenwood Telephone Association, Steelton, Ont., to place wires across Algoma Central and Hudson Bay Ry. at second and third people's crossings from Sault Ste. Marie.

10,547-48. May 12.—Authorizing Bell Telephone Co. to place wires across P.M. Rd. at two points in Ontario.

10,549. May 13.—Authorizing T.H. & B. Ry. to build spur to Union Draw Steel Co.'s premises, Hamilton, Ont.

10,550. May 13.—Approving location of G.T.P.R.'s Tofield-Calgary Branch from mileage 50 to 99.804, Alberta.

10,551. May 13.—Approving location of C.N.R. from mileage 170 to 238.41, Humboldt-Calgary division, Alta.

10,552 May 12.—Authorizing C.P.R. to build bridges 20-42, Pays Plat River; 33.2, Gravel River, Nipigon section, Lake Superior division; 64.4, Haslam Creek, Esquimalt & Nanaimo Ry., and 73.6, Magaguadavic River, St. John section, Atlantic division.

10,553. May 12.—Authorizing C.P.R. to lay extra track across road allowance between secs. 7 and 8, tp. 16, r. 2, w. 2 m., Whitewood, Sask.

10,554. May 12.—Authorizing C.P.R. to build spur to Canada Linseed Oil Mills, Toronto.

10,555. May 12.—Authorizing G.T.R. to build branch lines from its line near lots 27 and 28, con. 1, Williamsburg tp., to River St. Lawrence in front of lot 28, Ont.

10,556. May 12.—Authorizing C.P.R. to build three spurs across Manitoba st., Moose Jaw, Sask., for Saskatchewan Flour Mills Co.

10,557. May 12.—Authorizing C.P.R. to build spur to University of Saskatchewan, Saskatoon.

10,558, 10,559. May 10.—Approving location of C.N.O.R. Sudbury-Port Arthur division from mileage 140 to 160, and from mileage 460 to 480.

10,560. May 10.—Authorizing G.T.R. to build passing track across Yonge St., Harriston, Ont.

10,561. May 10.—Dismissing complaint of Auger & Son, Quebec, as to Quebec Central Ry. supply of cars of not less than 35 ft. long for pulpwood shipments.

10,562. May 7.—Dismissing Dominion Park Co.'s complaint, so far as it deals with short term rates for telephones, and increase of guarantee for pay station, and ordering that maximum tolls charged by Bell Telephone Co. from June 15, for short terms service of long distance wall, or desk, extension sets, shall bear same proportion to yearly tolls as those charged for short terms service of initial sets bear to yearly tolls, subject to a minimum charge of $5, the said tolls to be published and filed in accordance with the provisions of Railway Act.

10,563. May 10.—Extending time within which C.P.R. was directed by order 8,936, Dec. 7, 1909, to complete station at Eganville, Ont., to Aug. 1.

10,564. May 13.—Recommending to Governor in council for sanction amalgamation agreement of May 9 between C.N.R. Co. and Saskatchewan Midland Ry. Co.

10,565. May 10.—Authorizing town of Owen Sound, Ont., to lay water main under C.P.R. to Carney Lumber Co.'s premises.

10,566. May 10.—Authorizing Goderich Township Telephone System to place wires across G.T.R. at con. 16 road, Goderich tp., Ont.

10,567. May 11.—Ordering M.C.R. within 60 days from date to install an electric bell at York Mines station crossing, Oneida tp., Ont.

10,568. Feb. 26. Ordering that M.C.R. crossing at first highway east of Welland station, Ont., be protected by gates, to be installed not later than May 1, and to be operated between 7 a.m. and 7 p.m. daily.

10,569. Apr. 21.—Authorizing C.N.O.R. to build across Main st., Orono, at station 1471.2.

10,570. May 6.—Authorizing C.N.R. to build the De Lourdes spur in tp. 6, r. 9, w. p. m., Man.

10,571. May 16. Ordering that time provided in order 9,114, Dec. 30, 1909, within which C.P.R. was required to complete subway at Iberville st., Montreal, be extended to June 15.

10,572. May 16.—Authorizing C.P.R. to build spur to Standard Sanitary Mfg. Co.'s premises across Royce street, Toronto.

10,573 to 10,575. May 10.—Ordering that C.P.R. be relieved from providing protection at crossings south of Lang station; east of Moose Jaw, and at Staughton, Sask.

10,576. May 10.—Authorizing C.P.R. to build bridges, 117.6, Bow River, Laggan section, Western division; 22.5, Moose Jaw section, Western Division, and 63.33, Lac du Bonnet branch, Central division.

10,577. May 10.—Authorizing Canadian Niagara Power Co. to place wires across G.N.W. Telegraph Co.'s wires at Bridgeburg, Ont.

10,578. May 10.—Authorizing G. A. Burgess, Carleton Place, Ont., to place wires across C.P.R. at Albert st.

10,579. May 10.—Authorizing Ontario Power Co. to place wires across G.T.R., Welland division, at George st., Port Colborne, Ont.

10,580. May 16.—Authorizing Bell Telephone Co. to place conduit under G.T.R. at Neeve st., Guelph, Ont.

10,581. May 16.—Authorizing Bell Telephone Co. to place wires across G.T.R. near Vankleek Hill, Ont.

10,582. May 16.—Authorizing Bell Telephone Co. to place conduits under G.T.R. at Ferguson ave., Hamilton, Ont.

10,583, 10,584. May 16.—Authorizing Bell Telephone Co. to place wires across G.T.R. at Clinton, and near Harrisburg, Ont.

10,585. May 13.—Authorizing C.P.R. to build siding across Strickland Place and Earnbridge st., Toronto.

10,586. May 6.—Approving location of union station at Orillia, Ont., for use of Georgian Bay and Seaboard Ry. (C.P.R.) and C.N.O.R.; also location of these lines into and through Orilia, and crossing of G.T.R at Atherley Jct. by Georgian Bay and Seaboard Ry.

10,587. May 3.—Ordering that G.T.R. protect crossing on Park st., Brockville, Ont., by watchmen day and night.

10,588. May 3.—Authorizing Ferris tp., Nipissing District, Ont., to build highway across C.P.R. on lot 29, con. 14.

10,589. May 13.—Authorizing C.P.R. to build spur to International Harvester Co. of America's premises, Brandon, Man.

10,590. May 13.—Authorizing C.N.O.R. to build between lots 12 and 13, con. 4, Clarke tp.

10,591. May 9.—Ordering C.P.R. at snow shed 19, 1¾ miles west of Rogers Pass station, B.C., to erect tell-tales, not less than 100 ft. from all bridges, tunnels, or other structures which do not afford clear headway of at least 7 ft. between top of highest freight car and lowest portions of structures directly over space to be traversed by car in passing.

10,592. May 9.—Ordering G.T.R. within 60 days to install gates at Broadway st. crossing, Wyoming, Ont.

10,593. May 16.—Authorizing C.N.R. to build across certain streets in Stettler, Alta.

10,594. May 16.—Authorizing C.N.R. to build its Vegreville extension across C.P.R. Moose Jaw-Lacombe Branch, at Stettler, Alta.

10,595. May 16.—Approving C.P.R. bridge over Vermillion River, Sault Ste. Marie branch.

10,596. May 16.—Authorizing C.P.R. to build spur to Austin & Nicholson's premises at mileage 24.6, west of Chapleau district, Sudbury, Ont.

10,597. May 16.—Authorizing C.P.R. to build spur to Alberta Clay Products Co.'s premises, Coleridge, Alta.

10,598. May 16.—Authorizing Quebec Ry., Light and Power Co. to build branch line from Quebec towards Sillery.

10,599, 10,600. May 2.—Authorizing C.N.O.R. to build between lots 8 and 9, con. 1; and lots 30 and 31, con. B, Brighton tp.

10,601. May 16.—Approving C.N.O.R. location through Hamilton and Hope tps., mileage 176.86 to 180.64 from Ottawa.

10,602. May 2.—Authorizing C.N.O.R. to build between Haldimand and Cramahe tps.

10,603. May 16.—Approving location of portion of Calgary and Edmonton Ry. branch from Strathcona to Edmonton, Alta.

10,604. May 13. Authorizing Bell Telephone Co. to place wires across C.P.R. at Vankleek Hill, Ont.

10,605 to 10,609. May 13.—Authorizing city of St. Thomas, Ont., to place wires across Bell Telephone Co.'s wires at Kains and St. Catharine sts., and across telegraph lines at three points on Flora st.

10,610. May 16. Ordering M.C.R. to install an electric bell at Moote Road crossing, Canboro tp., Ont.

10,611. May 12 13. Ordering that C.P.R. be relieved from providing protection at crossing at west end of station yard, Manitou, Man.

10,612, 10,613. May 12, 13. Authorizing G.T.P.R. to cross at grade, C.P.R. Wetaski-

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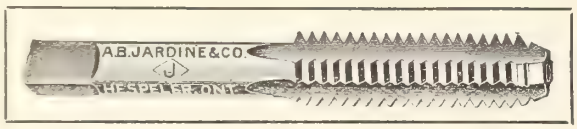

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win Branch at Camrose, and C.P.R. Lacombe Branch at Alix, Alta

10,614. May 12, 13.—Ordering C.P.R. to build and subway at Main st. crossing, Kenora, Ont.

10,615. May 16.—Authorizing C.N.O.R. to divert street near north bounuary of its right of way between Main and Cobbledick sts., Orono.

10,616. May 17.—Authorizing C.N.O.R. to divert and build its line between lots 32 and 33, con. 2, Cramahe tp.

10,617. May 6.—Authorizing National Transcontinental Ry. to cross C...R. Dundee branch at grade with a spur line to gravel pit, through secs. 1, 2, 11 and 12, r. 4, e. p. m., Man.

10,618. May 12, 13.—Dismissing Manitoba Windmill and Pump Co.'s complaint as to rates charged by C.P.R. on windmills from Brandon, Man., to Vancouver, B.C., being unjustly discriminatory in favor of Eastern Canadian shippers.

10,619. May 17.—Approving location of G.T.P.R. Battleford branch, mileage 0 to 26, Sask.

10,620. May 12, 13.—Authorizing G.T.P.R. to divert highway crossing in s. ½ sec. 18, tp. 12, r. 20, w. 1 m., Brandon District, Man.

10,621. May 17.—Approving revised location of V., V. & E. R. & Nav. Co.'s line from east line of sec. 15, tp. 16, to west line of tp. 26, New Westminster District, B.C., 18.3 miles.

10,622, 10,623. May 17.—Authorizing C.P.R. to build bridges 106.44 over Windy Lake, Cartier section, Lake Superior division, and 26.9 over Lavalle Creek, Chalk River section, Eastern division.

10,624, 10,625. May 16.—Authorizing G.T.R. to cross, at grade, between lot 11, con. 2, and lot 11, con. 3, between lots 85 and 86, con. 2, Tiny tp., Ont.

10,626. May 16.—Authorizing G.T.R. to cross overhead between lots 89 and 90, con. 1, Tiny tp., Ont.

10,627, 10,628. May 16.—Authorizing G.T.R. to cross at grade road between lot 88, con. 1, and lot 88, con. 2, and between lots 11 and 12, con. 2, Tiny tp., Ont.

Sleeping Car Reservations Limited.

The Eastern Canadian Passenger Agents Association's rule respecting sleeping and parlor car reservations has been amended as follows, the new rule having gone into effect May 16:—

"61. (a) Unless paid for in advance accommodation reserved on verbal or city telephone applications to city or station ticket offices where space is held in sleeping or parlor cars starting from such cities will not be held later than two hours prior to the departure of train for cars scheduled to leave such cities prior to 5 p.m.

"3 p.m. (instead of 5 p.m.) for cars scheduled to leave such cities between 5 p.m. and 10 a.m. next day."

Sleeping or parlor car tickets will be redeemed if presented to agent from whom purchased, or to station ticket agent at same place, prior to departure of train for which they were sold.

Railway Subsidy Contracts.

Contracts have been entered into by the Dominion Government, under the act granting aid to certain railways, for the construction of the following lines:

ALBERTA CENTRAL RY.—For a line from near Red Deer to the Rocky Mountain House, on the North Saskatchewan River, Alta., 70 miles. (April 25).

THESSALON AND NORTHERN RY.—For a line from Thessalon, Ont., northerly for four miles. (April 19).

During March, 72 employes were killed and 30 injured in the course of their work on Canadian railways. Of the fatalities, 60 were due to the avalanche at Rogers Pass, B.C., on Mar. 6, five to being run over, two each to falls, to derailments and to being caught between cars, and one to an explosion of dynamite, while of the other accidents, 11 were due to falls, six to falling material, five to being caught between cars, four to being run over, and one each to an assault by a passenger, to falling material, to being struck by an object in passing, to machinery, to flying material, to a derailment and to burns.

G.T.R. Betterments, Construction, Etc.

Line to Providence, R.I.—U.S. reports state that engineers are in the field locating lines to close all gaps in the Central Vermont Ry., so that it will be enabled to run trains over the G.T.R. and its own tracks all the way from Montreal to Providence, R.I. Some 50 miles will have to be built to cover these several gaps, and the new lines will parallel sections of the Boston and Maine Rd., over which C.P.R. trains now run.

Montreal Level Crossings.—The Board of Railway Commissioners has directed that plans for the elimination of the G.T.R. level crossings in Montreal be submitted in August. When the matter last came before the Commissioners the company's solicitor said it was intended to build a viaduct from Bonaventure station to St. Henri, so as to abolish all level crossings; the viaduct to have a capacity for four tracks. From St. Henri it would go to a point east of the Wellington St. subway and back in a westerly direction to beyond Cote St. Paul road. It would then gradually descend to the level of the present tracks at Turcot yards. The length of the viaduct would be about four miles, and the estimated cost would be $8,000,000. The city has power to raise $2,000,000 to be expended upon its share of the cost. Detailed plans and estimates are now being prepared.

St. Laurent to Maisonneuve.—W. Wainwright, Second Vice President, has announced that work will begin almost immediately on the building of a line from St. Laurent, round the Mount Royal, to Maisonneuve, and that the line will probably be completed this year.

Kingston, Smith's Falls and Ottawa Ry.—The Dominion Parliament has granted a subsidy to aid in building a line from Kingston to Ottawa, Ont., not exceeding 101 miles.

Bathurst St., Toronto, to the Humber.—The City Engineer reported to the Toronto City Council May 17, that the company had not made a start on the depression of tracks west of Bathurst St., on May 1, as required by the Board of Railway Commissioners' order, and he was instructed to act, with the City Solicitor, in seeing that the order was enforced. The plans are prepared and the company has been acquiring the land necessary in Parkdale, and is making various preliminary arrangements.

Guelph to Harrisburg.—The 65 lb. rails between these points are being replaced by 80 lb. steel, removed from sections of the Toronto-Montreal line.

Stratford to Goderich.—G. A. Mitchell, Master of Bridges and Buildings, was in Stratford, May 6, in connection with the renewing of bridges at Erie and Wellington streets. He said the whole of the bridges on the line to Goderich will be strengthened or renewed, in order to carry the heavier traffic now going over the line.

Track Elevation in London.—Speaking recently at London, Ont., C. M. Hays, President, said the heavy and expensive works in hand or contemplated in Montreal and Toronto claimed first attention. This is interpreted to mean that it will be some years before the question of track elevation and the complete rearrangement of yards and station in London will be finally considered.

Connection with Sault Ste. Marie.—Recent press reports stated that the G.T.R. had secured control of the Detroit and Mackinaw Rd., and that it was proposed to extend it to a junction with the Algoma Central Ry. at Sault Ste. Marie, Ont. We are officially advised by the G.T.R. management that there is no truth in the reported acquirement of the control of the line. The G.T.R. through one of the companies amalgamated with it in 1893, had power to build a line to Sault Ste. Marie, with a bridge over the St. Mary River, and a considerable portion of the right-of-way was secured. The company abandoned its project in favor of the C.P.R. Algoma branch, and an agreement was entered into between the two companies (G.T.R. and C.P.R.) as to right-of-way and rights over the bridge. (May, pg. 373.)

Portland Canal Short Line Railway.

T. F. Hopkins and M. Stewart, of Seattle, Wash., together with such persons as became shareholders, were incorporated by the British Columbia Legislature in 1909 as the Portland Canal Short Line Ry. Co., to build a standard gauge railway from or near the head of Portland Canal along Bear River for 30 miles, with branch lines not exceeding 10 miles. The capital was fixed at $1,000,000, and the head office at Victoria. The present officers of the P.C.S.L. Ry. Co. are:—President, D. D. Mann; Vice President, Z. A. Lash; Secretary, A. J. Mitchell; Manager of Construction, W. H. Grant; Engineer, D. O. Lewis. A contract has been let to the Cassier Construction Co., the officers of which are identical with those of the P.C.S.L.R. Co., to build 15 miles of line from Stewart, B.C., at the head of Portland Canal, and about 125 miles north of Prince Rupert, northerly along Bear River Valley to the mining camp at the junction of Bear River and American Creek, in which D. D. Mann and his associates in Canada and the U.S. are largely interested. The camp is said to be rich in silver, copper, zinc and lead.

W. H. Grant, D. O. Lewis and staff, left Toronto April 12, and Vancouver April 26, for Stewart. The survey parties were organized in Vancouver and location is being proceeded with. A wharf is being built at Stewart and it is expected to have the line completed this year. For construction purposes two locomotives have been bought in the United States and the Canadian Car and Foundry Co. is building a combination passenger car and caboose, and 23 flat cars. The company will probably be in the market for ore cars towards the end of the summer. (May, pg. 369.)

Index to The Railway and Marine World.

A complete index to the matter contained in the Railway and Marine World for 1909, Jan. to Dec. both inclusive, has been mailed to subscribers who applied for it. The indexes for 1907 and 1908 met with much favor, and we have no doubt the one for the past year will be equally appreciated. A large portion of the matter we publish from month to month is of great permanent value for reference, and of course this value is much enhanced by a complete classified index. We were much gratified when we issued our first index for 1907 to find that a large number of subscribers file and bind the paper.

We do not make a general distribution of the index, but a copy will be sent to each subscriber who desires one, and who will notify us to that effect. A letter or post card, simply stating that the index is desired, and giving the subscriber's name and address, will be sufficient. Any subscriber who wishes a copy and has not already applied should do so at once.

W. Stapleton, General Agent Passenger Department, Western Canada Division, Canadian Northern Steamships Limited, writes: "Having been a subscriber to the Railway and Marine World for some time, I am glad to say that I find it very useful in many ways. The very interesting articles it contains make it almost invaluable to a Canadian transportation official."

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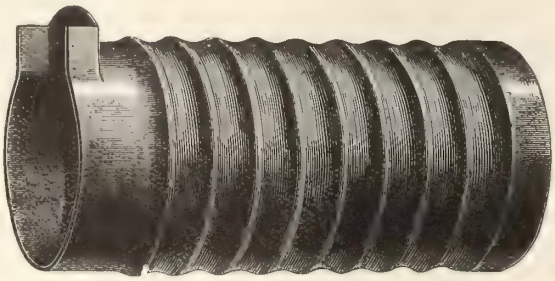

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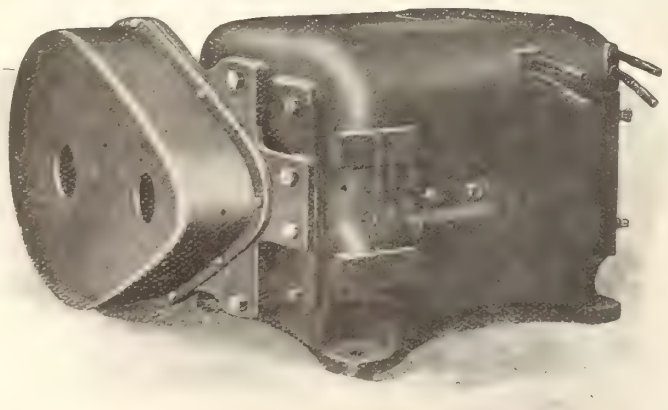

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MAINLY ABOUT PEOPLE.

W. D. Matthews, director C.P.R., has returned to Toronto from Europe.

F. McCuaig, of the C.P.R. freight department at Ottawa, died there recently.

Sir Sandford Fleming has been elected President of the Ottawa Association for the Blind.

J. B. Spence, engineer Department of Railways and Canals, died in Ottawa May 20, aged 68.

W. H. Hunter, who died at Orangeville, Ont., May 24, was for many years a C.P.R. claims agent.

Sir Wm. L. Young, director G.T.R., London, Eng., was in Montreal, May 10, on his way home from Cuba.

W. R. Tiffin, Superintendent Northern Division G.T.R., Allandale, Ont., is reported to be seriously ill.

Jos. Hobson, Consulting Engineer, G. T. R., left Hamilton, Ont., early in May for a trip to Great Britain.

E. Fitzgerald, Montreal, Assistant General Purchasing Agent C.P.R., left Montreal May 19 for a trip to Europe.

A. H. Harris, Special Traffic Representative, C. P. R., sailed on the Empress of Ireland, from Quebec, May 20.

Sir Sandford Fleming has been re-elected Chancellor of Queen's University, Kingston, Ont., for a further three years.

M. V. Grandin, Managing Director of the Great Northern Mining Co., Cheticamp, N.S., has taken up his residence temporarily at Pictou, N.S.

G. Sharp, Superintendent Prince Edward Island Ry., returned recently to Charlottetown, P.E.I., from a holiday trip to Calgary, Alta.

Mrs. Scott Griffin, wife of the Manager Canadian Northern Express and Telegraph Companies, left Toronto for England at the end of May.

J. O. Smith, C.P.R. baggage master at Fredericton Jct., N.B., died May 1, from blood poisoning, said to have resulted from the bite of a pet dog.

Mrs. F. Balch, who died at Massena, N. Y., recently, was mother of F. J. Balch, General Freight Agent Ottawa and New York Ry., Ottawa, Ont.

The engagement is announced of Allan Keefer, son of C. H. Keefer, C. E., to Miss Clare Oliver, third daughter of the Minister of the Interior.

Dr. N. A. Macnab, son of B. A. Macnab, Managing Editor Montreal Star, has been appointed on the G.T.P.R. medical staff, west of Edmonton, Alta.

Jas. Dalrymple, who died in Montreal, May 14, aged 66 years, was father of J. E. Dalrymple, Assistant Freight Traffic Manager G. T. Pacific Ry., Winnipeg.

D. W. Hatch, Travelling Agent Atcheson, Topeka and Santa Fe Ry., Montreal, has removed his office there, from 138 St. James Street to 83 St. James Street.

Miss R. Bosworth, daughter of G. M. Bosworth, Fourth Vice President C.P.R., was married recently at Montreal to D. Seely, son of D. J. Seely, St. John, N.B.

W. R. Tiffin, Superintendent Northern Division G.T.R., Allandale, Ont., completed 50 years' service with that company and its predecessors, May 24.

Lady Shaughnessy and Miss Shaughnessy arrived in Quebec from Europe, by the Empress of Ireland, May 13, and were met by Sir Thos. G. Shaughnessy.

Jno. Wilson, who some years ago retired from the position of yardmaster, G.T.R., Detroit, Mich., after 36 years' service, died there April 28, aged 88.

G. Swanson, railway contractor, Dryden, Ont., is erecting a $25,000 residence on his 50 acre fruit ranch near Creston, B.C.

Hon. L. P. Brodeur, Minister of Marine, has returned to Canada, from the South, where has has been recuperating after his recent serious illness.

E. N. Bender, General Purchasing Agent C.P.R., returned to Montreal May 19, after a months trip to the Pacific Coast and intermediate points.

J. T. Arundel, General Superintendent Central Division C.P.R., Winnipeg, sailed from Quebec on the ss. Empress of Ireland, May 20, for a trip to Great Britain.

W. P. Torrance, of Kingsmill, Saunders, Torrance and Kingsmill, Solicitors, M. C. Rd., Toronto, sailed from Montreal on the ss. Canada, May 20, for Liverpool, intending to return in August.

Mrs. A. D. MacTier, wife of the Assistant to the Second Vice President C.P.R., and two of her children, sailed from Quebec on the ss. Empress of Ireland May 20 for Liverpool.

M. J. Butler, formerly Deputy Minister of Railways and Canals, addressed the City Club, Boston, Mass., recently on "Transportation Problems in Canada."

M. P. Davis, of M. P. and J. T. Davis, contractors on the National Transcontinental Ry. and other works, was married in New York May 3, to Miss G. A. McGrady.

G. H. Hedge, Assistant Master Mechanic Canadian Northern Ry., has removed his family from Port Arthur to Winnipeg, as he has had his headquarters at the latter place for some time.

Gen. Thomas L. Rosser, who was the first Chief Engineer of the C.P.R., at Winnipeg, and who has been living for some years in Virginia, is reported to have died there recently.

Lady Reid, widow of the late Sir Robert G. Reid, President Reid Newfoundland Co., and Miss Reid returned to Montreal recently from a lengthened trip to the Mediterranean.

A. P. Walker, Assistant Engineer C. P. R., Toronto, who has been granted three months leave of absence, sailed from Montreal recently on the s.s. Lake Manitoba, for Great Britain.

J. G. Williams, who, died in Port Hope, Ont., recently, aged 92, was largely interested in the old Midland Ry., at the time of its construction, and during its operation as an independent line.

It is reported that Sir William Van Horne will leave shortly for Australia to advise the Government regarding the construction of a railway across the continent, with extensive irrigation works.

G. McL. Brown, European Manager C.P.R., has been elected President of the C.P.R. Swimming Club, which has just been formed in the company's London office.

Miss Ethel Jones, daughter of L. K. Jones, Secretary Department Railways and Canals, Ottawa, is to be married in September to Gordon Richardson, of the Bank of Montreal, Winnipeg.

N. Weatherstone, who was superannuated recently, after being I.C.R., agent at Toronto for many years, will spend the summer in Winnipeg with his daughters, Mrs. Bain and Mrs. Minty.

A. L. Gardiner, who died in New York City recently, after several years' service as Assistant Counsel of the Manhattan Ry. Co., and the Interborough Rapid Transit Co., was a native of Dundee, Ont.

The engagement is announced of F. S. Livingstone, Traffic Manager, Toronto and York Radial Ry., to Miss E. A. Bennett, daughter of B. H. Bennett, General Agent Chicago and North Western Ry., Toronto.

W. D. Reid, President Reid Newfoundland Co., is at present in Great Britain, where, it is stated, he is making arrangements for the organization of a company for the development of the mineral and timber lands owned by his company.

R. W. Dunsmuir, son of Jas. Dunsmuir, railway and steamship owner and colliery proprietor, Victoria, B.C., is reported to have married in Paris, France, Miss Dorothy Russell, daughter of Miss Lilian Russell, the actress.

Miss M. J. Blair, youngest daughter of the late Hon. A. G. Blair, at one time Minister of Railways and Canals, and subsequently first Chief Railway Commissioner, was married in Ottawa recently to S. C. Gilmour.

Jas. Leitch, K.C., Chairman Ontario Railway and Municipal Board, who has been absent for a short while, owing to a mishap which affected one of his eyes, has resumed duty, and presided at the hearing of the Toronto Ry. application early in May.

It is reported that A. Johnstone, formerly M.P. for Cape Breton county, N.S., is to be appointed Deputy Minister of Marine and Fisheries, in succession to G. J. Desbarats, to be appointed as Deputy Minister for the new naval department.

It is stated that E. de la Hooke, for many years city passenger and ticket agent at London, Ont., will retire in the near future, under the provisions of the company's pension regulations, and that he will be succeeded by R. E. Ruse, at present station ticket agent there.

J. G. Scott, formerly General Manager Quebec and Lake St. John Ry., has been appointed a member of the special committee appointed by the Quebec city council to consider the best means of promoting the interests of the port of Quebec.

W. Mackenzie, President Canadian Northern Ry., who was expected to return to Canada from England, on the ss. Royal Edward, did not do so, owing to business engagements. He intended, however, to sail from Avonmouth, May 26, on the ss. Royal George.

E. Force, C.E., who died at the Home for Incurables, Toronto, May 11, was well known as a railway engineer, having been on the Intercolonial Ry.'s first construction staff and afterwards in the C.P.R. service. He became incapacitated for work some eight years ago, owing to a paralytic stroke.

D. R. McBain, who has been appointed Superintendent Motive Power Lake Erie and Michigan Southern Ry., and a number of other New York Central lines, commenced his railway career at St. Thomas, Ont., as fireman, passing through all the grades to his present position.

M. P. Davis, railway and general contractor, presented Bishop Fallon with an episcopal ring on the occasion of his consecration as Roman Catholic Bishop of London, Ont. Bishop Fallon's brothers have carried out a number of contracts for the Dominion Government on the St Lawrence canals.

Z. J. Fowler, who died in Ottawa recently, was a member of the firm of O'Brien, Fowler and McDougall Bros., which is at present carrying out contracts on the National Transcontinental Ry. and on the Canadian Northern Ry. He was a charter member of the Canadian Society of Civil Engineers.

Wm. Jenkins, who died at Madoc, Ont., May 14, aged 91, was the father of B. S. Jenkins, General Superintendent C.P.R. Telegraphs, Winnipeg. The late Mr. Jenkins was the sole surviving son of Rev. Wm. Jenkins, formerly of Markham and Richmond Hill, who was one of the pioneer Presbyterian ministers of Canada.

G. Lamb, accountant and cashier Gen-

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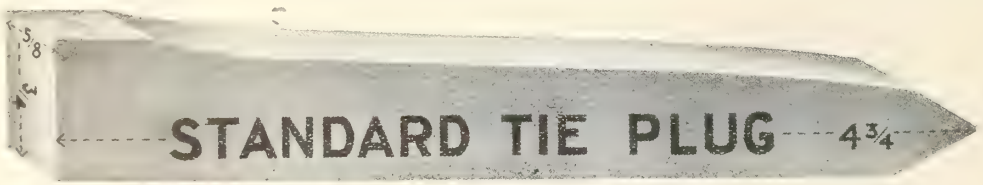

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HEAD OFFICES AND WORKS **SYDNEY, CAPE BRETON, CANADA**

eral Passenger office, C.P.R. Atlantic Steamship Service, Montreal, has retired from active service, and, with his family, will spend the summer in Great Britain. He has been connected with the Atlantic steamship business for a number of years, having transferred to the C.P.R. when it took over the Beaver Line from Elder, Dempster & Co.

The London, Eng., Gazette, of April 25, in addition to the official note conferring the Albert Medal of the first-class on T. Reynolds, C. P. R. Conductor, North Bay, Ont., for conspicuous gallantry in saving the lives of 11 persons in the accident at Webbwood, Ont., on Jan. 21, contains an extended account of the incidents of the rescues.

The Canadian Press Association on its recent trip over the G.T.R., the Temiskaming and Northern Ontario Ry., and a portion of the National Transcontinental Ry. gave J. D. McDonald, District Passenger Agent, G.T.R., a silver tea service and tray; J. H. Black, Superintendent T. and N.O.R., a grandfather's clock, and J. Gorman, Inspector Dining Car Service G.T.R., a mantel clock.

D. P. Cotter, who has been appointed ticket agent, Canadian Northern Quebec Ry., and Canadian Northern Steamships Ltd., at Quebec, has filled various position in the Quebec and Lake St. John Ry., freight and ticket offices in Quebec, and for the last two and a half years has been ticket agent for the C. P. R. at Chateau Frontenac, Quebec, and for the C.P.R. Atlantic Steamship Service in Quebec.

W. Stapleton, whose appointment as General Agent Pasenger Department Canadian Northern Steamships, Winnipeg, was announced in our last issue, was born at Bristol, Eng., May 20, 1884. He entered the Canadian Northern Ry. service in May, 1903, as stenographer in the Passenger Department, and worked through the various positions to that of chief clerk of that department. From 1906 to Jan. 8, 1910, he was Travelling Passenger Agent and from Jan. 8 to April 8, 1910, was City Ticket Agent, Winnipeg.

R. G. McNeillie, whose appointment as District Passenger Agent, C.P.R., Calgary, Alta., was announced in our last issue, was born at Lindsay, Ont., July 1, 1883, and entered railway service Oct. 1, 1901, in the C.P.R. Passenger Department, Winnipeg, since when he held various positions there, and was for three years prior to Oct. 20, 1909, chief clerk in the General Passenger Agent's office, and from Oct.. 20, 1909, to April, 1910, District Passenger Agent C.P.R., Nelson, B.C.

A. H. Davis, whose appointment as Passenger Agent Canadian Northern Steamships, Montreal, was announced in our last issue, was born Jan. 14, 1876, and entered the service of S. Cunard and Co., General Agents Allan Line, Halifax, N.S., Nov. 12, 1890, and transferred to the C.P.R. on the organization of that company's steamship service in Nov., 1901. He has been chief clerk at St. John, N.B., and Quebec, Que., for the past seven years, and is also secretary and treasurer of the Quebec Transportation Club.

O. C. Walker, who has been appointed Inspector Refrigerator Service, C. P. R. Western Lines, Winnipeg, was born Jan. 31, 1877, at Newport, England, and entered C. P. R. service May 1902, since when he has been, to May 1903, car checker at North Bay, Ont., May, 1903 to May 1904, freight clerk and cashier at Regina, Sask.; May, 1904, to March 1, 1907, clerk in General Superintendent's office, Winnipeg; March 1 to July 1, 1907, statistical clerk General Manager's office, Winnipeg; July 1, 1907, to Sept. 1, 1909, chief clerk to Superintendent District 3, Pacific Division, Nelson, B. C.; Sept. 1, 1909 to May 1, 1910, Travelling Car Service Agent, Winnipeg.

J. E. Proctor, whose appointment as District Passenger Agent, C. P. R., at Brandon, Man., was announced in our last issue, was born at Sarnia, Ont., Feb. 17, 1878, and entered C. P. R. service August 21, 1899, since when, he has been, to May, 1900, assistant agent at Fergus, Ont., May, 1900, to May 1901, assistant agent at Shelburne, Ont.; May 1901 to Dec., 1902, in ticket office, Union Station, Toronto; Dec. 1902, to 1903, City Ticket Agent, Nelson, B. C., during 1903, City Ticket Agent, Rossland, B. C., and on the closing of the office there, returned to Nelson and continued as City Ticket Agent to April 1906; April, 1906, to Nov. 1907, Travelling Passenger Agent, Calgary, Alta.; Nov., 1907, to April, 1910, District Passenger Agent, Calgary, Alta.

J. E. Quick, whose portrait appears on the first page of this issue, was born July 19, 1851, at Richmond, N. Y., and entered railway service in 1871, since when he has been, to 1874, baggage master and supply clerk, Port Huron and Lake Michigan Ry., now part of the G. T. R. system; 1874 to 1876, General Baggage Agent and Ticket Clerk, same road; 1876 to 1884, agent, Port Huron, Mich., and General Baggage Agent, Chicago and Grand Trunk Ry.; 1884 to April 15, 1896, General Baggage Agent, same road and Detroit, Grand Haven and Milwaukee Ry.; April, 15, 1896, he was appointed General Baggage Agent, G. T. R., and Aug. 1908, also General Baggage Agent, G. T. P. R., which positions he continues to hold. He was elected Secretary of the American Association of General Baggage Agents, July, 1885, and has been re-elected at each annual meeting since. He is one of the six surviving charter members of the association, which was formed in 1882.

S. P. Howard, General Freight Agent Eastern and Lake Superior Divisions C.P.R., Montreal, has resigned from transportation service, and has entered the real estate business with John Findlay, under the name of Findlay and Howard Co. He is the son of the late Capt. Thos. Howard, one-time harbor master at Montreal, was born there Dec. 30, 1866, and entered transportation service under the Montreal Harbor Commissioners, as clerk in the Wharfinger and Harbor Master's office, and subsequently became private secretary to the Chairman. He entered C.P.R. service Feb. 1, 1883, since when he has been, to 1886 stenographer to General Freight Agent; 1886 to 1888 chief clerk Foreign Freight Department; 1888 to 1891, Travelling Freight Agent; 1891 to 1898, City Freight Agent, Montreal; 1898 to July, 1901, Assistant General Freight Agent; July, 1901, to May 17, 1910, General Freight Agent Eastern and Lake Superior Divisions, Montreal. He was President Canadian Freight Association in 1907.

G. B. Reeve, who died at La Mirada, Cal., May 2, was born in Surrey, Eng., Oct. 23, 1840. He came to Canada in 1860, and in May of that year entered G.T.R. service, since when he was, to 1862, freight clerk at Belleville, Ont.; 1862 to 1863, telegraph operator; 1863 to 1865, train dispatcher; 1865 to 1866, relieving agent; 1866 to 1873, agent at Parkhill, Ont; 1873 to 1874, Assistant General Freight Agent at Montreal; 1874 to 1876, in charge of the Western District, Toronto; 1876 to 1881, in charge of the Eastern District at Sherbrooke, and from 1878, at Montreal; 1881 to Feb. 1, 1896, Traffic Manager Chicago and Grand Trunk Ry., and from 1890 to Feb. 1, 1896, also Traffic Manager Cincinnati, Saginaw and Mackinaw Ry.; Feb. 1, 1896, to April 30, 1900, General Traffic Manager C.P.R. and from 1899 to April 30, 1900, also Traffic Manager Grand Trunk Ry.; May 1, 1900, to Dec. 15, 1900, General Manager Central Vermont Ry.; Dec. 15, 1900, to Dec. 31, 1901, Second Vice President and General Manager, all service with the G.T.R. He retired from active service April 30, 1900, but on the resignation of C. M. Hays, then General Manager, he returned as Second Vice President and General Manager, and finally retired on the return of C. M. Hays, Dec. 31, 1900, since when he lived on his ranch at La Mirada, Cal., some views of which we published in our Aug., 1900, issue.

J. D. Morton, who has been appointed Assistant Comptroller Canadian Northern Steamships, Ltd., in addition to his other appointments, was born in London, Ont., June 15, 1857. His record is as follows: 1871 to Mar., 1873, messenger Montreal Telegraph Co.; Mar., 1873, to Nov., 1879, operator Great Western Ry. of Canada; Nov., 1879, to Feb., 1881, ticket agent, same road; Feb. to Nov., 1881, station agent, same road; Jan. to Nov., 1882, mechanical clerk Des Moines and Fort Dodge Ry.; Nov., 1882, to Aug., 1883, Stores Department C.P.R., Winnipeg; Aug., 1883, to Jan., 1885, General Storekeeper Manitoba and North Western Ry., Winnipeg; Jan., 1885, to Sept., 1886, Cashier and Paymaster same road; Sept. to Nov., 1886, Accountant same road; Nov., 1886, to Nov., 1893, chief clerk General Manager's office, same road; Nov., 1893, to June, 1899, in commercial accounting in Winnipeg; July, 1899, to Apr., 1902, accountant on construction Ontario and Rainy River Ry.; May, 1902, to Dec., 1906, accountant on construction Halifax and South Western Ry.; from Dec., 1906, Chief Accountant Canadian Northern Ry., also from Feb., 1909, General Auditor Canadian Northern Ontario Ry., Canadian Northern Quebec Ry., Halifax and South Western Ry., Duluth, Rainy Lake and Winnipeg Ry. He was also elected Vice President Niagara, St. Catharines and Toronto Ry., and Niagara, St. Catharines and Toronto Navigation Co., June 10, 1908.

Railway Lands Patented.—Letters patent were issued, during March, covering railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres
Calgary and Edmonton Ry.	2,083.00
Canadian Pacific Ry. grants	773.09
Total	2,856.09

The Railway Storekeepers Association's annual convention was held in St. Louis, Mo., May 16 to 18, when several subjects relating to the general handling of railway stores were dealt with, the chief matter for discussion being the economy of the piecework system in the handling of supplies.

The Canadian Northern Ry. has increased the pay of its machinists to 42½c. an hour, its blacksmiths, moulders and pattern makers by 2c. an hour, and has refused increases to its boiler makers and helpers, carmen and steam fitters, who have applied for the appointment of a board of conciliation to enquire into the question.

The C.P.R., we are advised, will inaugurate a passenger service between Lenore, Brandon and Minnedosa, Man June 5, leaving Lenore at 6.30 a.m running to Brandon and thence to Minnedosa, returning to Brandon and then to Lenore, in the evening, covering 2[illegible] miles daily, except Sundays. The steam motor car, which was operated in the vicinity of Montreal some time ago, and later out of Toronto, will be utilized for the service. The car which has seating capacity in the main compartment for 40, and in the smoking compartment for 16, in addition to accommodation for baggage, was fully described and illustrated in our Aug., Sept. and Oct., 1906, issues.

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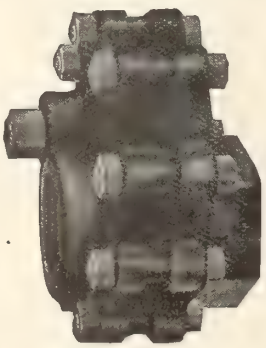

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C.P.R. Betterments, Construction, Etc.

Tobique and Campbellton Ry.—The Dominion Parliament has granted a subsidy in aid of the construction of a line from Plaster Rock, the present terminus of the Tobique Valley Ry., to Riley Brook, N.B., not exceeding 28 miles.

Place Viger Improvements. We are officially advised that the company has begun work on a complete revision of its present freight and passenger terminals at Place Viger, Montreal. A new station is to be built adjoining the present hotel-station, and the existing building will be devoted entirely to hotel purposes. The present viaduct on which Notre Dame St. is carried is to be extended eastward some 950 ft., and the passenger main lines will be carried under the east end of this viaduct, spreading immediately north of it into a stub end terminal yard. South of Notre Dame St. the entire freight yard will be remodelled, providing inbound and outbound freight sheds, each 1,000 ft. long, with suitable trackage and largely increased team track, and team roadway facilities, for unloading carload lots. Some 400,000 cubic yards of excavation is still necessary in connection with this work. It is intended to use the space underneath the viaducts not occupied by tracks, as a freight shed or warehouse, two stories high, similar to that at present used under the portion of this structure now in service.

Ottawa Entrance.—A plan was filed with the Department of Railways, May 6, for a new entrance into Ottawa. The proposal is divided into two sections: (1) The closing up of the Rideau canal between the Deep Cut and Sapper's Bridge, and the placing of the railway tracks on the bed of the canal. (2) The construction of an underground tunnel from the Central station across the city to the Union station on Broad street, where connection with existing lines would be made. The Dominion Government is asked to sanction the company's acquiring the canal bed, and the city is asked to authorize the use of the streets necessary. The matter was under discussion between D. McNicoll, Vice President, and the Mayor, May 11. The latter suggested an alternative proposal, which Mr. McNicoll said would be looked into by the company's engineers.

Toronto Plans.—Notices have been served on the tenants of properties near the crossing of Yonge St. in the north part of the city, recently purchased by the C.P.R., to deliver up possession immediately in order that certain improvements may be carried out. The company's plans are said to include enlarged yards, subways at Yonge St. and Avenue Road, and a station building. The company promised to submit plans for these works to the Board of Railway Commissioners by June 1, and nothing can be done until these have been approved.

Islington-Mimico Line. Construction is well advanced on the line which the C.P.R. is building from a little west of Islington station, to the G.T.R. at Mimico, about three miles. A start was made at the Islington end, but work was stopped pending an arrangement being made for crossing the power line, which is owned by Mackenzie, Mann & Co. interests. With the exception of this crossing, grading is nearly completed, and ties are being laid. The completion of this line will enable the C.P.R. to run trains from its Toronto, Hamilton and Buffalo connection into Toronto without having to go over the whole of the G.T.R. line between Toronto and Hamilton. On the G.T.R. line some heavy and expensive works are about to be carried out from the Humber into Toronto, and an endeavor was made when the matter was before the Board of Railway Commissioners to place a portion of the cost of these on the C.P.R.

St. Mary's and Western Ontario Ry.—A subsidy has been voted by the Dominion Parliament to aid in building a line from Embro to Exeter, Ont., not exceeding 36 miles.

The application of W. Dale to have the by-law passed in Nov. last, granting $20,000 in aid of the construction of the line in Blanchard tp. quashed, has been refused.

London, Ont., Improvements.—Considerable property in the vicinity of the C.P.R. yards has been sold lately, and it is stated that the company is the purchaser. The report states that the land acquired is to be used for shops, roundhouse, station, office buildings, etc. General Superintendent Oborne and other officials of the company were in London May 14, looking over the yards and adjoining properties.

Line to Collingwood.—D. McNicoll, Vice President, told a deputation at Collingwood, Ont., recently that he would press upon the executive the desirability of building a line into Collingwood next year. The C.P.R. had made a survey and there was a charter available. The route of the proposed line is from Baxter, on the Toronto-Sudbury line, entering the town from the west, but east of the old North-Western Line, with a station between Hurontario and Beach streets.

Georgian Bay and Seaboard Ry.—A contract has been let to the Toronto Construction Co. for building a line from Coldwater Jct., on the Toronto-Sudbury line, easterly to Atherly Jct., via Orillia. The construction will be in charge of C. W. P. Ramsey, Assistant Engineer, under the direction of A. McCulloch, Division Engineer, Montreal. The section of the line from Atherly Jct. to Orillia is to be used by the Canadian Northern Ry.

Fort William Shops.—Tenders have been asked for erecting an addition 128 ft. by 70 ft. to the machine shops at Fort William, Ont.

Winnipeg-Portage la Prairie Second Track.—Six miles of grading for the second track between Winnipeg and Portage la Prairie, Man., were reported completed May 5. The contractors, J. Hargreave & Co., have 150 teams at work.

Brandon Freight Sheds.—Tenders have been received for building a new freight shed at Brandon, Man.

Central Division Bridges.—Contracts have been let to the Dominion Bridge Co. for steel bridges at Headingly and Souris, Man., to replace the existing wooden bridges. J. Findlay, from the Bridge Co.'s works at Montreal, was in Winnipeg, April 30, arranging for starting work, the contract calling for completion this summer.

Weyburn, Westerly.—Speaking at Forward, the present terminus of the line westerly from Weyburn, Sask., recently, Superintendent Uren said grading was in progress, and he expected that by the fall a further distance of 25 miles would be ready for traffic. The line was intended to be carried on to Lethbridge, and construction would be further pushed next year.

Western Division Roundhouses. A contract has been let to the Dominion Bridge Co. for the steel work for additions to the roundhouses at Macleod, Crow's Nest, Coleridge, Calgary and Lethbridge, Alta. Six additional stalls are to be added at each place.

Monarch, Alta.—A new station, a siding, and a stockyard are being built.

Deviation of Crow's Nest Pass Line. Plans for a deviation near Pincher Creek, Alta., have been prepared, and a public meeting was held there April 26 to protest against the same being approved. The plans received by the Mayor showed a revision of the route of the line between Macleod and Crow's Nest, which would carry the line about five miles north of Pincher Creek.

Pacific Division Contracts.—Contracts are reported to have been let as follows:—Engine sheds at Field, Rogers Pass, Kamloops, Smelter Jct., and Traill, B.C., to J. McDiarmid, Winnipeg; fruit packing house at Summerland, Nelson Bros., Summerland, B.C.; fruit packing house, Vernon, T. E. Crowell, Vernon, B.C.; freight shed, Kelowna, — Biggar, Kelowna, B.C.; bunk houses at various points on the division, Standard House Co., Vancouver, B.C.

Kootenay Central Ry.—The Dominion Parliament has voted a subsidy to aid in building a line from Golden, B.C., towards the International boundary, via Windermere and Fort Steele, crossing the Crow's Nest Pass branch of the C.P.R. near Elko, 186 miles.

Nelson to Grand Forks, B.C.—We are advised that although press reports stated that the company was doing a great deal of work in improving the line between these points, there is not very much being done; nothing of any large extent. The principal works done or in hand are the repairing and extending of the dock at Nelson; a 30 ft. addition to the station at Nelson, a five-stall engine house at Smelter Jct., and the replacing of several bridges on the Boundary section. The bridge near Cascade, referred to in the press reports as being under construction, is that across the Fraser River, generally known as the Cisco bridge. The present bridge—a cantilever one—which was erected during construction, is to be replaced, but the plans for this, we are advised, are not completed.

Arrowhead and Kootenay Ry.—A press report states that the C.P.R. proposes to make a start in the fall on the projected railway to connect the main line at Revelstoke, via Lardo, with the Crow's Nest Pass line.

Snow Sheds in Mountains.—A press report states that plans have been prepared for the erection of steel snow sheds at various points on the line through the Rockies and Selkirks to replace the present wooden ones. The report further states that the structures which were destroyed last winter by avalanches, will be the first to be replaced by steel snow sheds.

Esquimalt and Nanaimo Ry.—A subsidy has been voted by the Dominion Parliament to aid in building a line from near Duncans to Cowichan Lake, 24 miles.

Minneapolis, St. Paul and Sault Ste. Marie Ry.—Contracts are reported let as follows:—Grading on a cut-off from New Richmond, Wis., to Withrow, Minn., 17 miles; grading on a branch from Medford to Drake, N.D., 13½ miles, to Foley, Welch and Stewart; for grading an ore line and yard between Mayline, south of Superior, and the dock site on St. Louis Bay, Wis., to Fort Baxter. (May, pg. 371.)

W. R. Tiffin's Fifty Year Service

W. R. Tiffin, Superintendent Northern Division G.T.R., Allandale, Ont., issued the following circular to the official staff and employes of the division, May 24:—"To-day completes my 50 years' service with the company, and I feel it fitting that I should take advantage of the occasion to express my appreciation of the loyal support [illegible] received from you all during my term of office as Superintendent of this division, and to thank you for the assistance rendered in furthering the company's interests."

[illegible]

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AND ITS LESSON

The following cities are using Pay-As-You-Enter Cars: Chicago City Railway, 839 cars; Chicago Railways, 1,328; Public Service Corporation of New Jersey, 466; New York City Railway, 555; Third Avenue Railroad, New York, 550; International Railway, Buffalo, 200; Buffalo & Lake Erie Traction Co., 10; Washington Ry. & Elec. Co., Washington, D.C., [illegible]; Capital Traction Co., Washington, D.C., 51; Municipal Traction Co., Cleveland, Ohio, 180; United Rys. Co. of St. Louis, Missouri, 310; Portland Ry., Lt. & Pwr. Co., Portland, Ore., 25; Columous Ry. & Lt. Co., Columbus, Ohio, 10; Wichita R.R. & Lt. Co., Wichita, Kan., 14; Jacksonville Elec. Co., Jacksonville, Fla., 5; Dallas Elec. Co., Dallas, Texas, 20; Houston Elec. Co., Houston, Tex., 41; Northern Texas Trac. Co., Ft. Worth, Texas, 25; Ithaca Street Ry., Ithaca, N.Y., 2; Peoria Street Ry., Peoria, Ill., 13; Urbana & Champaign Ry., Champaign, Ill., 3; Mutual Lt. & Water Co., Brunswick, Ga., 4; Rochester Ry. Co., Rochester, N.Y., 25; Ft. Dodge, Des Moines & So. R.R. Co., 2; Muskogee Elec. Trac., Muskogee, Okla., 6; Union Traction Co., Dubuque, Ia., 4; Topeka Ry. Co., Topeka, Kas., 12; United Rys. & Elec. Co., Baltimore, Md., 32; Detroit United Ry., Detroit, Mich., 225; Cincinnati Traction Co., Ohio, 50; Montreal Street Railway, 400; British Columbia Elec. Ry., 30; Calgary Street Railway, 18; Metropolitan Street Ry., Kansas City, Mo., 50; Edmonton Radial Ry., 4; San Antonio Traction Co., San Antonio, Tex., 6; Rockford & Int. Ry., Rockford, Ill.; Cairo Street Ry. & Lt. System, 6; Des Moines City Railway, Iowa, 12; Macon Ry. & Lt. Co., Macon, Ga.; Virginia Ry. & Power Co.; Columbia Elec. St. Ry. & Lt. & Power Co., Columbia, S.C.; Aurora, Elgin & Chicago Ry., Chicago, Ill.; Wichita Falls Traction Co., Wichita Falls, Tex.; Ottawa Electric Ry. Co., Ottawa; Bloomington & Normal Ry. & Lt. Co., Bloomington, Ill.; Corsicana Transit Co., Corsicana, Tex.; Compania Electrica y de Ferrocarriles, Mexico; The Milwaukee Elec. Ry. & Lt. Co., Milwaukee, Wis.; Springfield Street Ry. Co., Springfield, Mass.; Lynchburg Traction Co., Lynchburg, Va.; Chicago & Southern Traction Co., Chicago, Ill.; Calumet & South Chicago Ry. Co., Chicago, Ill.

THE LESSON

taught by this widespread use of Pay-As-You-Enter Cars is obvious. Increased Revenue, Accident Elimination and Schedule Improvement have been demonstrated in every case. Isn't all this sufficient to show that it always pays to operate the Pay-As-You-Enter Car? Why not remodel some of your present cars?

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Railway Rolling Stock Notes.

The Dominion Parliament voted $2,500 for alterations to the Governor-General's private car.

The Intercolonial Ry., has received one Pacific Locomotive from the Montreal Locomotive Works.

The G.T.P.R. has ordered two Superintendents' cars, to be numbered 4104 and 4105, from the Canadian Car and Foundry Co., Montreal.

The I.C.R. has received one locomotive from the Montreal Locomotive Works, details of which we have already published.

The Temiskaming and Northern Ontario Ry., has received 50 all-steel underframe box cars and 12 cinder cars from the Canadian Car and Foundry Co., Montreal.

The Willard Kitchen Co., has received one, the Eastern Construction Co., two, and M. P. and J. T. Davis, two mogul locomotives from the Montreal Locomotive Works.

The G. T. R. has received five mogul locomotives fro mthe Canadian Locomotive Co., Kingston, Ont., and eight 10-wheel locomotives from the Montreal Locomotive Works, Montreal.

Willard Kitchen Co., contractors on the National Transcontinental Ry., have ordered one standard Rodger double plow distributing car from the Hart-Otis Car Co., Ltd., Montreal.

The G.T.R. has ordered 1,000 steel underframe box cars of 60,000 lbs. capacity, and 500 steel underframe automobile cars of 60,000 lbs., capacity, in the U.S., for use on its Western Division.

The G.T.P.R. has received 200 flat cars, nos. 361100 to 361299; 292 box cars, nos. 311325 to 311316, and one official car, no. 4102, from the Canadian Car and Foundry Co., Montreal, and also one official tender, no. 4175, ordered from Rhodes, Curry Co., Ltd., now one of the constituents of the C.C. and F. Co.

The Canadian Northern Ry., between Apr. 15 and May 15, has received 270 box cars from the Canadian Car and Foundry Co., Montreal; 145 flat cars from the Crossen Car Mfg. Co., Cobourg, Ont.; 100 box cars from the Silliker Car Co., Halifax, N.S., and 100 logging cars from the Russel Wheel and Foundry Co., Detroit, Mich.

The C. P. R., between April 13, and May 14, received the following additions to rolling stock: 23 vans, four baggage and express cars and two G. 2 locomotives from its Angus shops, Montreal; one D. 10 locomotive from the Montreal Locomotive Works, and 473 steel frame box cars from the Canadian Car and Foundry Co., Montreal.

The Halifax and South-Western Ry. has ordered 20 thirty-ton Hart hopper ore cars, with hoppers steel lined, from the Hart-Otis Car Co., Montreal. Following are the chief dimensions:—

Length over end sills	24′ 0″
Length inside	16′ 0″
Width inside	8′ 6½″
Height inside	5′ 10″
Height top of rail to top of side	9′ 10″
Height from rail to floor	4′ 1¾″

The C.P.R. has ordered 211 composite Otis type coal cars, 1910 design, 100,000 lbs capacity, from the Hart-Otis Car Co., Ltd., Montreal. Following are the chief dimensions:—

Length over end sills	38′ 10″
Length inside	36′ 5″
Width inside	9′ 7″
Height inside	5′ 0″
Height top of rail to top of side	9′ 4 13-16″
Height from rail to floor	4′ 4 13-16″

The Toronto, Hamilton and Buffalo Ry. has ordered six Hart Convertible cars, 1910 design, from the Hart-Otis Car Co., Montreal. Following are the chief dimensions:—

Length over end sills	36′ 8″
Length inside as gondola	34′ 8″
Length inside as hopper	20′ 10″
Width inside	8′ 8″
Height inside	3′ 9¼″
Height from rail to top	8′ 1⅜″
Height from rail to floor	4′ 4⅛″

The Toronto Construction Co., G.T.P.R. contractors. have ordered ten Hart convertible cars, 1910 design, from the Hart-Otis Car Co., Ltd., Montreal, of which the following are the chief dimensions:—

Length over end sills	36′ 8″
Length inside as gondola	34′ 8″
Length inside as hopper	20′ 10″
Width inside	8′ 8″
Height inside	3′ 9¼″
Height from rail to top	8′ 1⅜″
Height from rail to floor	4′ 4⅛″

The C. P. R., between April 13 and May 14, ordered the following additions to its rolling stock: two first-class cars, 76 wooden box cars, 13 stock cars, 22 flat cars, five vans and 10 D.10 locomotives from its Angus shops, Montreal; one steel ore car, three steel Hart cars, 200 Otis composite steel and wood coal cars and five steel coal cars, from the Canadian Car and Foundry Co., Montreal; 35 consolidation locomotives from the Montreal Locomotive Works, and also purchased 18 steel Hart-Otis dump cars.

Following are the chief details of the 35 consolidation locomotives which the C. P. R. has ordered from the Montreal Locomotive Works:—

Weight in working order	220,000 lbs.
Weight on drivers	195,000 lbs.
Weight on engine truck	25,000 lbs.
Wheel base, driving	16′ 6″
Wheel base, engine	25′ 5″
Wheel base, engine and tender	55′ 8″
Valve gear	Walschaert
Cylinders	24″ by 32″
Driving wheel	63″
Boiler type	Extended wagon top
Boiler, diar.	72″
Boiler pressure	180 lbs.
Tubes, no. and diar.	272 2″ and 24 5″
Tubes, length	15′ 2¾″
Brakes	Westinghouse American
Capacity, water	5,000 galls.
Capacity, coal	12 tons
Superheater	Vaughan-Horsey

The Toronto, Hamilton and Buffalo Ry., has ordered two consolidation locomotives from the Montreal Locomotive Works, of which the following are the chief particulars:—

Weight in working order	196,000 lbs.
Weight on drivers	171,000 lbs.
Weight on engine truck	25,000 lbs.
Wheel base, driving	17′ 0″
Wheel base, engine	25′ 9″
Wheel base, engine and tender	57′ 3″
Cylinder	21½″ by 28″
Driving wheel diar.	55″
Boiler, type	Extended wagon top
Boiler, diar.	68¼″
Boiler, pressure	200 lbs
Tubes, no. and diar.	353 2″
Tubes, length	15′ 0″
Brakes	Westinghouse American
Capacity, water	7,000 galls.
Capacity coal	10 tons

Henri Menier, Paris, France, has ordered one four coupled locomotive for Anticosti Island from the Montreal Locomotive Works, of which the following are the chief particulars:—

Fuel	Wood
Weight in working order	46,000 lbs.
Weight on drivers	40,000 lbs.
Weight on engine truck	6,000 lbs.
Wheel base, driving	6′ 3″
Wheel base, engine	12′ 1″
Wheel base, engine and tender	30′ 0″
Cylinder	12″ by 18″
Driving wheel diar.	36″
Boiler, type	Straight top
Boiler, diar.	42″
Boiler pressure	160 lbs.
Tubes, no. and diar.	92 2″
Tubes, length	9′ 9″
Brakes	Steam
Tank capacity	1,200 galls.
Fuel capacity	1¾ cords

The Temiskaming and Northern Ontario Ry. has recently received 50 steel underframe box cars, Nos. 80,100 to 80,198 (even Nos. only), from the Canadian Car and Foundry Co., Montreal. Following are the chief dimensions:—

Capacity	[illegible] lbs.
Length inside	36′ 0″
Length over end sills	36′ 11½″
Width inside	8′ 6″
Width over roof boards	9′ 10⅜″
Width over side channels	8′ 7⅝″
Width over side sheathing	9′ 3¼″
Height from rail to top of floor	4′ 2¾″
Height, top of side sill to under side of plate	7′ 10¾″
Height, top of rail to top of running board	13′ 6 11-16″
Height, top of rail to top of brake mast	14′ 6″
Height, top of rail to centre of draw bar	2′ 10½″
Distance, back of end sill to centre of bolster	5′ 0¾″
Truck wheel base	5′ 6″
Door opening	6′ 0″

Following are the chief details of the combination passenger and caboose car, and the flat cars which the Portland Canal Short Line Ry. recently ordered from the Canadian Car and Foundry Co., Montreal, as mentioned in our last issue:

PASSENGER AND CABOOSE CAR.

Length over end sills	50′ 0″
Length over dead woods	55′ 0″
Length over side sills	9′ 10½″
Seating capacity	40
Trucks	4-wheel passenger
Body bolsters	Double transom
Brake beams	Simplex
Air brakes	Westinghouse P. 1412
Wheels	Cast iron 33″
Couplers	Janney
Journal boxes	McCord

FLAT CARS.

Length over end sills	30′ 0″
Width over side sills	9′ 0¾″
Width over floor	9′ 3″
Air brakes	Westinghouse H.C. 812
Body and truck bolsters	Simplex
Brake beams	Simplex
Couplers	Janney
Wheels	Cast iron 33″
Journal boxes	McCord
Journal bearings	Canadian Bronze Co.

Corrections for the Erring.

CANADIAN PACIFIC.—Construction work will probably be carried out this year on the line which has been located from Merritt, B.C., to Penticon, about 75 miles, in the southern end of the Okanagan Valley.—Railroad Age-Gazette, May 6.

The line mentioned is to be constructed by the Kettle River Valley Ry., under an agreement with the British Columbia Government, and not by the C.P.R.

ALGOMA CENTRAL AND HUDSON BAY RY.—The affairs of this company, *which is in the hands of a receiver*, are to be reorganized under the plan of the Lake Superior Corporation.—Railroad Age-Gazette, May 6.

Like all the other subsidiary companies owned by the Consolidated Lake Superior Co., the Algoma Central and Hudson Bay Ry. Co., practically went into liquidation in the end of 1903. Negotiations were entered into for a reorganization, and in order to aid in bringing this about the Ontario Legislature loaned to the reorganization syndicate $2,000,000 under the terms of an act assented to April 26, 1904. The Lake Superior Corporation was successfully formed, took over the whole of the properties of the Consolidated Lake Superior Co., and has been operating them ever since independent of any receivership or liquidation proceedings. What is being done now is to readjust the A.C. and H.B.R. finances to present conditions, and to provide funds for the completion of its line from Pangassin to Hawk Lake Jct., the junction with the Michipicoten branch, and from Hawk Lake Jct., to the C.P.R. at Hoban, Ont.

Mr. Edward Duval chief clerk to Mr. Bury at Winnipeg, has been appointed Superintendent of terminals at Calgary, an office recently created.—Canadian Engineer, May 13.

E. W. Duval has not been appointed superintendent of terminals at Calgary, exception to the press, nor has such an office been created. He has been appointed Transmaster in charge of maintenance and operation of Calgary terminals, C.P.R., as announced officially by our Transportation Appointment Department.

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National Transcontinental Railway.

The Minister of Railways submitted in the House of Commons April 28, a statement furnished by G. Grant, Chief Engineer, as follows:—Total payments to Dec. 31, 1909, $67,890,698; Dec. estimates, $1,010,014; contract reserve, $3,247,295; amount estimated to complete 21 contracts, $35,949,958; total $108,097,965. To this has to be added $16,149,084 for items not included in contracts, making $124,247,049. From this total has to be deducted $420,223 on account of rental of terminals and on account of shops at Winnipeg, leaving the estimated cost of the line at $123,826,826, or about $9,000,000 more than the last estimated cost submitted by the late Chief Engineer in June, 1909. The two estimates are as follows:—

	June, 1909.	Apr. 5, 1910.
Preparation and excavation	$ 54,748,176	$ 63,893,276
Tracklaying and ballasting	8,188,247	8,473,863
Trestles and bridges	11,638,222	13,521,328
Sundry	2,198,055	2,960,356
Rails and fastenings.	12,945,281	11,984,000
Steel bridges	7,993,809	5,217,503
Buildings	1,962,628	3,710,500
Right of way	1,168,342	2,153,000
Surveys, engineering and expenses	13,550,415	11,913,000
	$114,393,175	$123,826,826

The Dominion Parliament at its last session, voted $27,000,000 on account of surveys and construction. Parliament also voted $1,500,000 on account of construction of the Quebec Bridge. In explaining the latter vote the Minister of Railways stated that the Board of Engineers had got to the point where the contract for the substructure had been let, and the contractor was at work. As regards the superstructure considerable sums had been expended on plans, tests and studies. Experiments had been made in Great Britain and the U.S. and compression tests were made under the supervision of two McGill University professors. The board of engineers was prepared to advertise for tenders for the manufacture and erection of the superstructure. He had not been given any information as to the estimated cost of the bridge. In an interview May 5, the Minister stated that tenders for the superstructure would be asked for immediately, and that the successful tenderer would have to accept full responsibility for the bridge. This decision, it is said was arrived at as a result of a cablegram received from England, May 4, that the tests which had been made there showed that the plans were satisfactory and would provide a safe and reliable superstructure. It is generally understood that the engineers have come to the conclusion that a cantilever type bridge is better than a suspension one. The bridge builders will be given about three months to prepare and submit their tenders.

Replying to a Quebec deputation, May 19, the Chairman of the N.T. Railway Commission said the workshops would be located at Quebec. On the same day there was a general conference in Quebec on terminal matters between the Commissioners, a number of Dominion Ministers, and G.T. Pacific Ry. officers.

The Commissioners were advised May 13, that grading had been started between Abitibi River and Nipigon, Ont. The delay in starting was due to the difficulty of getting supplies and grading outfits in, owing to the distance from existing railways, and the lack of water facilities.

The finishing up of the section between Superior Jct., Ont., and Winnipeg, Man., is being pushed, and it was estimated, May 1, that it would be completed within three months. The work being done includes ballasting, the construction of passing tracks, switches, spurs, telegraph line, station buildings, section houses, water tanks, tool houses, etc.

Tenders are under consideration for the equipment of the power house at the Winnipeg shops, including water tube boilers, mechanical stokers, feedwater heaters, engines, generators, air compressors, pumps, etc.

GRAND TRUNK PACIFIC RY.

The Dominion Parliament last session voted $28,000 to provide for the inspection of construction of the line; and $2,500 as remuneration for the Government director on the Board.

In an interview at St. John, N.B., May 13, the Minister of Public Works said the G.T.P.R. intended to apply to the Government under the provisions of its act, for running rights over the Intercolonial Ry. to St. John, N.B., and Halifax, N.S. If terms could not be agreed on, the Board of Railway Commissioners was authorized to decide on the matter. C. M. Hays, President G.T.R. and G.T.P.R., a few days earlier said it was the original intention that the ocean ports of the line would be Montreal, Quebec, St. John and Halifax, and it would not be departed from.

The G.T.P.R. is reported to have purchased 60 acres at Courtenay Bay, St. John, N.B., for terminal purposes, but the company's officials decline to say anything definite with regard to the matter.

The substructure for the bridge across Wolfe Creek, Alta., was completed April 28, and the steel work is now well in hand. This bridge is 800 ft. long, and the rail level is 200 ft. above high-water mark. According to a statement by Vice President Chamberlin, at a distance of 1,500 ft. from the west end of the Wolfe Creek bridge, is the east end of the McLeod River bridge, upon which the contractors are now engaged in putting the substructure. This bridge will be 900 ft. long. As soon as it is completed track laying will be resumed and will be proceeded with as fast as possible until the grading gangs are overtaken. These are working over 100 miles west of McLeod River, and are reported to be making good progress. There is, however, a shortage of labor which prevents the contractors making the progress they desire.

In a recent interview E. J. Chamberlin, Vice President and General Manager, stated that he expected track would be laid west to Yellowhead Pass this year; on the first hundred miles east from Prince Rupert by July 1, and that a 135 miles further would be ready for the steel a short time thereafter. The construction of the bridge across the Skeena River, 180 miles from Prince Rupert would delay track laying for some time. The contract for the remaining mileage of the line in British Columbia would be let by the end of the year. With favorable labor conditions it was expected that track would be laid right through by the end of 1912.

Pacific Northern and Omineca Ry.—The Dominion Parliament has voted a subsidy to aid in building a line from Edmonton north-westerly to or towards the Peace River not to exceed 110 miles.

The company filed plans with the Department of Railways for a line from Edmonton to the Peace River, some time ago, and the Canadian Northern Ry. is making application for approval of location plans for a line from Edmonton to Dunvegan, along much the same route. The Department has postponed consideration of the applications of both companies in order to give them an opportunity of coming to an agreement.

G.T. Pacific Branch Lines.—A recent press report stated that the company's engineers were making surveys for a line to Prince Albert with the idea of securing an entrance into the Canadian Northern Ry. station. We are advised that so far as C.N.R. officials are aware no such surveys are being made, nor have any negotiations been in progress as to the use of that company's station.

In a recent interview E. J. Chamberlin, V.P. and G.M., said it was hoped to lay about 200 miles of track on branch lines in the prairie provinces during the year. Contracts have been let as follows:—For 30 miles from Yorkton, on the Yorkton-Melville branch, to Rigby, Hyland and Plummer, Winnipeg; from Watrous to Prince Albert, 130 miles, to J. D. McArthur & Co.; from Biggar to Battleford, 50 miles, to the Goulin Contracting Co., from Balcarres to Regina, the balance of the Melville-Regina branch, 75 miles, to J. D. McArthur & Co., and for 100 miles from Regina south toward the boundary. The company will lay track as soon as grading is sufficiently far advanced, and get the lines open for traffic as soon as possible. A press report referring to the last of these lines says the original intention was to reach the International boundary at Portal, by a route midway between the C.P.R. and the Canadian Northern Ry., but it has been decided to pass through Weyburn.

J. Dalrymple, Assistant Freight Traffic Manager, went over the Tofield-Camrose line, May 1, for the purpose of advising as to sites for stations, elevators, etc. Grading has been completed for a number of miles from Camrose towards Calgary, and track laying is to be started at an early date. The route of the line into Calgary has been located but it has not been finally approved by the Department of Railways, as some arrangements are being made in the direction of securing a joint station in Calgary with the Canadian Northern Ry. On May 4 it was reported that right of way had been acquired as far as Aricana, on the Langdon branch of the C.P.R., and that negotiations for the rest of the right of way to within five miles of Calgary were nearly closed. A deputation representing the owners of mining properties in the Carbon coal fields has asked the Provincial Government to arrange with the company for the construction of a spur line into these collieries. The line as located is seven miles east of the mines.

A block of property is reported to have been purchased for wharfage purposes in North Vancouver, B.C. The lands lie east of Capilano in Long Flat and are about 300 acres in extent. (May, pg. 375).

British Investments in Canada.—A list has been prepared in England showing that £14,622,192 of British capital has been invested in Canada since Jan. 1 of the present year. Of this amount the following has been invested in railways, or in companies having railway and marine connections:—G.T. Pacific Ry., £1,000,000 of 4 per cent. debenture stock, realized £925,000; British Columbia Electric Ry., £530,000 of 4¾ per cent. perpetual consolidated debenture stock; Canadian Northern Ry., £1,000,000 of 4 per cent. debentures, realized £950,000; G.T. Pacific Branch Lines Co., £1,270,500 of 4 per cent. mortgage bonds, realized £1,251,442; City of Calgary, £325,400 of 4½ per cent. debentures, to provide among other things for an electric railway, realized £336,789; Canadian Car and Foundry Co., £482,877 of 6 per cent. mortgage bonds, realized £497,363; Canadian Western Lumber Co. (owning a railway, tugs, etc.), £1,500,000 of 5 per cent. mortgage debentures, realized £1,320,000.

The Association of Train Dispatchers of America will hold its annual convention at Seattle, Wash., June 21-23; the principal subjects for discussion being the proposed amendments to the [illegible]

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Canadian Northern Ry. Construction, Etc.

Quebec and Lake St. John Ry.—Subsidies have been voted by the Dominion Parliament in aid of the construction of the following lines:—From Valcartier station to St. Catherine, Que., 3.8 miles; from Valcartier station towards Gosford, not exceeding 5.5 miles; from mileage 35 of the branch to La Tuque, on the River St. Maurice, to La Tuque Falls, 5 miles; from La Tuque Falls to the mouth of the Crèche River, 5 miles; from the La Tuque branch to the steamboat landing near La Tuque, 1.6 miles; from Herbertville to St. Joseph d'Alma, 10 miles; from Chicoutimi south or south-east for 5 miles.

Canadian Northern Quebec Ry.—The Dominion Parliament has voted subsidies in aid of the construction of the following lines:—From Arundel to a point in the united townships of Preston and Hartwell, Que., not exceeding 30 miles; from Montreal to Hawkesbury, Ont., not exceeding 65 miles.

In an interview at Montreal, May 4, D. B. Hanna, President, is reported as saying: "The question of providing big railway terminals in this city is one that is engaging our attention, but matters have not got to such a point yet that I can make any announcement. Our company fully realizes the necessity of such terminals and the importance of providing them, and you may rest assured that we shall push ahead with the work as rapidly as is possible."

Canadian Northern Ontario Ry.—In reference to the entrance into Ottawa, it is said that arrangements are about completed for the purchase of the University Oval athletic grounds for station purposes.

Good progress is being made with construction on the Toronto-Trenton section of the line to Ottawa, and it is expected to complete it this year, work on the Colborne sub-section having been completed. J. Giroux, who had the contract for this part of the line is removing his outfit to Cobourg to go on with grading the section between there and Port Hope. The question of the entry of the line into the latter town was decided at a meeting held May 3, when the company's offer was accepted. According to the plans the station will be situated on Ontario St., near Hope St. The question of the route beyond Trenton is under consideration. The route as laid out runs within ten rods of the Deaf and Dumb Institute, and an objection is being made to this. A committee representing the City Council and the Board of Trade has reported in favor of the company's plans.

In Toronto the question of the granting of a right-of-way along the east bank of the Don River to Ashbridge's Marsh is under the City Council's consideration. A recommendation was made Mar. 19, that the Council construct such a line itself and permit its use by any railway company.

Surveys for the section between Toronto and Niagara Falls have been made, principally along the Electrical Development Co.'s right-of-way, but it is not expected that construction will start this year.

We are advised that the C.P.R. and the C.N.O.R. will have joint use of the line which the C.P.R. is building between Atherly Jct. and Orillia. This is a section of the Georgian Bay and Seaboard Ry., and forms part of the mileage between Coldwater Jct. and Atherly Jct., which has just been placed under contract.

On the Lake Superior section 30 miles are already built from Selwood northwesterly to Gowganda Jct. H. K. Wicksteed, Chief Locating Engineer, has four survey parties at work. About 150 miles have been located west from Gowganda Jct., and two parties are carrying that location on westerly. Two other parties are working east and west from Nipigon. H. K. Wicksteed is reported to have stated in an interview May 6, that work was being pushed ahead as rapidly as possible, and would be completed in a month or two. The reports showed that a very favorable location was being secured. The divide between Port Arthur and Nipigon is crossed at an elevation of 220 ft. lower than where it is crossed by the C.P.R. This insures a gradient of 0.4 per cent. The line will probably skirt the shore for some distance along Thunder bay. The survey parties are now working north of Mackenzie. In an interview at Port Arthur, May 14, Vice President Mann said that no further construction would be done on that line this year, and it was too early to say what would be done next year.

The Irondale, Bancroft and Ottawa Ry., which has been acquired by Mackenzie, Mann & Co., is being operated under lease by G. Collins, General Manager Central Ontario Ry. The I.B. & O.R. is being connected with the C.O.R. at Bird's Creek Station, Ont., by the building of about 1½ miles of track.

Nepigon Ry.—Subsidies have been voted by the Dominion Parliament to aid in building the following lines:—From Nipigon station on the C.P.R. transcontinental line to Nipigon Lake, 30 miles; from Nipigon Bay, Lake Superior, to west of Lake Helen, not exceeding 3.5 miles; from near the crossing of French River by way of Cameron's Falls to Lake Jesse, 1.5 miles; from the north shore of Lake Nipigon for 45 miles northerly.

Canadian Northern Ry.—Vice President Mann, in an interview at Port Arthur, May 14, said, as to works in that city he thought fair progress had been made with the hotel building, although he would like to see the roof on by the fall, but this was not possible. The work contemplated at the terminals included an extension of the steel dock, and the erection of a freight shed there. The roundhouse and workshops would also be enlarged, and various improvements would be made in the yards. Traffic was growing and constant additions had to be made to the facilities. As to the line between Port Arthur and Winnipeg, the work of relaying the track with heavier steel rails would be completed; a number of the wooden bridge structures would be replaced by steel spans on concrete abutments, and at the crossing of Rainy Lake, a dump of rock a mile and a half in length would be put in to replace the present bridge, with swing spans for navigation.

The contract for the interior work on Fort Garry station, Winnipeg, has been let to P. Lyall & Sons, at a cost of about $300,000. A steel viaduct is being erected at the rear of the station for the entry of the trains. Tenders are to be asked at once for the erection of express and other warehouses beneath this viaduct.

A press report states that a branch line is under survey from Goose Island, on the Oak Point branch, for 25 miles, and that that line will, for some distance, run parallel with the C.P.R. line to Teulon, Man., and that it is intended to extend it eventually to Fisher River.

On the Oak Point branch, which is now operated from Oak Point Jct., near Winnipeg, to Oak Point, 60.4 miles, grading was done for 30 miles further last year. The Cowan Construction Co. has a contract for grading for some 70 miles further to Gypsumville, Lake Manitoba. Track will be laid this year on as much of this additional mileage as possible.

A press report states that the company has purchased a number of lots adjoining its yards at Portage la Prairie, Man., for extension purposes.

Writing to the city authorities at Brandon, Man., recently, R. J. Mackenzie said the company had been getting specifications for the proposed hotel at Brandon into shape, in order to ask for tenders at an early date.

On the Greenway-Wakopa line, about 12 miles will be built this year from the present track end. N. Boyd is reported to have the grading contract to Deloraine.

On the branch from Maryfield, on the Brandon-Regina line, running southwest and westerly, and crossing the C.P.R. Portal-Pasqua branch at Midale, track was laid in 1909 on 58.39 miles, and about 80 miles further were graded. This 80 miles will be laid with track this year, and some 50 miles more will be graded and part of it laid with track. Cowan & Co. have the grading contract.

On the branch from Hallboro', Man., westerly via Rapid City, 69.28 miles of track were laid in 1909, and about six more miles of grading have been done. We were advised recently that it had not been decided whether that would be laid with track this year.

The Rossburn branch from Neepawa, Man., which is intended to connect with the main line at Canora, Sask., is now being operated to Russel, Man., 104.2 miles from Neepawa. Last year track was laid to mileage 160 from Neepawa, and grading was done for about a mile further. It is probable that about 30 miles more grading will be done this year. A press report states that Wilson & Wilmot are grading near Stoneway, Sask.

On the Thunder Hill extension from Thunder Hill Jct., Man., near Swan River, on the Dauphin-Prince Albert line, track has been laid for over 40 miles, and about 13 miles more have been graded, on which track will be laid this year. About 20 miles more will be graded this year and track will probably be laid on it. McMillan Bros. have the grading contract.

A press report states that the company has secured a right-of-way for nearly all the route of its proposed line westerly from Regina as far as Moose Jaw, Sask.

From Melfort, Sask., a branch is to be built south 25 miles to the main line at Humboldt. This will probably be completed this year.

On the Goose Lake branch from Saskatoon, Sask., towards Calgary, Alta., track has been laid to Kindersley, the first division point, and 44.14 miles further has been graded into Alberta. We were advised recently that track would be laid on this grade this year, and that some further grading would probably be done. R. J. Mackenzie is reported to have stated recently that about 60 miles of track would be laid and that grading contracts had been let, but that owing to the scarcity of ties he did not think it would be possible to do all the work anticipated.

The Prince Albert-North Battleford branch is now built to Shellbrook, 30 miles from Prince Albert, Sask. About 40 miles further will be built this year. C. J. Murray is reported to have the grading contract.

From the present end of track on the Prince Albert-North Battleford line, via Shellbrook, about 45 miles of the Crooked Lake branch have been graded. The remainder of the 58 miles will be graded this year and track laid on it. C. J. Murray is reported to have the grading contract and tracklaying was reported to have started May 1.

From North Battleford, Sask., via Jackfish Lake to the Alberta Boundary line, 40 miles have been graded and track will be laid this year. No further grading will be done at present.

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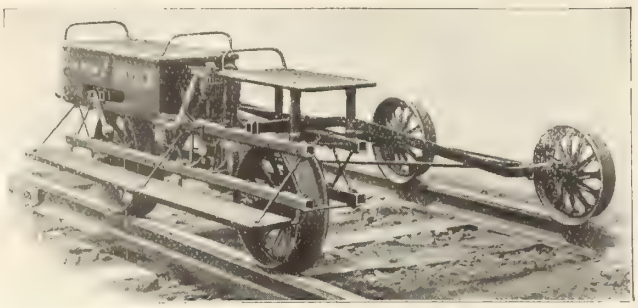

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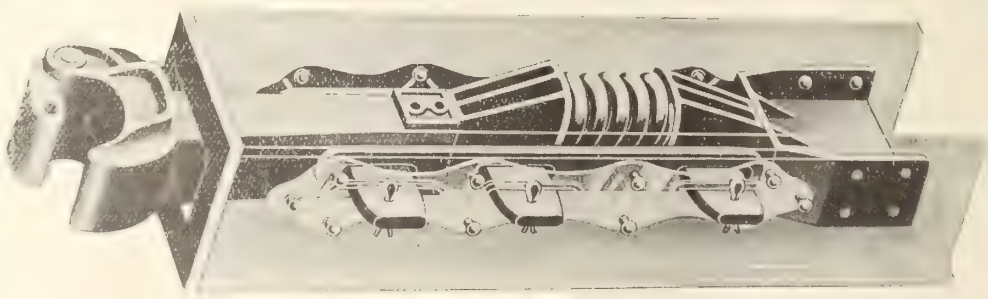

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On the branch from Vegreville, Alta., southerly via Camrose and Stettler, towards Calgary, about 130 miles have been graded and 19.47 miles were laid with track in 1909. Track will be laid on the balance of this grading, 110.53 miles, this year, and grading will be done and track probably laid for 96 miles further. Reports state that track was laid into Camrose, May 1, across the C.P.R., and that it is being proceeded with towards Stettler. The differences between the C.N.R. and the C.P.R. as to a right-of-way through Stettler have been settled. A press report says that outside the town limits grading has been completed southerly for about 40 miles, and that it is expected to get the grading completed into Calgary this year. The telegraph line has been completed to Round Hill, and poles and wire have been distributed to beyond Camrose; the station and tank gang has reached Lake de May, and ties and other supplies are being shipped into Camrose for the rest of the line.

The revised plans for the route of the company's projected line into Calgary have been approved by the Minister of Railways between Bow River and Calgary, Alta. The actual route into the city is still under consideration, as the City Council is desirous of having the G.T. Pacific Ry. enter by the same route and use a union station.

From St. Albert, 8.5 miles from Edmonton, on the Edmonton-Athabaska Landing branch, about 40 miles will be built north-westerly this year. An Edmonton dispatch, May 10, said M. McCrimmon had been given the grading contract.

On the branch from Edmonton, Alta., towards Athabaska Landing, 21.5 miles are being operated to Morinville, and about 23 miles more have been graded. This will be laid with track this year.

The main line is in operation from Edmonton 21 miles west to Stony Plains and is graded for about five miles further, not 12, as stated in our April issue. It is expected to lay track on this grading and for 24 miles further this year, making altogether 50 miles from Edmonton, and grading will probably also be done as far as the McLeod River.

Canadian Northern Alberta Ry.—The Dominion Parliament has incorporated a company with this title to build a railway from near Edmonton or Strathcona westerly, and giving the company power to take over the line constructed or located by the Edmonton, Yukon and Pacific Ry., or the Canadian Northern Ry., its successor by amalgamation. The incorporators are all associated with Mackenzie, Mann & Co., or with the Canadian Northern Ry. A second act repeals the provisions of chap. 25 of the statutes of 1908, granting aid for the extension of the Edmonton, Yukon and Pacific Ry., and provides for the granting of aid to the C.N.A.R. for the first 150 miles of its line from Strathcona or Edmonton, to the coal areas near the Brazeau River and the headquarters of the McLeod River, by means of a guarantee of bonds. For the first 50 miles of the line the securities are to be guaranteed to the amount of $13,000 a mile, and for the remaining mileage to the amount of $25,000 a mile; the interest to be at the rate of 3½ per cent. and the principal to be payable in 50 years. The securities to be secured by a first mortgage on the lines constructed, buildings, rolling stock, etc., and to be guaranteed to the Government by the Canadian Northern Ry. The Minister of Railways explained that it was necessary to have these acts passed in order to make available the subsidies voted to the Edmonton, Yukon and Pacific Ry. in 1908. One of the conditions upon which that subsidy was voted was that the E., Y. and P.R. should be amalgamated with the C.N.R., but it was found when this was done that the securities could not be issued inasmuch as they would conflict with C.N.R. Consolidated Debenture Stock. By the cancellation of the old agreement of 1908, and the incorporation of a new company with a new agreement, the difficulty is overcome.

Canadian Northern Pacific Ry.—Revision surveys for portions of the located line between Yellow Head Pass and New Westminster, B.C., are being made. C. F. Hannington is at work between Kamloops and Lytton, and J. Irwin in the North Thompson Valley. They will also take soundings in the rivers across which bridges will have to be built. The B.C. Government has placed in reserve large areas of land along the line of the route surveyed, in connection with the proposal to construct branch lines to Revelstoke and Golden, for which it is reported surveys will shortly be made. Representatives of the company's right-of-way department are working in and around New Westminster, arranging for the purchase of properties required for station and right-of-way purposes through the city. A suggestion is under consideration for a joint station with the Great Northern Ry.

G. T. R. Semi Annual Meeting.

At the recent half-yearly meeting in London, Eng., A. W. Smithers, in moving the adoption of the report, which was given in our last issue, after dealing with the various items, said, in part:—"They mark the end of the effect on them of the financial storm caused by the American panic of the autumn of 1907. It came with great suddenness when we were under great obligations, and I think the President deserves the highest credit for the promptitude with which he took in sail and successfully weathered the storm." Referring to the G.T.P. Ry., he said:—"Beginning at Fort William, our terminus on Lake Superior, a new elevator has been built capable of storing 3,500,000 bush.; terminal facilities are in course of construction, a deep-water channel is being dredged from the lake, and the branch line from Fort William to Lake Superior Jct., 200 miles, has been completed, and is ready for operation. From Lake Superior Jct. to Winnipeg, 245 miles, the line is being constructed by the Government, and this section is expected to be completed in time to handle this year's harvest. At Winnipeg a terminal station has been constructed to be jointly used with the Canadian Northern Ry. From Winnipeg to Edmonton, and beyond to Wolf Creek, which constitutes the Prairie section, 916 miles, the line has been completed. Thus, by Sept. 1, we expect to have ready for the moving of this year's crop, 1,361 miles of continuous track from Wolf Creek, the western end of the Prairie section, to Fort William, on Lake Superior. The great problem for all transcontinental lines in the north-west is how and where to cross the Rocky Mountains. After two or three years of experimental trails, the pathfinder recommended a way by the Yellowhead Pass, with only one summit to cross of 3,700 ft., and a grade of only 4-10 of 1 per cent., or 21 ft. to the mile. C. C. Van Arsdol, Engineer in Charge of the Mountain section, under B. B. Kelliher, Chief Engineer, was the pathfinder, and he name will always be associated with the extraordinary favorable grades of the Mountain section, which are the lowest of any transcontinental line. A contract has been let from Wolf Creek, the easterly point of the Mountain section, to Tete Jaune Cache, [illegible] the grading of which we hope will be completed by the end of the year. From Prince Rupert, the western terminus, the line has been graded for 130 miles east to the Copper River, and tracklaying on this portion should be completed during the summer. Another contract has been let from Copper River easterly to Aldermere, 135 miles, and it is hoped the grading will be completed by the end of 1910. The distance between Aldermere in the west, and Tete Jaune Cache on the east, of the gap still to be contracted for, is 425 miles, and contracts for that portion of the line will be let directly the approach of rail from either side will allow of contracts being let on the most advantageous and economical basis. It is of the greatest importance that a main line of the length ours will be should have feeders, and I am glad to say that the Saskatchewan and Alberta Governments have guaranteed bonds to enable us to build branches to open up those provinces. Good progress has been made with the branches commenced last year, and we hope to complete them from Melville to Regina, Melville to Canora, Sask., and Tofield to Calgary, Alta., during the year. In the last session of the Saskatchewan Legislature guarantees on five additional branches were authorized. In all, nearly 1,000 miles of branch lines are now under, or shortly will be under, construction, and the money to pay for them has been successfully raised. Hardly less important than the finding of the way over the Yellowhead Pass, was the discovery of Prince Rupert, on the Pacific coast, with its splendid natural harbor. It is 500 miles north of Vancouver, and at present is connected by boats which ply between Pacific ports. Already accommodation is quite insufficient, and the G.T.P.R. has ordered two boats, the Prince Rupert and the Prince George, specially adapted for this service. We expect the Prince Rupert will be in service by June, and the Prince George a few weeks later. The G.T.P.R. has also bought another boat, to be named the Prince Albert, which will also be used for the coasting service. These boats will ply between Seattle, Victoria, Vancouver, Prince Rupert, and intermediate points, and will undoubtedly be fully occupied during the summer and autumn months at paying rates. I believe, in the near future, the trip across the Rockies by the C.P.R. to Vancouver, thence to Prince Rupert by boat, and back over the Rockies by the G.T.P.R. will be one of the most attractive tours of the world. Not only will the G.T.P.R. possess the route with the lowest grade of any transcontinental line, but it will be the shortest route, via Prince Rupert, to China and Japan, by 500 miles. I do not think we have begun to realize the possibilities of traffic which will grow between Canada and the Far East, and in which the G.T.P., for the reasons I have mentioned, will be in a first-class position to fully share. I have put before you what we undertook to do when we commenced this great undertaking, and I have shown you the progress we have made up to date. I think you will agree with me the account I have given shows that the operations have been conducted with all the evidence of careful design. The various portions of the scheme are all being pushed forward with a view to completion at the earliest possible moment. The Lake Superior branch and Prairie section will be the part likely to most quickly develop traffic, and, consequently, that will be the part to come into operation first. C. M. Hays, President of both the G.T.R. and G.T.P.R., has been the commander-in-chief who has brought us to what we consider our present satisfactory position, and [illegible] E. J. Chamberlin, Vice President at Winnipeg; B. B. Kelliher, Chief Engineer, and C. C. Van Arsdol, Engineer in Charge of the Mountain section."

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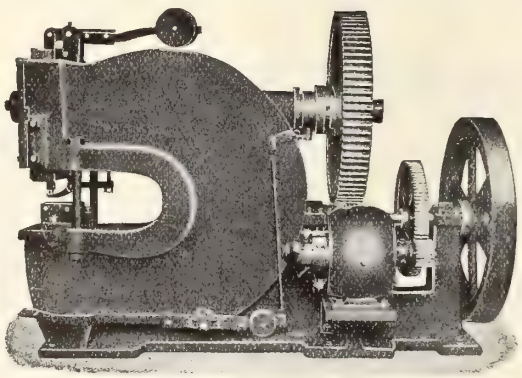

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Railway Finance, Meetings, Etc.

Alberta Ry. and Irrigation Co.—Notice has been given that the company will on July 30, redeem its 4% prior lien debenture stock outstanding at that date. The transfer book for the stock will be finally closed July 9.

Approximate net profits from all sources, exclusive of land sales, for March, $34,260, against $39,116 for March, 1909. Cumulative net profits for nine months ended Mar. 31, $377,156. Approximate traffic receipts for April, $37,447, against $22,753 for April, 1909. Aggregate traffic receipts for 10 months ended Apr. 30, $323,274.

Atlantic, Quebec and Western Ry.—The first call of $10 due on 5,000 shares of stock was due May 23, and the second call also of $10, is due July 23. These two calls, added to the $80 per share already paid, will pay up the shares in full.

Central Counties Ry.—Subscriptions were recently received by the Bank of Montreal in London, Eng., for £97,500 of 4% first mortgage bonds, the issue price being £90 per £100 bond. The interest is payable half yearly and the bonds are redeemable at par in 1949. The lines owned by the company extend from Hawkesbury to Glen Robertson, Ont., 21 miles, and from South Indian to Rockland, 15 miles, and are operated under lease by the G.T.R. at an aggregate rental of £3,900 a year.

Central Ontario Ry.—Following are the officers and directors for the current year: President, J. J. Warren; Vice President, General Manager and Secretary, Geo. Collins; other directors, C. E. Ritchie, E. B. Stockdale, J. H. Moss.

Delaware and Hudson Co.—The following were elected managers of the company for the current year, May 10: R. M. Olyphant, C. M. Depew, J. J. Astor, R. S. Grant, G. I. Wilber, C. A. Peabody, J. A. Linen, L. F. Loree, W. S. Opdyke, J. R. Maxwell, C. Vanderbilt, R. S. Lovett and R. C. Pruyn.

Dominion Atlantic Ry.—Gross earnings for March, $85,600, against $75,725 for March, 1909. Aggregate gross earnings for nine months ended Mar. 31, $904,750, against $864,204 for same period 1908-09.

Grand Trunk Ry.—We are officially advised that there is no foundation in fact for the reports which have recently appeared in the daily papers that the G.T.R. had acquired control of the Detroit and Mackinaw Rd.

Guelph Junction Ry.—The Dominion Parliament has authorized the City of Guelph to acquire from the present holders the shares in the company held by them. It appears that the city put up all the money for the construction of the line with the exception of $1,000 which was paid in by 10 citizens in order to have the company formed, the city guaranteeing the payment of the balance of the price of the shares. Six of the shareholders transferred their shares to the city but the remaining four declined, and the act now passed declares that the shares were held by them as agents of the city, and not privately.

Halifax and South Western Ry.—The estimated revenue of the province of Nova Scotia for the year ending Sept. 30, 1910, includes $12,750 interest on mortgage on the Central Ry., and $152,730, interest on consolidated mortgage on the Halifax and South Western Ry., with which the old Central Ry. has been amalgamated.

Intercolonial Ry.—An Ottawa dispatch, May 13, says that the accounts of the I.C.R. for the last fiscal year, which are now being balanced, show a surplus of about $500,000, as compared with "a deficit of about $800,000," according to the statement of the Minister of Railways in the House of Commons in Feb.

Ontario and Quebec Ry.—The half-yearly interest on the 5% debenture stock, and on the common stock at the rate of 6% per annum, will be paid to shareholders of record May 2, on and after June 2, at the C.P.R. offices, Charing Cross, London, Eng.

Quebec and Lake St. John Ry.—Total earnings for Apr., $48,678.17, against $44,090.97 for Apr., 1909. Aggregate earnings for three months ended Apr. 30, $168,270.71, against $180,546.99 for same period 1909. Mileage operated, 280, against 285.6 in 1909.

Quebec Central Ry.—Gross earnings for March, $93,182.58; expenses $58,637.12; net earnings $34,545.46, against $94,190.27 gross earnings; $60,635.54 expenses; $33,554.73 net earnings for March, 1909. Aggregate gross earnings for nine months ended Mar. 31, $797,719.52; expenses $553,245.19; net earnings $244,474.33, against $761,859.93 aggregate gross earnings; $543,579.41 expenses; $218,280.52 net earnings for same period 1908-09.

Quebec, Montreal and Southern Ry., Napierville Jct. Ry. See Delaware and Hudson Co.

Reid Newfoundland Co.—A press report states that a new company has been formed in London, Eng., with a capital of $20,000,000 to take over and develop the land, lumber and mineral properties of the R.N. Co. H. D. Reid, Vice President of the company, interviewed at St. Johns, Nfld., May 5, said the President was engaged in obtaining funds for the development of the company's property, but under no consideration would the company's railway, steamships, or their general plant pass into other hands.

Temiscouata Ry.—Profits on operation for March, $5,735, and for three months ended Mar. 31, $8,636.

White Pass and Yukon Ry.—Gross earnings for nine months ended Mar. 31, $886,887.

The Dominion Atlantic Railway.

Sir Thos. G. Shaughnessy, President C.P.R., stated in Montreal, May 15, that "interests friendly to the C.P.R." had secured the Dominion Atlantic Ry. It is generally understood that the D.A.R. property has been in the market for some time and that there were negotiations between the Canadian Northern Ry. interests and the interests in London, controlling the D.A.R. The "interests friendly to the C.P.R." made an offer through the Bank of Montreal, which was accepted, and the control of the company secured. Various reports are current as to the proportion of stock of the different denominations secured, but there is a general agreement that the "interests friendly to the C.P.R." include R. B. Angus, Hon. L. J. Forget of Montreal, and T. Skinner of London, Eng., three C.P.R. directors.

The D.A.R. has never been a financial success, as the net earnings have not been sufficient to do more, after meeting interest on bonds, than to pay interest on the preferred stock as follows: 2%, 1902; 2½% for 1903; 3% for 1904. As a part of a great transcontinental system and under improved management different results may confidently be expected.

The D.A.R. is a consolidation of the Windsor and Annapolis Ry., 84 miles; the Western Counties Ry. (name changed in 1893 to Yarmouth and Annapolis Ry.), 87 miles; Cornwallis Valley Ry., 13.15 miles; the amalgamation being effected by the Dominion Parliament in 1894-5, and of the Midland Ry. amalgamated in 1905. The Intercolonial Ry.'s Windsor Branch was leased to the Western Counties Ry. in 1874, and in 1882 was transferred to the Windsor and Annapolis Ry., subsequently being transferred to the D.A.R. In connection with the Windsor branch, the track and buildings of which are maintained by the I.C.R. out of its proportion of the receipts; trackage rights were secured over the I.C.R. into Halifax, 14.42 miles. The total mileage operated by the company is made up as follows:—Lines owned, 247.30 miles; leased line 31.47 miles, trackage rights, 14.42 miles; total 293.29 miles. In addition there are 17.56 miles of yard tracks and 11.72 miles of spurs and sidings on lines owned, and 3.60 miles of sidings on the leased line. Of the lines owned and leased 276.03 are laid with steel rails, and 2.84 with iron rails; and of the yards, spurs and sidings 24.10 miles are laid with steel, and 8.78 miles with iron rails. There are 17 iron bridges on the line, the longest being that on the Midland Ry. at Truro, 1,207 ft.; no stone bridges, and three wooden ones, each of 50 ft. span; 29 trestles, the longest being of 350 ft.; and 181 level crossings of which two are guarded. The company owns 11 passenger locomotives, 14 freight locomotives, 22 first class passenger cars, 11 combination cars, one dining car, two parlor cars, 15 baggage, express and postal cars, 212 box cars, 219 flat cars, 12 stock cars, 26 coal cars, three cabooses, and seven other cars.

The company also owns wharves and docks at Digby, Yarmouth, St. John, and other points on the Bay of Fundy, and at Boston, Mass., operating between these ports the steamers Prince George, Prince Arthur, Prince Rupert, Prince Albert and Boston. The subsidies paid in aid of the construction of the railways were as follows:—Windsor and Annapolis Ry., $1,193,369, from the Dominion; Cornwallis Valley Ry., $44,800 from the Dominion, $44,800 from Nova Scotia, and $27,685 from municipalities; Western Counties Ry., $500,000 from the Dominion, $679,197.45 from Nova Scotia and $250,000 from municipalities; Midland Ry., $399,060.40 from the Dominion, $185,000 from Nova Scotia and $36,000 from municipalities. The last financial statement showed $2,433,333 of common stock, and $4,901,707 of bonds outstanding, with a miscellaneous indebtedness of $486,616.

There is considerable discussion as to what is likely to happen when the line is operated by the C.P.R. In the first place it is to be noted that by means of the short trip across the Bay of Fundy from St. John, N.B., to Digby, N.S., the C.P.R. will secure a through route to Halifax, thereby giving a much shorter connection between Montreal and Halifax, than by the I.C.R. One report states that the C.P.R. has entered into an agreement with the Michigan Central Rd., for the use of the tunnel under the Detroit River by its trains, thereby releasing the car ferries now used for transferring the trains between Detroit and Windsor. These car ferries, it is stated, will be transferred to the Bay of Fundy, and operated between Digby and St. John, pending the construction of a tunnel under the bay. The originator and the report probably failed to remember that the Bay of Fundy has about the biggest tide in the world, the difference between high and low water being about 40 ft.; that the distance between Digby and St. John is over 50 miles of not the calmest water; and that car ferries built for navigating inland waters [illegible] the Bay of Fundy [illegible] A 30 mile [illegible] under [illegible] the C.P.R. We are officially advised that [illegible] has not even been considered.

Trade and Supply Notes.

The matter which appears under this heading is compiled in most cases from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers to distinctly understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

The Northern Engineering Works, Detroit, Mich., has issued a catalogue of the Newaten cupola.

The Geo. M. Newhall Engineering Co., Philadelphia, Pa., is arranging to have its N.B. air brake and signal hose connection manufactured in Canada.

The Standard Coupler Co. has removed its Chicago office from the Fisher Building to 1005 People's Gas Building, corner Michigan Ave. and Adams St.

The Minneapolis, St. Paul and Sault Ste. Marie Ry., has ordered a freight handling derrick from the American Hoist and Derrick Co., St. Paul, Minn.

The Canadian Fairbanks Co., Ltd., Montreal, has increased its capital stock from $650,000 to $900,000, by creating 2,500 additional shares of $100 each.

The Wire & Cable Co., Montreal, has recently secured some very substantial municipal contracts for weather proof wire from Toronto, Moose Jaw, Saskatoon and Calgary.

The Ontario Wind Engine and Pump Co., Ltd., Toronto, has increased its capital stock from $250,000 to $750,000, by the creation of 5,000 shares of $100 each.

Taylor and Arnold, Montreal, have received orders for five Pilling turntable tractors, for points on the C.P.R. Western Lines. This makes 39 of these tractors on the C.P.R. system.

O. W. Meissner has resigned his position as Superintendent of the Hart-Otis Car Co., Ltd., Montreal, and has been appointed Sales Manager of the Behrand Concentrators, Ltd., 32 St. Sulpice St., Montreal.

Butterfield & Co., Rock Island, Que., have issued their 1910 catalogue of taps, stocks and dies, reamers and Derby screw plates, Young's axle cutters, and bolt for engineers' and steam fitters' use. It comprises 90 pages, and is copiously illustrated.

The Joyce-Crydland Co., Dayton, Ohio, has issued a 100-page catalogue. Besides listing its complete line of jacks for all purposes, the catalogue contains discussions of the construction and recent improvements in this line of jacks, the relative merits of various types of jacks, such as hydraulic, lever, automatic, automatic geared, screw, telescoping, etc., for different classes of service, and recommends the most suitable jack for the different lines of work. It contains complete information concerning the dimensions, weights, price, etc., of the various jacks.

The American Brake Shoe and Foundry Co., of Mahwah, N.J., which is represented in Canada by the Holden Co., Ltd., Montreal, has increased its capital stock from $6,000,000 to $10,000,000, and is offering 10,080 shares of the preferred shares to shareholders of record at May 9, at $105, in the proportion of 18% of their holdings. The company announces that with the proceeds of the new issue, the plants of the Featherstone Foundry and Machinery Co., and the National Brake Shoe and Foundry Co., will be purchased. These properties, with an appraised value of $659,000 are said to be earning about $260,000 a year.

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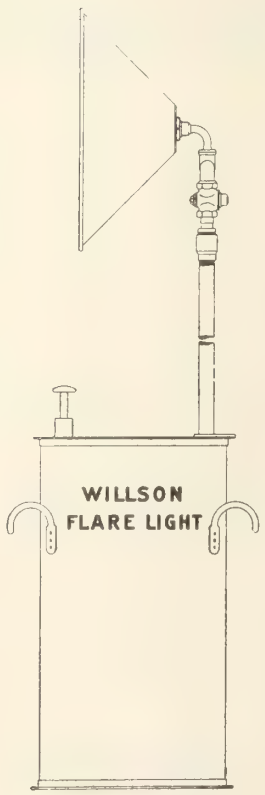

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"During the past two or three years we have used various kinds of lights, but none of them have proved the equal of yours, either in the matter of economy or usefulness. The effectiveness of your light is beyond dispute."

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TRANSPORTATION APPOINTMENTS.

The information under this head, which is almost entirely gathered from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Board of Railway Commissioners.—We are advised that A. F. Dillinger, Assistant Operating Officer, has been directed to make his headquarters in Winnipeg and devote himself entirely to the western railway.

Canadian Northern Quebec Ry.—D. P. Cotter, heretofore ticket agent C.P.R. Atlantic Steamship Service, Quebec, Que., has been appointed ticket agent C.N.Q.R. in the Immigration Offices, Louise Embankment, Quebec, and will also act for all C.N.R. lines.

R. S. Richardson, Assistant Superintendent, and P. A. Lariviere, Chief Dispatcher, with their staffs, have removed from Montreal to Joliette, the latter place becoming a divisional point between Quebec and Ottawa.

Canadian Northern Ry. — Duluth, Rainy Lake and Winnipeg Ry.—M. B. Murphy has been appointed Trainmaster of the portion of Division 2, east of Belmont and east of Brandon, Man. Office, Winnipeg.

K. McLeod, heretofore in the Winnipeg city ticket office, has been appointed city ticket agent at Regina, Sask., vice I. G. Reece, promoted.

J. A. Tait, heretofore Traveling Freight Agent, Winnipeg, has been appointed City Freight Agent at Regina, Sask.

C. R. Hill, heretofore Contracting Freight Agent, Regina, Sask., has been appointed District Freight Agent, Saskatoon, Sask.

I. G. Reece, heretofore City Ticket Agent, Regina, Sask., has been appointed Traveling Passenger Agent, Chicago, Ill.

Canadian Northern Steamships, Ltd.—J. D. Morton, Chief Accountant Canadian Northern Ry., General Auditor Canadian Northern Ontario Ry., Canadian Northern Quebec Ry., Halifax and South Western Ry., Duluth, Rainy Lake and Winnipeg Ry., and Vice President Niagara, St. Catharines and Toronto Ry., has also been appointed Assistant Comptroller Canadian Northern Steamships, Ltd. Office, Toronto.

R. S. Gosset, heretofore chief clerk Accountant's Department C.N.R., has also been appointed Auditor C.N.S., Ltd. Office, Toronto.

T. P. Jones has been appointed Wharfinger at Montreal.

Canadian Pacific Ry.—At the regular monthly meeting of the Board, May 9, Sir Wm. C. Van Horne formally resigned the Chairmanship of the Board of Directors, an honorary position which was created for him when he retired from the Presidency, and the office was abolished. For domestic reasons, it was decided that in future the President should also be known as Chairman of the company.

A. R. Creelman, K.C., the company's General Counsel, has also been elected a director, to fill the vacancy caused by the death of Sir George Drummond.

J. W. McIninch, Locomotive Foreman at Woodstock, N.B., has had his headquarters moved to Aroostook Jct., N.B.

T. M. Barrett has been appointed Assistant Commissary Agent at Quebec, vice M. E. Tansey, transferred.

W. O. Bovard, heretofore in the General Freight Agent's Office, Montreal, has been appointed Contracting Freight Agent at Montreal, vice H. P. Swinton, resigned.

W. C. Casey, heretofore Traveling Passenger Agent Atlantic Steamship Lines, St. John, N.B., has been appointed chief clerk to General Passenger Agent Atlantic Steamship Lines, Montreal.

J. O. Norrie, heretofore in the General Passenger office, Atlantic Steamship Lines, Montreal, has been appointed accountant and cashier of that department, vice G. Lamb, retired.

W. M. Taylor, heretofore in District Passenger Agent's office, Toronto, has been transferred to the office of General Passenger Agent Atlantic Steamship Lines, Montreal, in charge of the berthing department.

C. R. Mackenzie, heretofore Superintendent's Accountant at Farnham, Que., has been appointed Superintendent's Accountant at Ottawa. Ont., vice G. E. Bolton, who has left the service.

E. C. Ferguson has been appointed Car Foreman at Ottawa, vice T. A. Musgrove resigned to enter C.N.R. service.

M. A. Fullington, heretofore Resident Engineer District 1, Ontario Division, Toronto, has been appointed Assistant Engineer, vice A. P. Walker, who has been granted three months' leave of absence.

M. Kelley, heretofore transitman at London, Ont., has been appointed acting Resident Engineer District 1, Ontario Division, Toronto, vice M. A. Fullington.

J. Brownlee, heretofore Superintendent District 4, Western Division, Cranbrook, B.C., has been appointed Superintendent District 1, Central Division, Kenora, Ont., vice J. J. Scully, transferred.

J. F. Sweeting has been appointed Industrial Agent Western Lines. Office, Winnipeg.

O. C. Walker has been appointed Inspector Refrigerator Service, Western Lines, vice R. A. Gamble, appointed Fuel Agent, Western Lines. Office, Winnipeg.

M. E. Tansey, heretofore Assistant Commissary Agent at Quebec, has been appointed Assistant Commissary Agent at Winnipeg, vice H. B. Bridges, resigned.

E. J. Stone, heretofore secretary to General Manager Western Lines, has been appointed chief clerk, vice E. W. DuVal, promoted.

H. J. Reed has been appointed night locomotive foreman at Winnipeg roundhouse, vice W. K. McLeod, transferred.

J. J. Scully, heretofore Superintendent District 1, Central Division, Kenora, Ont., has been appointed Superintendent District 1, Western Division, Moose Jaw, Sask., vice W. J. Uren, transferred.

E. W. DuVal, heretofore chief clerk to General Manager Western Lines, Winnipeg, has been appointed Trainmaster in charge of Maintenance and Operation of Calgary Terminals.

W. J. Uren, heretofore Superintendent District 1, Western Division, Moose Jaw, Sask., has been appointed Superintendent District 4, Western Division, Cranbrook, B.C., vice J. Brownlee, transferred.

J. J. Forster, heretofore Traveling Passenger Agent Atlantic Steamship Lines, Chicago, Ill., has been appointed City Passenger Agent there.

D. I. Lister has been appointed Traveling Passenger Agent C.P.R. Atlantic Steamship Lines, Chicago, Ill., vice J. J. Forster, promoted.

E. L. Sheehan has been appointed Traveling Passenger Agent C.P.R. Atlantic Steamship Lines at Chicago, Ill., vice W. F. Bloomquist, resigned.

The office of H. S. Carmichael, General Passenger Agent, has been transferred from 24 James St., Liverpool, Eng., to the company's European head office, 62 Charing Cross, London.

Department of Railways and Canals.—W. A. Bowden, who has been engaged in the engineering department for about five years, has been appointed Chief Engineer, which position has been vacant since the resignation of M. J. Butler, who was Deputy Minister and Chief Engineer.

Grand Trunk Pacific Ry.—E. McDonald, heretofore tracing clerk G.T.R. General Baggage Agent's office, Toronto, has been appointed baggage clerk G.T.P.R., Winnipeg.

C. Nickerson has been appointed shore steward G.T.P. Steamships, Vancouver, B.C.

Grand Trunk Ry.—W. E. Watt, having resigned, the position of Assistant Trainmaster at Richmond, Que., has been abolished. All reports previously made to him are now made to J. J. Connelly, Trainmaster, Island Pond, Vt.

J. Henderson has been appointed Roadmaster Districts 5 and 6 between Vaudrueuil and Kingston Jct., vice C. H. Storey, acting Roadmaster. Office, Brockville, Ont.

E. R. Battley, heretofore machinist at Stratford shops, has been appointed Locomotive Foreman at Fort Erie, Ont., vice C. A. Livingston, transferred.

C. A. Livingston, heretofore Locomotive Foreman at Fort Erie, Ont., has been appointed Locomotive Foreman at Durand, Mich., vice G. H. Wyatt, transferred to Nichols, Mich.

C. G. Orttenberger has been appointed City Passenger and Ticket Agent, Chicago, Ill., vice J. H. Burgis, promoted.

J. H. Burgis, heretofore City Passenger and Ticket Agent, Chicago, has been appointed General Agent Passenger Department, in charge of passenger traffic in Washington, Oregon and Idaho States, for the G.T.R., the G.T.P.R. and the G.T.P. Steamships. Office, Seattle, Wash.

Inland Lines, Ltd.—H. P. Swinton, heretofore Contracting Freight Agent C.P.R., Montreal, has been appointed Soliciting Freight Agent Inland Lines Ltd., at Montreal, reporting to the General Agent there.

Intercolonial Ry.—J. G. Boyd has been appointed Roundhouse Foreman at Gibson, N.B., vice E. S. White, resigned.

Irondale, Bancroft and Ottawa Ry. R. S. Derbyshire has been appointed Superintendent, vice C. Hutchinson, resigned. Office, Irondale, Ont.

New York Central and Hudson River Rd., West Shore Rd., Boston and Albany Rd.—E. J. O'Hayer, Jr., has been appointed General Eastern Passenger Agent. Office, New York.

New York Central Lines.—D. R. McBain, heretofore Assistant Superintendent Motive Power New York Central and Hudson River Rd., Albany, N.Y., has been appointed Superintendent Motive Power, Lake Shore and Michigan Southern Ry., Lake Erie, Alliance and Wheeling Rd., Dunkirk, Allegheny and Pittsburg Rd., Lake Erie and Western Rd., Fort Wayne, Cincinnati and Louisville Rd., and Northern Ohio Ry., vice Le Grand Parish, resigned to take service with another company. Office, Cleveland, O.

R. B. Kendig, heretofore Mechanical Engineer, Lake Shore and Michigan Southern Ry., Cleveland, O., has been appointed General Mechanical Engineer New York Central Lines, Office Grand Central Terminal, New York.

Reid Newfoundland Co.—The following appointments are reported:—

A. Graham, as General Roadmaster of main line and branches.

—. Cobb, as chief of construction on the Bonavista branch.

P. [illegible] between Clarenville and Bishops Falls.

J. Peddle, as Roadmaster Division 4.

The Dominion Parliament last session voted $121,100 for the maintenance and operation of the Board of Railway Commissioners and $10,000 to [illegible] assistance in cases coming before it during the current financial year.

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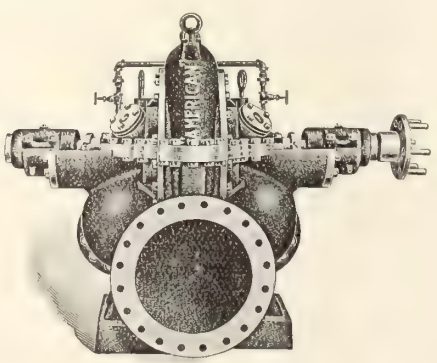

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Railway Commissioners' Traffic Orders.

Summaries of other traffic orders are given on another page under "Orders by Railway Commissioners":—

CLASSIFICATION RATINGS ON EVAPORATED VEGETABLES.

10241. April 19.—Re complaint of W. J. Cluff, of Edmonton, Alta., complaining of the l.c.l. rate charged by the C.P.R. on a shipment of 50 cases of evaporated potatoes from near Belleville, Ont., to Edmonton; and re application of the Classification and Advisory Committees of the Canadian Freight Association for approval of following changes in the Classification, viz.:

1. Elimination of item 23 on pg. 57 of Canadian Classification 14, covering ratings on evaporated potatoes.

2. Elimination of item 8 on pg. 65 of Classification, covering ratings on evaporated vegetables.

3. Addition of item in Classification, under heading of "Groceries," reading: "Vegetables, desiccated or evaporated: In bags, boxes or barrels, l.c.l. 3, c.l. 5. Upon the report and recommendation of the Chief Traffic Officer it is ordered that the proposed changes in the Classification be approved.

RATES ON PETROLEUM AND ITS PRODUCTS.

10356. April 25.—Re application of British American Oil Co., Ltd., of Toronto, under sec. 315 of the Railway Act, for order directing the G.T.R. Co. and the C.P.R. Co. to readjust the present rates from Toronto on petroleum and its products, in carloads, so that they may be properly related to the commodity rates on petroleum and its products, in carloads, from Petrolia and Sarnia. It is ordered that the tolls now charged from Toronto, Petrolia, Sarnia and Wallaceburg on petroleum and its products, in carloads, as these are enumerated in the current commodity tariffs of the companies from Petrolia and Wallaceburg, be revised, as follows, per 100 lbs, namely:—

To the Undermentioned Groups and Points.	From Toronto.	From Petrolia, Sarnia and Wallaceburg.
1. East of Toronto to Oshawa and Myrtle	5th class	17 cents
2. East of group 1 to Brighton and Indian River	5th class, max. 11 cents	19 cents
3. East of group 2 to Kingston and Sharbot Lake	14 cents	21 cents
4. East of group 3 to Brockville, Kemptville and Prescott	17 cents	23 cents
5. East of group 4 to Cornwall and Finch	19 cents	25 cents
6. East of group 5 to Montreal, also Valleyfield, Ottawa, Hull	20 cents	25 cents
7. Points between Smith's Falls, Kemptville, Valleyfield, Vaudreuil, and Ottawa	20 cents	25 cents
	Per 100 pounds.	

(b) To points on branch lines between the G.T.R. Toronto-Orillia main line and Belleville, the rates to be reasonably blocked on the basis of the corresponding group rates of section (a) with due regard to the grouping of the class tariffs filed under order 3258; the said branch line rates not to exceed the base (a) rates by greater differences (if any) than exist between the 5th class rates to the same points respectively.

(c) To points on the G.T.R. between Ottawa and Scotia Jct. and on the C.P.R. between Carleton Jct. and North Bay, also to points in the Province of Quebec west of and including Quebec and Megantic, the rates not to exceed the base (a) rates by greater differences (if any) than exist between the 5th class rates to the same points, respectively.

(d) To points on the C.P.R. in New Brunswick, except St. John, Fredericton, Marysville, and Gibson, the rates (including those "for furtherance") not to exceed the rates (a) to Montreal by greater differences than exist between the 5th class rates to Montreal and to the said points; the rate from Toronto to the said excepted points to bear the same proportion to the general group rates as the rate established from Petrolia, Sarnia and Wallaceburg to the same points.

(e) From Petrolia, Sarnia and Wallaceburg to points west of and upon the Grand Trunk Toronto-North Bay Line 5th class rates to be the maxima; but the present rates not to be increased by more than 10% to points east of Sarnia on the line through Stratford, and east of London and St. Thomas, to and including Toronto, Hamilton, Port Dalhousie, and those on the Niagara River (except that Galt may take the Guelph rate), nor by more than 20% to points west of and including London and St. Thomas, with the rate to Windsor as the maximum.

(f) From Toronto to points west of and upon the G.T.R. Toronto-North Bay Line the rates to be those for equivalent mileages from Petrolia and Sarnia, as prescribed in section (e).

(g) The rates on fuel or gas oil and tar, in tank cars, from Toronto, to bear the same proportion to the refined oil rates as any special rates provided thereon from Petrolia, Sarnia and Wallaceburg.

(h) For the purpose of this order, fractions of a cost less than one-half shall be waived, and one-half, or greater, may be charged as one cent.

The rates herein prescribed be made effective within 60 days from the date of the issuance of this order.

CHARGE FOR STOP-OFF "FOR ORDERS" ON FOREST PRODUCTS AT SARNIA TUNNEL, ONT.

10418. April 26.—Re order 6148, Jan. 21, 1909, fixing stop-over charge of 25c per car a day for 48 hours, and the car service toll thereafter, on lumber, shingles, timber, and other forest products, in carloads, originating in British Columbia, and consigned to Sarnia Tunnel, Ont., "for orders"; and re application of G.T.R. to amend the Order. It is ordered that order 6148 be amended by striking out 25 cents in the ninth line of the operative part of the order, and substituting therefor $1.

EXPORT LUMBER RATE TO MONTREAL.

10528. April 19.—Re application of Canadian Lumbermen's Association for disallowance of lumber tariffs of the C.P.R., no. E. 689; G.T.R., no. C.F. 83; C.N.R., no. 116, and C.N.O.R., no. 46, all effective May 1, 1908. It is ordered that the application be, and it is hereby, dismissed, in so far as it affects the rates in the said tariff on lumber for domestic use. And it is further ordered that the C.P.R., the G.T.R., and the C.N.Q.R. Companies publish and file tariffs to be made effective not later than June 15, showing rates on lumber to Montreal for export which in general shall be lower than the rates on lumber to Montreal, which appear in the above mentioned tariffs.

Telegraph and Cable Matters.

The convention of the Association of Railway Telegraph Superintendents, which was to have been held at Los Angeles, Cal., May 16, has been postponed to June 20. This has been done so that the associate members and others may take advantage of the lower railway

The G.T.P.R. has 1,118 miles of poles and 3,871 miles of wire now completed and in operation, in its telegraph system, and during the present year, will construct the following:—main line, Wolf Creek to Tete Jaune Cache, 179 miles, Prince Rupert to Kitselas, 10[illegible] miles; branch lines, Melville to Regina, 95 miles, Melville to Canora, 55 miles, Tofield to Calgary, 180 miles.

The Dominion Parliament has voted the following sums for renewals, improvements and extensions of the Government system of telegraphs:—generally, $14,000; Prince Edward Island and mainland, $1,750; Lower St. Lawrence and Maritime Provinces, $33,750; Cape Breton lines, $13,000; Quebec lines, $12,700; Saskatchewan and Alberta lines, $48,950; British Columbia lines, $101,865.66; and Yukon lines, $52,294.

A. B. Smith, Manager G.T.P. Telegraphs, who has been in British Columbia for some time in connection with the proposed extensions of the telegraph lines there, was looking over the route along the Skeena River recently, and it was expected that erection would be commenced towards the end of May, and the line connecting Prince Rupert with Skeena River points be in operation later in the summer. The telegraph line from Winnipeg westerly to Wolf Creek is completed, and four wires, including one solely for commercial purposes, are in operation between Winnipeg and Edmonton.

Among the Express Companies.

S. H. Piatt has been appointed route agent Great Northern Ex. Co., St. Paul, Minn.

J. E. Archer has been appointed agent Great Northern Ex. Co., at Vancouver, B.C., vice W. J. Kirby.

A. C. Scott has been appointed agent Great Northern Ex. Co., at Grand Forks, N.D., vice W. R. Porter, transferred.

W. C. Scott, who has been over 50 years in the Canadian Ex. Co.'s service, has retired from the Quebec agency.

T. M. Horsey, heretofore cashier and chief clerk Canadian Ex. Co., at Quebec, has been appointed agent at Quebec, vice W. C. Scott, retired.

W. R. Porter, heretofore agent Great Northern Ex. Co., Grand Forks, N.D., has been appointed agent at Seattle, Wash., vice I. Waring promoted.

The G.T.P.R. recently gave notice that its cartage business, which had hitherto been handled by the Canadian Northern Transfer Co., would from May 2, be taken over by the Canadian Express Co.

The Canadian Ex. Co. has opened its offices, for the summer season, at Beaumaris, Elgin House, Port Carling, Port Cockburn, Port Sandfield, Rosseau and Windermere, Ont.

The Canadian Express Co.'s officers and directors for the current year as elected recently, are, President, C. M. Hays; Vice President and Manager, J. Bryce; Secretary and Treasurer, F. Scott; other directors, E. H. Fitzhugh, W. Wainwright, M. M. Reynolds, H. Paton and E. J. Chamberlin.

I. Waring, heretofore agent Great Northern Ex. Co., Seattle, Wash., has been appointed Asistant Superintendent for lines west of Whitefish, Mont., and the position of General Western Agent, rendered vacant by the death of F. L. Clark has been abolished, the duties being transferred to the Assistant Superintendent.

The Nova Scotia Legislature has recently passed an act, providing that when any intoxicating liquor is shipped or sent c.o.d. by or through the agency of any express company or other means of conveyance, to be paid for on delivery, such shipping or sending shall be deemed a sale of intoxicating liquor at the place where such intoxicating liquor is delivered, and the shipper or sender thereof, shall be liable to all the penalties which, under any act of the Legislature [illegible] sale of intoxicating liquor in such place.

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COMPARISON

With one riveter two men and one heater will drive 500 rivets per day (10 hours), while by hand three men and one heater average about 200.

WITH RIVETER	
Cost, compressed air (inc. oil) per day.....	.1.15
2 men @ $2.50.....	5.00
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2 men @ $2.25.....	4.50
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Cost per rivet by hand	.0380
Cost per rivet with riveter.	.0168
Saving per rivet ..... Saving over 55%.	.0212

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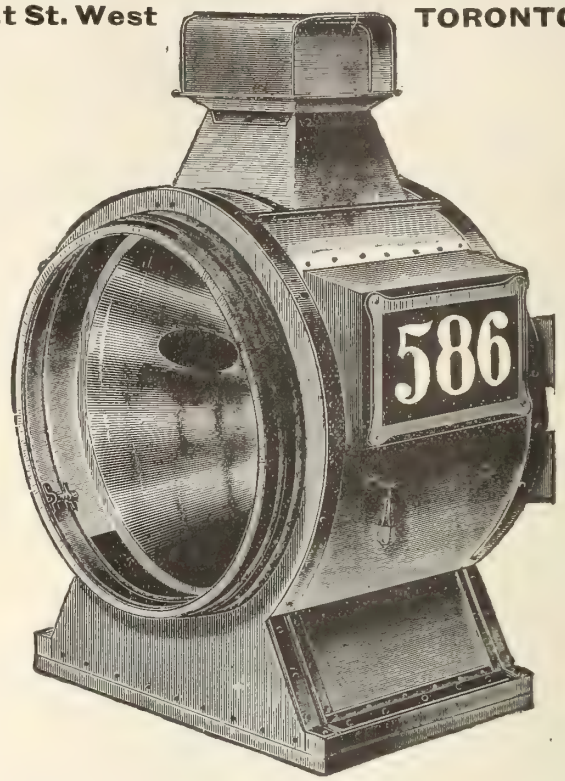

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ASSISTANT SECRETARY, Aubrey Acton Burrows, Secretary and Business Manager, Railway and Marine World.

OFFICIAL ORGAN, THE RAILWAY AND MARINE WORLD.

Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—Reports from New Westminster May 12 indicate that the Vancouver, Fraser Valley and Southern Ry., for the building of which between Vancouver and New Westminster, location plans have been approved by the Board of Railway Commissioners, is controlled by the B.C.E. Ry. Co. The route passes through what is known as the Hastings townsite, and the entire route has been staked out from New Westminster to False Creek. A contract is reported let to M. P. Cotton, of Vancouver, for clearing and grading of a section of about 7.5 miles, the work to be completed in three months. An order in council has been issued limiting the company's franchise through Hastings townsite to 21 years from Dec. 16, 1908, the date of the original agreement.

A car service for milk and small freight was inaugurated May 4 between Vancouver, New Westminster, Cloverdale and Langley Prairie. The management says it is impossible to put on a passenger service at present, owing to the large quantity of construction material to be moved.

Referring to the Chilliwack line, the Assistant Manager said recently that steel had been laid to Abbotsford, and ballasting completed to Harris road. The overhead work has also been completed to this point. About two-thirds of the work has been completed between Abbotsford and Sumas Mountain. Beyond this point to Chilliwack, 16 miles, there is some heavy work, notably the filling in of Sumas marsh.

In connection with the important radial lines being constructed from New Westminster, extensive works are under consideration in the city. The company's engineer and the Mayor went over the routes of a number of projected new lines May 9, with a view to a definite decision being reached. (May, pg. 399.)

Calgary St. Ry.—The commission operating this railway, which is owned by the city, is planning a number of extensions, which will add about eight miles to the existing track. T. H. McCauley is Superintendent.

Calgary, Alta.—E. A. Elton appeared before the railway committee of the city council, and authorized a plan for building a system of radial railways with that city as a center. He said that if a franchise were granted the company which he represented was prepared to complete and put in operation 10 miles of line to the end of 1911. In the proposed agreement the company's cars would be operated over certain of the city lines on terms; and power would be given the city to acquire the company's lines at any time during the currency of the franchise. The committee decided not to take any action. (May, 399).

Cape Breton Electric Co.—It was reported at a meeting of the Sidney Mines, N.S., council, May 10, that the company would build the extension of its line to Cranberry, as soon as the council got Pit St. in such shape as the work could be gone on with.

Central Ry. Co. of Canada.—The Dominion Parliament last session voted $28,300 to pay Molson's Bank, $25,000 deposit made on behalf of the C.R. of B., with interest at 3% from Dec. 5, 1905, to May 1, 1910. This deposit was made under the terms of an act of 1905 when the Ottawa River Ry. Co., obtained an extension of powers, and a change of its name to that of the Central Ry. of Canada. The extensive construction projected which it was hoped to carry out have apparently been abandoned, as the Ottawa River Navigation Co., still retains its independence, and the Irondale, Bancroft and Ottawa Ry., upon which the company had an option, has been acquired by the Canadian Northern Ontario Ry.

The Dominion Ry. and Plaster Co. has abandoned its proposal to construct an electric railway from Sydney to East Bay, N.S., in favor of a steam railway. (April, pg. 310).

Frank, Alta., and District.—A proposition is under consideration in Crow's Nest Pass district for the construction of an electric railway to connect up Frank, Blairmore, McLaren's Mill and Coleman. A 20-year franchise is being asked. (May, pg. 399.)

Grand Valley Ry.—The work of renewing the tracks in Brantford, Ont., formerly the Brantford St. Ry., is being rapidly progressed with. A proposition has been submitted for the extension of the line to the Holmidate district, to be laid on gravel instead of cement. If this is acceded to the line will be built at once. (April, pg. 311.)

Halifax Electric Tramway.—The question of the construction of second tracks and of extensions to existing lines, has been under consideration by the company and the city council for some time. The company desired permission to build a second track on certain of its lines, and the council is not de sirous of granting that permission, unless certain other lines are to be extended at the same time. The special committee has been authorized to continue negotiations, but it is not likely that any arrangements will be made which will lead to construction being started this year. (May, pg. 399.)

Hamilton Street Ry.—We are officially advised that the company is replacing its old rails with 87 lb. rails on steel ties, embedded in concrete, and paving between the tracks with wooden blocks, on the following streets:—James St. north, from Barton to Bay, 1,800 ft. of double track; King St. west, from Bay to Margaret, 3,000 ft. of double track; York St., from Queen to cemetery gate, 3,600 ft. of double track. (Dec., 1909, pg. 929.)

Hamilton, Waterloo and Guelph Ry.—The Dominion act authorizing the company to construct an extension of its projected line from near Hamilton to Toronto, provides that any extension across High Park shall run north of and parallel with the G.T.R., and keep at the same elevation as the G.T.R.; that it shall not receive and distribute passengers between Toronto's western boundary of the city and the terminal in the city, unless under authority of a by-law, but if the city and company cannot agree as to the terms of such a by-law the company may apply to the Board of Railway Commissioners to locate stations or stopping places within the city; the company shall not have power to do a local business within the city, these stopping places being only for the purpose of the convenience of persons coming into the city from outside points, or leaving the city for outside points. The company may enter into an agreement with the Hamilton Radial Ry. Co., but there is to be only one right of way through High Park and in Toronto. Securities for $25,000 a mile may be issued for double track lines. (April, pg. 311).

Kingston, Portsmouth and Cataraqui Electric Ry.—An arrangement has been made by which the company will be permitted to remove its track on the Williamsville line, which is at present unused. It is agreed that the company's rights over the street will not be impaired by the removal of the tracks. (Dec., 1909, pg. 929.)

Moncton Tramways, Electricity and Gas Co.—A by-law was submitted to the taxpayers of Moncton, N.B., recently, approving of an agreement for the construction of an electric railway in the city by the Moncton Tramways, Electricity and Gas Co. The agreement provides for the lease of the electric and gas plants now operated by the city council to the company for 39 years upon certain terms, and provision is made for starting the building and operation of an electric railway, not later than Nov. 30. Two miles of line are to be laid and operated within the city. (See Moncton Electric St. Ry. Heat and Power Co., Mar., pg. 231).

The Montreal Street Ry.'s application to the Quebec Legislature for power to build an underground railway system has been passed. For a couple of years the company has been investigating underground construction as a means of relieving the congestion of traffic, and concluding that it was the best asked authority to construct the same within four years.

The Suburban Tramway and Power Co., a subsidiary of the M.S.R. Co., was also granted power to construct an underground system, and its name was changed to the Public Service Corporation. (April, pg. 311).

Moose Jaw, Sask.—Under the terms of a franchise recently approved of by the taxpayers, three miles of track have to be in operation this year and an additional three miles in 1911. The franchise has been granted to an Ottawa syndicate composed of J. B. McRae, consulting engineer; Dr. P. B. Nielon, E. J. Daly, barrister; A. H. Dixon, electrical engineer, of Ottawa, Ont., and J. T. Cashman, broker, of Moose Jaw.

Nelson Electric Street Railway.—The grading for the reconstruction and extension of the lines was reported completed, and the poles erected for the overhead work, April 30. Tracklaying and ballasting has been practically completed, and it is expected that the operation of the cars will be started early in June. (May, pg. 399.)

Niagara, St. Catharines and Toronto Ry.—We are officially advised that track is laid and ballasting about completed on the line between Welland and Port Colborne, Ont., and that the overhead work is being installed. The diamonds for the railway crossings and the protective crossings are expected to be delivered at an early date. It is expected, if nothing unforseen happens, to have this line opened for traffic by July 1. It has not been definitely decided when the proposed extension from Port Colborne to Fort Erie will be begun. (May, pg. 399.)

Nipissing Central Ry.—A regular half-hourly service was inaugurated on this newly completed line between Cobalt and Haileybury, Ont., April 30. From midnight until 5 a.m. the service is hourly, and cars run on Sundays between 7 a.m. and 11 p.m. It has been decided to build [illegible] under the Temiskaming and Northern Ontario Ry. at Browning St., Haileybury. (May, pg. 399.)

Ontario West Shore Ry.—We have received information to the effect that about 20 miles have been graded from

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Goderich to Amberley, and that track has been laid between Goderich and Leaburn, about three miles. The company is not yet operating cars over any portion of its line; nothing has been done in the way of erecting a power house, and it is not known when the work on the dam for developing water-power will be started. The company expects to complete the 20 miles this year, as track laying and grading is being proceeded with. It is intended to carry the line to Kincardine, so far as the present plans have been disclosed. The company has on hand a locomotive and a number of construction cars. At a meeting of the Goderich Town Council, April 26, the Public Works Committee was authorized to confer with the company's representatives and prepare a draft agreement respecting the entry of the line into the town. (May, pg. 399.)

Ottawa Electric Ry.—Plans have been approved by the Ottawa city council for the extension of the street railway lines east and south, and it is expected that construction will be started immediately. (May, pg. 399).

People's Ry.—The city committee managing the Guelph Radial Ry. has notified the City Council that it sees no objection to granting a right-of-way for this projected railway to enter the city from Berlin, via Bridgeport, Bloomingdale and New Germany, Ont. (May, pg. 399.)

Quebec Ry., Light and Power Co.—We are officially advised that it has been decided to build an eight story building on the site at Jacques Cartier Market, lately acquired. Plans and specifications are not completed. The foundations will be made sufficiently strong to carry an additional four stories, should it be deemed advisable to add them later on. At first the company will require four floors for its own use, and will lease the balance for offices. Tenders for clearing away the old market buildings have been accepted and the work is in progress.

With reference to extensions of the company's lines, it is intended to build a double track extension westward from Maple Ave. to the top of Sillery Hill, 2.5 miles. Application has been made for the approval of location plans by the Board of Railway Commissioners, and as soon as this is received grading will be started. Rails and other material have been ordered, and it is expected to have the extension in operation early in the summer. It is not at present the company's intention to extend its lines to the Quebec Bridge site, nor is it intended to build a second track on the line between Montmorency Falls and Ste. Anne de Beaupre this year. (May, pg. 401.)

Regina, Sask.—The taxpayers on May 4, defeated the proposal to grant a franchise to a Winnipeg company to construct a street railway in the city, and on May 13, by a vote of 410 to 26, authorized the City Council to proceed with the construction of a street railway to be operated by the municipality. (May, pg. 401.)

St. Catharines, Ont.—An endeavor is being made to raise $50,000 in shares towards the erection of a high level bridge across the old Welland Canal. The plans provide for a bridge of sufficient strength and width to carry electric railway tracks, as well as a highway for general traffic. The bridge company has no direct connection with any electric railway.

St. John Ry.—A new switchboard is being placed in the company's power house at St. John, N.B., and there is being added to the power plant a 500 k.w. exhaust steam turbine, connected to a 750 k.w. motor generator set for street railway work. The additions to the plant are being supplied by the Canadian Westinghouse Co., Hamilton. (Jan., pg. 59.)

St. Thomas Street Ry.—It was decided at the meeting of the St. Thomas, Ont., City Council, April 28, to maintain for the present the roadbed of the municipal electric railway in the best possible shape, and make all preparations for the submission of a by-law at the elections in Jan., 1911, to make thorough repairs. (May, pg. 401.)

Sherbrooke Ry. and Power Co.—The Quebec Legislature has amended the company's charter of incorporation, giving it power to build extensions to engage in developing and distributing power, etc. The plans for the extensions have been prepared, and it is said that as soon as financial arrangements have been completed contracts will be let for the work.

The new company is preparing to make an issue of bonds to provide funds for retiring existing obligations and to provide funds for reconstructing the line and building extensions. (May, pg. 401.)

Toronto and York Radial Ry.—We are officially advised with reference to press reports as to the immediate construction of proposed extensions, notably one from the Scarboro line to Markham, that the company has not made any arrangements for, or given any consideration lately, to any plans for extending its lines. (May, pg. 401.)

Toronto, Niagara and Western Ry.—The Toronto City Council has been notified that the company is desirous of obtaining an order from the Board of Railway Commissioners permitting it to build its projected railway across Davenport Road and St. Clair Ave., in obtaining an entrance into the city. (July, 1909, pg. 523.)

Toronto Tube Railway proposals.—J. Forgie and C. M. Jacobs, who were engaged by the Mayor and City Engineer, to make a special report on the question of the construction of a tube railway in Toronto, arrived in the city May 18, to make their investigations. (May, pg. 401).

Winnipeg Electric Ry.—We are advised that the company, through its subsidiary the Winnipeg, Selkirk and Lake Winnipeg Ry., will probably undertake the construction of a line into Red River Park, belonging to the town of Selkirk, Man., this year.

Some residents of Kildonan, Man., are protesting against the agreement entered into between the municipality and the company, and are considering the desirability of testing its legality in the courts.

The question of an agreement for the extension of the Headingly car line to St. Francois Xavier is still under consideration. (April, pg. 313).

Electric Ry., Finance, Meetings, Etc.

British Columbia Electric Ry.—Gross earnings for March, $255,423; working expenses $159,681; net operating earnings $95,742; renewal funds $17,852; net earnings $77,890; approximate income from investments $16,500; net income $94,390; against $186,724 gross earnings; $114,447 working expenses; $72,277 net operating earnings; $13,958 renewal funds; $58,319 net earnings; $13,550 approximate income from investments; $71,869 net income for March, 1909. Aggregate gross earnings for nine months ended Mar. 31, $2,224,324; net earnings including approximate income from investments, $955,538, against $1,712,281 and $783,133 for same period 1908-09.

Calgary St. Ry.—Gross earnings for Apr., $14,613.20; maintenance of way and structures $540.88; maintenance of equipment $656.93; transportation expenses $5,586.66; general expenses $443; total operating expenses $7,227.47; net earnings $7,385.73. Operating expenses per car mile, 14.193.

Cape Breton Electric Co.—Gross earnings for Feb., $18,454.43, against $15,-891.54 for Feb., 1909. Net earnings, $2,162.20, against a loss of $622.44 for Feb., 1909. The deductions include operating expenses, interest charges and appropriations for sinking fund.

Gross earnings for 12 months ended Dec. 31, 1909, $240,708.87; operating expenses $142,501.67; net earnings $98,-207.20; interest charges and taxes $48,-940.22; improvement fund $11,500; dividends, preferred stock 6% $14,040; balance $23,726.98. The foregoing figures include one-half of the earnings and expenses of the Sydney and Glace Bay Ry. The company does the entire electric lighting and electric railway business in Sydney, the electric lighting in North Sydney, the ferry business between Sydney and North Sydney, and operates an interurban line between North Sydney and Sydney Mines. It owns $220,000 of the $423,000 outstanding first mortgage bonds, and half of the $500,000 capital stock of the Sydney and Glace Bay Ry., an interurban line between Sydney and Glace Bay, 19 miles. The company is managed by Stone and Webster, Boston, Mass.

Halifax Electric Tramway.—Railway receipts for April, $16,114.66, and for two weeks ended May 14, $7,020.46, against $14,495 and $6,623.70 for same periods 1909.

Hamilton St. Ry.—The earnings for the three months ended Mar. 31, were $81,052, an increase of about $13,000 over those for the same period 1909.

London and Lake Erie Ry. and Transportation Co.—The directors have been authorized to issue $750,000 of 40 year 5 per cent. bonds for the purpose of paying for the 28 miles of line, with its plant, equipment, machinery, franchises, etc., purchased at the sale of the South-Western Traction Co. The bonds are to be secured by a first mortgage to the Trusts and Guarantee Co., Toronto.

Montreal St. Ry.—Passenger earnings for April, $335,941.37; miscellaneous earnings $8,823.74; total earnings $344,-765.11; operating expenses $190,842.05; net earnings $153,923.06; city percentage on earnings $29,850.28; interest on bonds and loans $14,732.98; rent leased lines $552.90; taxes $4,000; total charges $49,136.16; surplus $104,786.90; expenses per cent. of earnings 55.33, against $290,050.26 passenger earnings; $4,323.59 miscellaneous earnings; $294,-373.85 total earnings; $170,551.62 operating expenses; $123,822.23 net earnings; $22,024.96 city percentage on earnings; $15,099.83 interest on bonds and loans; $498.67 rent leased lines; $3,000 taxes; $40,623.46 total charges; $83,198.77 surplus; 57.94 expenses per cent. of earnings; for Apr., 1909. Aggregate total earnings for seven months ended Apr. 30, $2,337,001.32; operating expenses $1,407,826.42; net earnings $929,174.90; total charges $284,114.59; surplus $665,060.31, expenses per cent. of earnings 60.24, against $2,107,716.40 aggregate total earnings; $1,320,135.34 operating expenses; $787,581.06 net earnings; $238,666.04 total charges; $548,913.02 surplus; 62.63 expenses per cent. of earnings for same period 1908-09.

Toronto Ry.—Gross earnings for March $[illegible] net earnings $157,849, against $298,142 gross earnings; $161,133 expenses; $137,009 net earnings for March, 1909. Aggregate gross earnings for three months ended Mar. 31, $974,274; net earnings $471,933, against $861,768 and $393,707 for same period 1909.

Winnipeg Electric Ry.—Gross earnings

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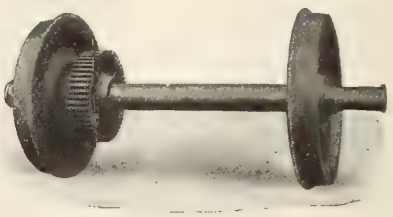

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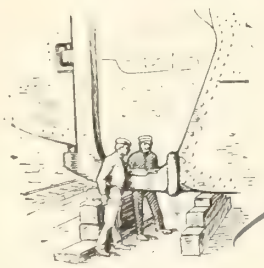

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for March, $254,070; expenses $133,265; net earnings $120,805, against $200,200 gross earnings, $102,734; expenses, $97,466, net earnings for Mar., 1909. Aggregate gross earnings for three months ended Mar. 31, $813,479; net earnings, $395,746, against $635,012 and $314,528 for same period 1909.

Toronto Ry. Extensions.

Judgment was delivered May 18 on the application of the Toronto Ry., to the Ontario Railway and Municipal Board, for approval of the routes selected by the company and submitted to the City Engineer, to enable it to carry out the Board's order of Dec. 8, 1908, and to restrain the city from preventing the company from proceeding with the work. The decision of the Board is interesting, in view of the decision of the Judicial Committee of the Privy Council in London, Eng., Mar. 18, and also of the legislation passed during the closing hours of the last session of the Ontario Legislature, both of which were published in full in our April issue. The judgment, which was delivered by Chairman J. Leitch, K.C., and concurred in by the other members, A. B. Ingram and H. N. Kittson, is as follows:—

"The company alleges that it requires and has selected Teraulay St. from Queen St. to Agnes St., thence west along Agnes St. and across University Ave., through Anderson St. and along St. Patrick to Bathurst St., Victoria St. from Adelaide St. to Wilton Ave., Wilton Ave. from Victoria St. and across the new bridge over the Don to east of Broadview Ave., Shuter from Yonge to Victoria St., Harbord St. from Spadina to Ossington Ave., Louisa St. from Teraulay St. to James St., and James St. from Louisa to Queen St., for the extension of its car lines, and that it has prepared plans the same as the plans of other portions of its railway, and has submitted them to the City Engineer, and asks the Board's approval. These streets are in addition to Adelaide St. from Jarvis to Bathurst St., Bay St. from Front to Queen St., University Ave. from Queen to College St., Richmond St. from Victoria to Church St., and Wellington St. from Church to York St., which were the subject of the Board's order of Dec. 8, 1908, and of the subsequent appeal which ended in the Privy Council. These streets are necessary for the construction of the 15 miles of double track and for the operation of the 100 new cars which the Board ordered the company to construct May 17, 1907.

Counsel for the city raised the question that the plans which the company submitted to the City Engineer were insufficient, but that question was set at rest by the company undertaking to furnish him with any further details or drawing which he may require. The city also relied on the provisions of 10 Edward VII., chap. 81, which provides that the company cannot commence the construction of extensions without first having obtained the Board's permission and approval. Counsel for the city addressed to the Board a very lucid exposition of the intent and design of the legislation of last session and the policy which should be adopted in its application: that it is perfectly clear that the legislation of last session was intended to secure a reasonable, proper and adequate railway service for the public, and to prevent the company from selecting streets for the construction of extensions of their lines that were not necessary and convenient for the public service and in the public interests. He urged very strongly on the Board that the company should not be permitted to construct lines on University Ave. in particular. The Board has no quarrel with his exposition of the law, but is of opinion that the legislation is not retroactive in so far as University Ave. and the other streets selected by the company, and which were the subject of the Board's order of Dec. 8, 1908, and of the appeals to the Court of Appeal and Privy Council, are concerned. To hold that the Board has power to prevent the construction of the company's lines on those streets would be to invite reversal by the Court of Appeal and the Privy Council, and would tie up the construction of extensions for another two years. The lines selected by the company, and which were the subject of the Board's order of Dec. 8, 1908, will have to rest where the judgment of the Court of Appeal and Privy Council left them.

In reference to the streets which are the subject of this application, since the argument counsel for the company has addressed a letter to the Board saying that the manager had instructed him to amend his application by striking out the lines on Louisa St. from Teraulay to James St., and on James St. from Louisa to Queen St., and to say that upon full consideration of the matter, and after considering the argument presented by the city's counsel upon the subject, with which he was impressed, it is the desire of the company to withdraw that part of the application. The Board, therefore, only requires to deal with the remaining streets:—Teraulay, Agnes, St. Patrick, Victoria, Wilton Avenue, Shuter, and Harbord. So far as the proposed extensions on these streets are concerned, the Vice Chairman and Mr. Kittson have inspected them, and have carefully considered whether or not they are necessary or convenient for the public service, and whether or not lines on them would be in the public interest. Their examination of these streets, and taking into account the number of people to be carried, corroborates the evidence of the company that these lines were selected by the company in the public interest. Both the city and the company, while disagreeing as to some of the streets, agree that the extensions are an absolute necessity for the public and should be built at once. The extensions covered by the order of Dec. 8, 1908, and by this application will require about 26 miles of single track. The Board is of opinion that the public interest will be served by approving the application of the company, and thereby securing the construction of the new lines and cars, and we approve and order accordingly. There will be no costs, but the company will require to affix $20 in stamps to the formal order."

Grand Trunk Pacific Ry.—Replying to a question in the House of Commons April 28, the Minister of Finance stated, that the amounts of G.T.P.R. bonds guaranteed to Mar. 31, was:—By the Dominion of Canada, £5,200,000; by the G.T.R., series A., £2,100,000; series B., £1,354,000; Lake Superior branch, £1,550,000; Prairie section, £10,000,000. All of these bonds had been issued Mar. 31.

New Brunswick Public Utilities Commission.—The members of this Commission have been appointed as follows:—D. McVince, K.C., Woodstock, Chairman; O. M. Melanson, merchant, Shediac, and G. O. D. Otty, barrister, Hampton; with F. P. Robinson, Fredericton, as Secretary.

Intercolonial Ry.—Parliament has voted $7,000,000 for the I.C.R., and $35,000 for the Windsor branch on account of collection of revenue for the current year.

Prince Edward Island Ry.—On account of collection of revenue the Dominion Parliament has voted $455,000 for the expenses of the current year.

Power Brakes for Electric Cars.

On Nov. 25 last the Board of Railway Commissioners' secretary notified electric railway companies under its jurisdiction that the Board would on Dec. 7 consider the question of air brake equipment on the Hamilton and Brantford Ry. and the Hamilton Radial Electric Ry., and also a proposed order requiring all electric railways subject to the Board's jurisdiction to equip their cars with automatic air brakes, as well as hand brakes, as an additional safeguard in case of damage or breakage to the air brake equipment. The President of the Canadian Street Railway Association wrote the Board's secretary suggesting that the hearing be deferred, and that the question be taken up between the Association's Executive and one of the Board's officials, so that it might be thoroughly gone into and some mutually satisfactory conclusion recommended to the Board. The Board's Secretary replied that the request would be considered when the case came up for hearing.

At the Board's sitting on Dec. 7, Col. H. H. McLean, M.P., one of the Association's counsel, requested that the hearing be adjourned on account of the short notice given to companies, and that the whole question be referred to the Board's Chief Operating Officer to hold a conference with the Association's executive committee, so that it might be fully discussed. The Board granted an adjournment of the hearing until Feb. 4, and on Jan. 11 the conference between the executive and the Chief Operating Officer was held, the Association being represented by D. McDonald, President; J. Anderson, Vice President; J. E. Hutcheson and Acton Burrows, Secretary-Treasurer. E. P. Coleman, Manager of Railways, Dominion Power and Transmission Co., represented the two Hamilton companies named in the proposed order. On behalf of the Association it was contended that the proposed order was altogether too sweeping in its character, and that power brakes were not necessary on single truck cars, and on the smaller double truck cars. It was finally decided to hold tests of power and hand brakes at Ottawa under the Association's auspices, at which the Chief Operating Officer would be present or represented and the Board's hearing was further adjourned to May 3. The Association's Secretary-Treasurer proceeded to make arrangements for holding the tests, and the President appointed J. E. Hutcheson, Ottawa Electric Ry.; D. E. Blair, Montreal St. Ry., and W. R. McRae, Toronto Ry., to take charge of them. The Secretary Treasurer also obtained a mass of information from Canadian and U.S. sources in support of the Association's contention that the proposed order was unnecessary. This was submitted to the Chief Operating Officer, and as a result of conferences between him and J. E. Hutcheson and E. P. Coleman, a modification of the proposed order was suggested requiring that all electric railways subject to the Board's jurisdiction should within three years equip all passenger cars of 37 ft. or more in length over all, or weighing 35,000 lbs or more, with power brakes to be approved by the Board, in addition to hand brakes.

When the matter came up for decision on May 3, the members of the Board present took the ground that three years was too long a period to allow. A. H. Royce and J. E. Hutcheson appeared for the Association, and E. P. Coleman, representing the Hamilton companies named, strongly urged its adoption, but the Board decided otherwise and passed the following order, [illegible]

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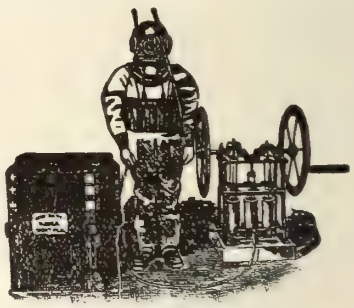

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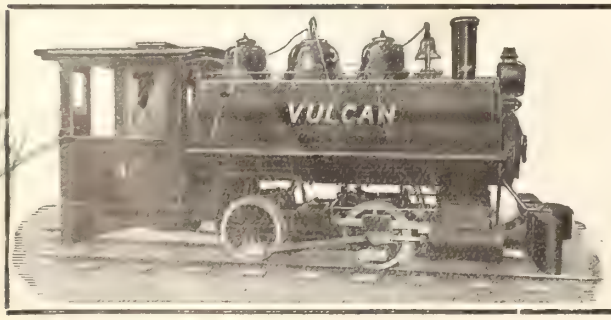

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ilton & Brantford Ry. and Hamilton Radial Electric Ry.; and the proposed order requiring all electric railway companies subject to the Board's jurisdiction to equip their cars with automatic air brakes, as well as hand brakes, as an additional safeguard in case of damage or breakage to the air brake equipment: It is ordered as follows:—1. On or before June 1, 1911, all electric railway companies under the Board's jurisdiction shall equip all rolling stock in use by them of 37 ft. or over in length, or of the weight of 35,000 lbs. or more, with power brakes, to be approved of by the Board, in addition to hand brakes and proper sanding appliances. 2. Immediately upon the completion of said equipment, the same railway companies shall notify the Board thereof and furnish a detailed account of the rolling stock so equipped.

In preventing by the incontrovertible evidence submitted, the passing of the drastic order first proposed, the Association's executive performed a valuable service to electric railway companies. J. E. Hutcheson devoted considerable time to the presentation of the matter, and is entitled to the warmest thanks for the excellent work done.

Electric Railway Notes.

The Winnipeg Electric Ry. has added to its rolling stock a new pay-as-you-enter car, built at its own shops.

The B.C. Electric Ry. has received five 30 ft. semi-convertible double-ended pay-as-you-enter car bodies from the Ottawa Car Co.

A passenger on a Montreal street car pleaded guilty May 11, to using an old transfer. A second charge of punching holes in it with attempt to deceive is pending.

The Calgary St. Ry. has received three pay-as-you-enter cars from the Preston Car and Coach Co., Preston, Ont., each 45 ft. long, and has also ordered three similar cars from the Ottawa Car Co., Ottawa, for delivery in June.

The Nipissing Central Ry. is issuing workmen's tickets at a rate of 21 trips for $1 between Cobalt and Haileybury, Ont. A half-hourly service is given between 5 a.m. and midnight, and hourly during the intervening time.

The London and Lake Erie Ry. and Transportation Co. is operating a Sunday service of cars between London and Port Stanley. Some residents of both places are protesting and are considering the propriety of taking legal proceedings against the company.

The Toronto Ry., as a contribution to the Y.M.C.A. building fund in Toronto, promised that the receipts, comprising cash and the value of tickets, deposited in the fare boxes, above $5,000 on May 7, should be handed over. The donation was $10,315.56.

H. M. Hopper, heretofore Secretary-Treasurer St. John Ry., St. John, N.B., has been appointed General Manager, Secretary and Purchasing; vice W. Z. Earle, Manager, resigned. A. Seely, heretofore Auditor, has been appointed Treasurer.

The report of the appointment of W. H. Elson, mentioned in our last issue, has been confirmed as Traimmister for P.C. Electric Ry., interurban lines, New Westminster, Lulu Island and Eburne, with office at Vancouver. He was formerly C.P.R. conductor at Revelstoke.

W. T. Piggott, who has resigned the General Managership of the Windsor, Essex and Lake Shore Rapid Ry., through pressure of other business, will continue to act as director of the company in which he has a considerable interest, but will devote his time chiefly to his lumber interests at Chatham, Ont.

The Nipissing Central Ry., operating between Cobalt and Haileybury, Ont., reports the road open for traffic. During the first day 2,300 passengers were carried on the two cars, after which an accident to the machinery caused a stoppage for three days. The service was resumed May 4, and on the succeeding day, 3,500 passengers were carried.

In connection with the act passed last session of the B.C. Legislature, to which reference was made in our last issue, providing for the inspection of tramways, which, for the purpose of the act, includes street railways, Wm. Ray of Vancouver, has been appointed Inspector of Tramways, reporting to the Attorney General.

The Calgary St. Ry. Commissioners have increased the wages of employes, from 21c. to 25c. an hour for the first year, and 27c. for the second year. An agreement has been signed for two years at fixed rates of pay, on the understanding that no organization of any kind is to take place, the commission being the sole judge of qualifications.

The Toronto postmaster has issued an order to carriers of special delivery letters, by which they are forbidden to ride on cars free, from May 2. R. J. Fleming, Manager Toronto Ry., interviewed the Postmaster General recently, regarding an increase in the grant from the Department for carrying postmen free, which it is claimed is being carried on at a considerable loss.

A. Eastman, heretofore General Passenger Agent Utica and Mohawk Valley Ry., Oneida Ry., and Syracuse Rapid Transit Co., Syracuse, N.Y., has been appointed General Manager Windsor, Essex and Lake Shore Rapid Ry., vice W. T. Piggott, resigned, but who remains as a director. P. H. Scott, heretofore in Pere Marquette Rd. service, London, Ont., has been appointed Traffic Manager. Offices, Kingsville, Ont.

A Vancouver dispatch of May 20 says only three damage actions against the B.C. Electric Ry., arising out of the accident on the interurban line at Lakeview in Nov., 1909, resulting in 14 persons being killed, have yet reached trial. The first was brought by T. E. Slayton's widow. The company did not deny liability. The jury assessed the damages at $14,000. The judge, without a jury, gave T. E. Turtle's widow $8,000 damages. The jury awarded J. D. Taylor, for the wreck of his nervous system, $15,000. Several cases were settled out of court. Others will come up at the end of the criminal assizes.

A. Eastman, who has been appointed General Manager Windsor, Essex and Lake Shore Rapid Ry., was from 1892 to 1901, freight and ticket clerk and telegraph operator G.T.R., Detroit, Mich., and assistant agent M.C.R., Detroit; 1901 to 1902, travelling express passenger agent Detroit United Ry.; 1902 to 1903, general express agent Utica and Mohawk Valley Ry.; 1903, division superintendent Detroit United Ry.; subsequently, general express agent Utica and Mohawk Valley Ry, Oneida Ry., and Syracuse Rapid Transit Co., and in 1908 he was appointed General Passenger Agent of these railways, which position he held to May 1, the date of his present appointment.

The recent case of J. M. Selkirk and W. Simpson of Leamington, against the Windsor, Essex and Lake Shore Rapid Ry., and W. Newman and A. J. Nelles, which was dismissed, as against the company, and decided against the other two defendants, the plaintiffs being awarded $1,000 and costs, has been in the courts again, and the previous judgment reversed on the appeal of the two defendans. Mr. Justice Riddell found that the provisional directors had no power to bind the company, yet unorganized, by making the contract in question as a corporate liability, and therefore placed liability for the amount on the two officers who executed the contract, on the ground that they had represented the competence of the company as a matter of fact and so become answerable in damages to the amount of the bond; but by the special act, the provisional directors may agree to pay for the services of persons who may be employed by the directors for the purpose of assisting the directors in furthering the undertaking or for the purchase of the right of way, and any agreement so made shall be binding on the company. The first judgment was set aside, and judgment entered against the company for $1,000 and costs.

The Ontario Divisional Court has confirmed a judgment of $245.45 given by a lower court in favor of W. N. Warburton, for alleged wrongful dismissal from the position of Manager of the Windsor, Essex and Lake Shore Rapid Ry.

The Third Avenue Rd. Co. of New York tried a gasoline-electric car on its crosstown lines last winter. Now another type of car is being tried, and a comparison will be made of the two. The new car is a reconstructed horse car provided with storage batteries and a pair of five horse-power motors. The battery is placed under the seats of the car, and has a rating of 420 ampere-hours at 84 volts. It is made up of 29 plates per cell, and there are 44 cells at each side of the car. The gases that are generated by the battery are carried off by a ventilating system and exhaust under the rear platform. The car weighs only six tons fully loaded. It has been found to consume in actual service only 0.54 watt-hour per ton mile, while maintaining a speed of six miles an hour with nine stops per mile.

Ottawa Electric Railway Wages.

As a result of negotiations between the Ottawa Electric Ry. Co. and its employes, J. S. Hutcheson, Superintendent, issued the following bulletin recently:—

The following is the schedule of wages, etc., for Conductors and Motormen to take effect May 1:—1st year's service, 19c. per hour; 2nd year's service, 20c. per hour; 3rd year and after, 22c. per hour.

Sunday work will be paid for 2c. per hour advance on the above rates. Regular men will only be booked to work alternate Sundays without their consent. They will, however, be expected to work when booked, unless given leave of absence. Spare men will be expected to work every Sunday if required, but leave of absence may be had occasionally on application to the Inspector.

The rates for work on snow sweepers and plows will be as follows:—From 6 a.m. to 12 midnight, 22½c. per hour; from 12 midnight to 6 a.m., 24c. per hour.

The hours of work for regular men will be as at present, 10 hours constituting a day's work, or as near 10 hours as the schedule of runs will permit. Men will not be expected to work beyond the full day unless they are agreeable to do so, or in case of absolute necessity.

Clothing of Conductors and Motormen will consist as follows:—For summer: full suit, coat, vest and pants; for winter: trousers every year, overcoat every second year. All conductors and motormen must be so provided. The Company will pay full cost of such clothing for all men in the service over one year; and half the cost of those in their first year. Uniform caps and badges will be supplied by the Company without charge.

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THOS. C. IRVING,

Gen. Man. Western Canada, Toronto.

C.P.R. LANDS

The Canadian Pacific Railway Company have 3,000,000 acres of selected lands for sale in Manitoba, and Saskatchewan.

Maps, as enumerated below, showing these lands in detail, will be sent free on application.

Map No. 1—Winnipeg to Second Meridian	$ 8.00 to $15.00 per acre
Map No. 2—South-Eastern Saskatchewan, 2nd to 3rd Meridians	10.00 to 25.00 per acre
Map No. 3—Main Line, 3rd and 4th Meridians (generally)	8.00 to 10.00 per acre
Map No. 4—Part of Western Saskatchewan, 3rd to 4th Meridians	10.00 to 25.00 per acre
Map No. 5—South-Western Alberta	8.00 to 25.00 per acre

All prices are subject to change without notice.

TERMS OF PAYMENT

An actual settler may purchase not more than 640 acres on the ten instalment plan by paying a cash instalment at time of purchase, interest at six per cent. on the unpaid purchase money at the end of the first year, and the balance of the principal, with interest, in nine equal instalments annually thereafter, as shown in the following table:

160	Acres at	$ 8.00	per acre,	cash payment	$191.70	first year's interest	$ 65.28	and nine instalments of $160.0
"	"	9.00	"	"	215.70	" " "	73.46	" " 180.0
"	"	10.00	"	"	239.70	" " "	81 62	" " 200.0
"	"	11.00	"	"	263.60	" " "	89.78	" " 220.0
"	"	12.00	"	"	287.60	" " "	97.96	" " 240.0
"	"	13.00	"	"	311.55	" " "	106.10	" " 260.0
"	"	14.00	"	"	335.60	" " "	114.32	" " 280.0
"	"	15.00	"	"	359.50	" " "	122.44	" " 300.0

Purchasers who do not undertake to go into residence on the land are required to pay one-sixth of the purchase money down, balance in five equal annual instalments with interest at the rate of six per cent. per annum. Interest at six per cent. will be charged on overdue instalments.

Write at once to Desk R. for new books "Where Wheat is King," The Heart of the Saskatchewan Valley" and "Western Canada."

F. T. GRIFFIN, Land Commissioner, Winnipeg.

CANADA NORTH-WEST LAND CO.

This Company has 525,000 acres of selected lands in Manitoba and Saskatchewan which offer excellent opportunities to settlers and investors who desire to secure good lands in well-selected districts. These lands are on sale at the Company's Office at Winnipeg, and at the various land agencies of the Canadian Pacific Railway Company.

F. T. GRIFFIN, Land Commissioner, Winnipeg.

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CHAIRMAN, E. E. Horsey, Kingston, Ont.
SECRETARY, Jas. Morrison, Montreal.

International Water Lines Passenger Association.

PRESIDENT, W. M. Lowrie, New York.
SECRETARY, M. R. Nelson, New York.

The Shipping Federation of Canada.

PRESIDENT, A. A. Allan, Montreal; MANAGER, AND SECRETARY, T. Robb, 526 Board of Trade, Montreal.

Ship Masters' Association of Canada.

GRAND MASTER, Capt. J. H. McMaugh, Toronto, Ont.; GRAND SECRETARY-TREASURER, Capt. H. O. Jackson, 376 Huron St., Toronto.

The Water-Carriage of Goods Act.

Following is the full text of that important measure which was passed at the Dominion Parliament's recent session:—

1. This Act may be cited as The Water-Carriage of Goods Act.

2. In this Act, unless the context otherwise requires:—

(a) "goods," includes goods, wares, merchandise, and articles of any kind whatsoever, but does not include live animals;

(b) "ship" includes every description of vessel used in navigation not propelled by oars;

(c) "port" means a place where ships may discharge or load cargo.

3. This Act applies to ships carrying goods from any port in Canada to any other port in Canada, or from any port in Canada to any port outside of Canada, and to goods carried by such ships, or received to be carried by such ships.

4. Where any bill of lading or similar document of title to goods contains any clause, covenant or agreement whereby:—

(a) the owner, charterer, master or agent of any ship, or the ship itself, is relieved from liability for loss or damage to goods arising from negligence, fault, or failure in the proper loading, stowage, custody, care or delivery of goods received by them or any of them to be carried in or by the ship; or,

(b) any obligations of the owner or charterer of any ship to exercise due diligence to properly man, equip, and supply the ship, and make and keep the ship seaworthy, and make and keep the ship's hold, refrigerating, and cool chambers, and all other parts of the ship in which goods are carried, fit and safe for their reception, carriage and preservation, are in any wise lessened, weakened or avoided; or,

(c) the obligations of the master, officers, agents, or servants of any ship to carefully handle and stow goods, and to care for, preserve, and properly deliver them, are in any wise lessened, weakened or avoided;

such clause, covenant or agreement shall be illegal, null and void, and of no effect, unless such clause, covenant or agreement is in accordance with the other provisions of this Act.

5. Every bill of lading, or similar document of title to goods, relating to the carriage of goods from any place in Canada to any place outside of Canada shall contain a clause to the effect that the shipment is subject to all the terms and provisions of, and all the exemptions from liability contained in, this Act; and any stipulation or agreement purporting to oust or lessen the jurisdiction of any court having jurisdiction at the port of loading in Canada in respect of the bill of lading or document, shall be illegal, null and void, and of no effect.

6. If the owner of any ship transporting merchandise or property from any port in Canada exercises due diligence to make the ship in all respects seaworthy and properly manned, equipped and supplied, neither the ship nor the owner, agent or charterer shall become or be held responsible for loss or damage resulting from faults or errors in navigation or in the management of the ship, or from latent defect.

7. The ship, the owner, charterer, agent or master shall not be held liable for loss arising from fire, dangers of the sea or other navigable waters, acts of God or public enemies, or inherent defect, quality or vice of the thing carried, or from insufficiency of package, or seizure under legal process, or for loss resulting from any act or omission of the shipper or owner of the goods, his agent or representative, or from saving or attempting to save life or property at sea, or from any deviation in rendering such service, or other reasonable deviation, or from strikes, or for loss arising without their actual fault or privity or without the fault or neglect of their agents, servants or employes.

FRANK PLUMMER,

General Manager Canadian Lake Transportation Co., Ltd., and President Dominion Marine Association.

8. The ship, the owner, charterer, master or agent shall not be liable for loss or damage to or in connection with goods for a greater amount than $100 per package, unless a higher value is stated in the bill of lading or other shipping document, nor for any loss or damage whatever if the nature or value of such goods has been falsely stated by the shipper, unless such false statement has been made by inadvertence or error. The declaration by the shipper as to the nature and value of the goods shall not be considered as binding or conclusive on the ship, her owner, charterer, master or agent.

9. Every owner, charterer, master or agent of any ship carrying goods, shall on demand issue to the shipper of such goods a bill of lading, showing, among other things, the marks necessary for identification as furnished in writing by the shipper, the number of packages or pieces, or the quantity or the weight, as the case may be, and the apparent order and condition of the goods as delivered to or received by such owner, charterer, master or agent; and such bill of lading shall be prima facie evidence of the receipt of the goods as therein described.

10. In case of wood goods, notwithstanding anything in the charter party, bill of lading, or other shipping document, the owner, charterer, master, or agent of the ship, or the ship itself, shall only be bound to deliver to the consignee, the pieces received from the shipper, and shall not be held responsible for deficiency in measurement; and any words inserted in any charter party, bill of lading or other shipping document for the purpose of making the owner, charterer, master or agent of the ship, or the ship itself, liable for deficiency in measurement in such case shall be illegal, null and void and of no effect.

11. When a ship arrives at a port where goods carried by the ship are to be delivered, the owner, charterer, master or agent of the ship shall forthwith give such notice as is customary at the port, to the consignees of goods to be delivered there, that the ship has arrived.

12. Everyone who, being the owner, charterer, master or agent of a ship—

(a) inserts in any bill of lading or similar document of title to goods any clause, covenant or agreement declared by this Act to be illegal; or makes, signs, or executes any bill of lading or similar document of title to goods containing any clause, covenant or agreement declared by this Act to be illegal;

without incorporating verbatim, in conspicuous type, in the same bill of lading or similar document of title to goods, section 4 of this Act; or,

(b) refuses to issue to a shipper of goods a bill of lading as provided by this Act; or,

(c) refuses or neglects to give the notice of arrival of the ship required by this Act;

is liable to a fine not exceeding $1,000, with cost of prosecution; and the ship may be libelled therefor in any Admiralty District in Canada within which the ship is found.

2. Such proportion of any penalty imposed under this section as the court deems proper, together with full costs, shall be paid to the person injured, and the balance shall belong to his Majesty for the public uses of Canada.

13. Every one who knowingly ships goods of an inflammable or explosive nature, or of a dangerous nature, without before shipping the goods making full disclosure in writing of their nature to, and obtaining the permission in writing of, the agent, master or person in charge of the ship, is liable to a fine of $1,000.

14. Goods of an inflammable or explosive nature, or of a dangerous nature, shipped without such permission from the agent, master or person in charge of the ship, may, at any time before delivery, be destroyed or rendered innocuous, by the master or person in charge of the ship, without compensation to the owner, shipper or consignee of the goods; and the person so shipping the goods shall be liable for all damages directly or indirectly arising out of such shipment.

15. This Act shall not apply to any bill of lading or similar document of title to goods made pursuant to a contract entered into before this Act comes into force.

16. This Act shall come into force September 1, 1910.

The name of the steamboat Columbia has been changed by order in council to Yennek.

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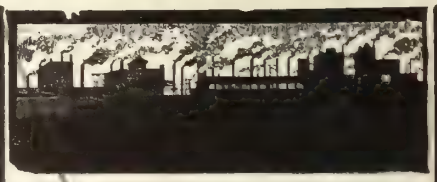

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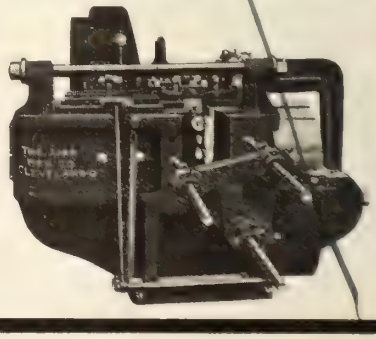

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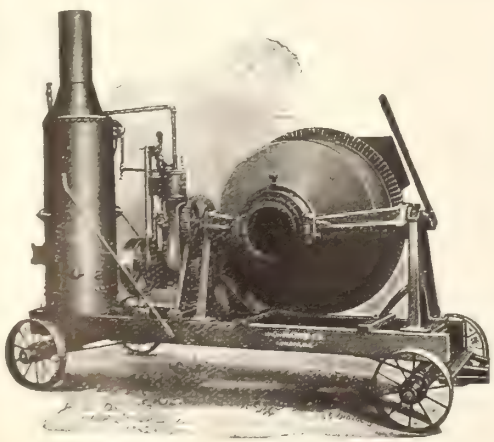

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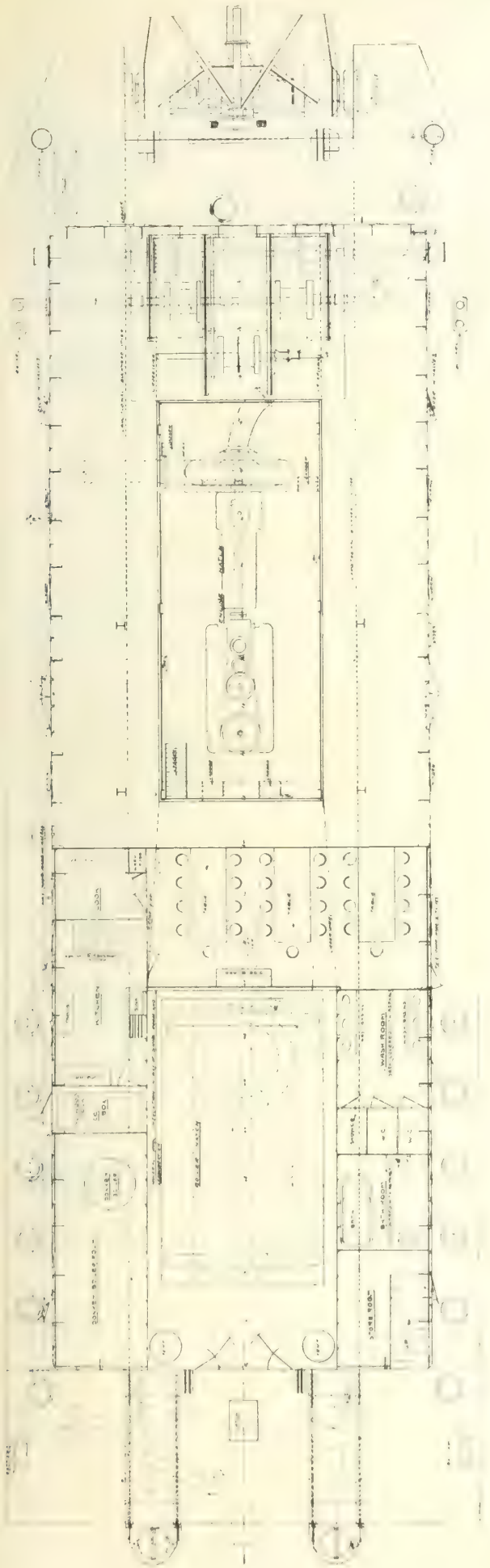

THE DREDGE SHUNIAH.

The Great Lakes Dredging Co.'s suction dredge, which was launched at the Polson Ironworks, Toronto, May 14, and named Shuniah, is said to be the largest dredge built in Canada. Its dimensions are:—Length, 125 ft.; beam, moulded, 40 ft.; depth, moulded, 9 ft., and it has been designed to dredge to a depth of 35 ft. The total weight is 800 tons, and it has capacity for dealing with 1,000 tons of solid matter per hour. It is of steel construction throughout, with deckhouse 96 by 32 by 9 ft., providing accommodation for a crew of 25. On account of its large capacity, it has been built somewhat heavier than the average dredge, and it has been made as nearly as possible unsinkable and fireproof. The machinery includes dredging pump with 22 ins. inlet, and discharges and runners 78 ins. diar., pump shaft 8 ins. diar., made in two parts to facilitate removal, coupled by large clamps, and supported external to the pump. The pump is connected to a marine type, vertical triple expansion engine, with cylinders 15, 22 and 36 ins. diar., by 18 ins. stroke, capable of running at 200 revolutions a minute, and of developing 700 i.h.p., with steam supplied at 190 lbs. pressure. The boiler is of the safety water tube marine type, equipped with mechanical stoker and forced draught. The cutter head consists of a single steel casting, 70 ins. diar. by 56 in. long, with eight extra heavy spiral blades, adapted for hard digging. The cutter shaft is driven through three sets of gears by means by a 10 by 14 double reversing steam shovel type of engine in the hold. The gear driving consists of, for the first and third pairs, pinion and spur, and for the second pair, mitres, mounted on a single steel casting base to prevent spreading. The suction pipes consist of lap welded steel tube, 20 ins. diar., connected through cast steel swivel elbows. A five drum winch, driven by 8½ by 8 in. double cylinder reversible engine, is also provided. Two drums 16 ins. diar. will be used for raising the spuds and one similar drum will raise the digging ladder; two 24 in. drums will be used to operate the bow swinging lines. The drum shaft is of hammered steel 6 ins. diar., connected to the engine by two gear reductions. The spud and ladder hoist clutches will be operated by hand, and the swinging clutches by compressed air. The two spuds are of wood, heavily reinforced with steel bars and provided with a wing pointed steel casting point about 54 ins. long, and are attached to the hull by circular keepers to prevent rotation when the dredge swings. A steel gantry is also provided to raise the spuds to the level of the bottom of the hull. The auxiliary pumps include two 7½ by 5 by 6 duplex feed pumps, and one 10 by 6 by 12 simplex pump for general purposes, operated by compressed air, supplied by a Westinghouse 11 ins. air compressor, with the necessary tubes and flanges. A surface condensing outfit is also provided on account of the muddy water to be dealt with, to protect the boiler, etc. The dredge is equipped with a 15 k.w. turbo generating set for electric light and for the 14 in. searchlight. There is also being supplied with the dredge 3,500 ft. of piping and pontoons for transporting and discharging the dredged material at one operation without the use of scows. The general plan on this page shows the location of the machinery, and the method of conveying the discharge pipe, which is a departure from the means usually adopted.

Canadian Northern Steamships Limited.

The Canadian Northern Steamships' service between England and Canada was inaugurated, May 13, when the s.s. Royal Edward sailed from Avonmouth for Montreal. A number of guests were invited to join the vessel at Glasgow, for the trial trip down the coast, the Lord Mayor and a number of the civic officials of Bristol being included, when congratulatory speeches were made by the Lord Mayor, Hon. Robt. Rogers, Minister of Public Works for Manitoba, and others, and responded to by President W. Mackenzie. The vessel sailed from Avonmouth, May 13, at 8.10 p.m., and passed Cape Race, May 17, at 6 a.m., ship's time; Father Point, May 18, at 5.8 p.m., and arrived at Quebec, May 19, at 1.30 a.m., leaving there at 8.30 a.m. and arriving at Montreal, May 19, at 6.18 p.m. The official time occupied in the voyage from Avonmouth to Father Point, is 5 days, 22 hrs., 41 mins., and the average speed from North Point to Father Point, pilot to pilot, was 18 3-4 knots an hour. The daily record of distances covered is as follows:—

May 13—Steaming time	15	hrs.	50	mins.	.....	278 knots.
14— "	25	"	23	"	.....	447 "
15— "	24	"	16	"	.....	466 "
16— "	24	"	17	"	.....	472 "
17— "	24	"	30	"	.....	440 "
18— "	24	"	32	"	.....	489 "
19— "	13	"	41	"	.....	245 "

It is claimed that this was a record voyage from Great Britain by the southern route via Cape Race. The vessel was met at Montreal by D. D. Mann, Vice President; D. B. Hanna, Second Vice President, and other officials.

A Montreal dispatch of May 18, announces the earliest opening of the Straits of Belle Isle for navigation on record by the s.s. Manchester Mariner, bound from Montreal to Manchester. In previous seasons no vessel has attempted the northern passage until the end of June, and sometimes the first week in July.

An Ottawa dispatch of May 20, says an order in Council has been passed amending the regulations passed under the petroleum and naphtha inspection act to allow tank ships to carry in bulk petroleum and naphtha used for other than illuminating purposes. Heretofore tank vessels have been allowed to carry these liquids in bulk only when used for illuminating purposes, now they will be able to carry naphtha used for supplying motive power.

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Notices to Mariners.

The Department of Marine has issued the following:—

31. Apr. 8.—75. Ontario, Georgian Bay, buoys in Collingwood harbor and approaches to be numbered. 76. Georgian Bay, Parry Sound ship channel buoys to be numbered.

32. Apr. 11.—77. British Columbia, tidal results on the Pacific coast.

33. Apr. 21.—78. Ontario, entrance to Georgian Bay, Tobermory, hand fog horn at light station. 79. Ontario, Georgian Bay east side, approach to Parry Sound, Seguin bank, change in character of gas buoy light. 80. Georgian Bay east side, approach to Parry Sound, Red rock, change in character of light. 81. Ontario, River St. Mary, Sault Ste. Marie Canadian canal, change in position of front light of upper entrance range, new lighthouse. 82. Manitoba, Lake Winnipeg, Gull Harbor, Black Bear island, Cox reef and George island, hand fog horns at light stations.

34. Apr. 22.—83. Nova Scotia, Halifax harbor, McNab island, Government rifle ranges. 84. Nova Scotia, south coast, Egg island gas and whistling buoy, change in color of light. 85. Nova Scotia, Cape Breton island, Gut of Canso, Bear island, hand fog horn at light station. 86. Nova Scotia, southern approach to the Gut of Canso, Cerberus rock, change in color of gas buoy light.

35. May 2.—87. Ontario, Lake Erie, Port Dover, position of back range lighthouse. 88. Ontario, Lake Superior, Thunder bay, off Hare island, uncharted danger. 89. Ontario, Lake Superior, Thunder bay, off Mutton island, wreck.

36. May 2.—90. Quebec, Gulf of St. Lawrence, Gaspe coast, Grand Pabos, light established on wharf. 91. Quebec, River St. Lawrence, Orleans island, Ste. Famille, change in position of back range lighthouse. 92. Quebec, River St. Lawrence, Orleans channel, Orleans island, St. Pierre, position of front range lighthouse. 93. Quebec, River St. Lawrence, ship channel between Quebec and Montreal below Cap Charles, buoy established on Grande Pointe shoal.

37. May 3.—94. British Columbia, Strait of Georgia, Burrard inlet, Point Atkinson, change in character of light. 95. British Columbia, Strait of Georgia, Cortes island, off Reef Point, gas buoy established.

38. May 4.—96. Nova Scotia, west coast, South West shoal, Tusket River, buoys established. 97. Nova Scotia, south coast, Ragged Island harbor, name changed to Lockeport. 98. Nova Scotia, Cape Breton island, St. Peter inlet, Freestone island, name changed to Gregory island.

39. May 7.—99. Quebec, River St. Lawrence, Cape Salmon, marine signal station established. 100. Quebec, River St. Lawrence, ship channel between Quebec and Montreal, Lake St. Peter, Pointe du Lac, temporary light at site of old pier. 101. Quebec, Lake Memphremagog, Magog, light established on wharf.

40. May 9.—102. Quebec, River St. Lawrence, White island, reef lightship, change in characteristic of fog alarm.

Toronto's Inadequate Port.

The Norwegian steamship Odland arrived in Toronto, May 8, with 1,500 tons of pig iron from England, and found on her arrival that there was no pier for her to tie up to, and no appliances available for unloading. Yet Toronto is a port having a very considerable trade; is under the control of a board representative of the Board of Trade, the City Council and the Dominion Government, and on the harbor of which large sums have been and are being spent under Parliamentary authority. There is an extensive waterfront, there are numerous wharves, all of which owned by or leased to steamship companies, so that when a cargo like this reaches the city in a non-line vessel, it has no place to go, and even if a place could be found to tie up to, there are no appliances for unloading. While this is an exceptional case, and it may not occur again for a long time, it brings into relief the fact that the conditions under which Toronto harbor—in common with harbors in other parts of the Dominion—are administered, are out of date, and are not calculated to attract trade. The present facilities for caring for the passenger steamboat traffic to and from Toronto are not adequate, but while these should be increased it is doubtful whether any large expenditure in the way of providing for a casual bulk freight trade would be justified. At any rate it is hardly likely that much improvement can be expected from the present system of administration, therefore the only hope there is that the marine interests of Toronto will be adequately cared for and developed is by the abolition of the present harbor authority, and the substitution therefor of a new body with specific powers, and authority to raise money by way of debentures to provide such additional facilities as are imperatively necessary, and to do what is possible in the way of attracting to the port such trade as may be legitimately handled there.

Atlantic and Pacific Ocean Marine.

The Allan Line s.s. Mongolian has been completely overhauled, and equipped with a wireless telegraph installation.

The s.s. Rakaia, the first vessel of the Montreal-Australia service, in which the C.P.R. is interested, arrived at Montreal, May 11.

The Department of Marine is moving the buoys marking the Crane Island channel to give a greater width of passage. It is stated that there is now a depth of 30 ft., at low water from Quebec to the Gulf.

The Union Steamship Co. of New Zealand is reported to have decided to build a sister vessel to the recently constructed s.s. Makura for the services between Vancouver, B.C., and Australasian ports.

Capt. A. H. Vipond of the Allan Line s.s. Virginian, has resigned after nearly 50 years of ocean navigation. He has been with the Allan Line for about 34 years, having previously been with the Castle Line.

A preliminary enquiry, held by Capt. Riley, into the causes of the grounding of the Allan Line s.s. Grampian, early in May, near Cap a la Roche, showed that the vessel drifted from her course during bad weather, during which it was impossible to see any distance, and that the accident was unavoidable.

The Allan Line is asking tenders for the construction of two turbine driven steamships, 700 ft. long, to have an average speed of 22 knots an hour, with accommodation for 2,300 passengers. It is said that the building of these vessels is conditional on the granting of certain Government subsidies.

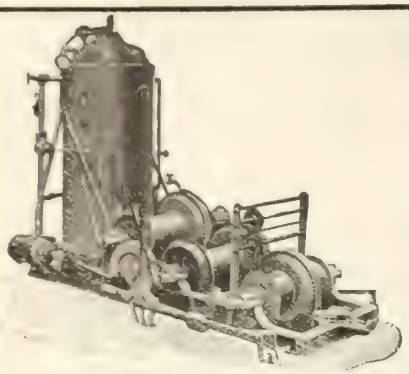
LIST OF STEAM VESSELS REGISTERED IN CANADA DURING APRIL, 1910.

Name	No.	Where and When Built.	Engines, etc.	Length	Breadth	Depth	Gross Tons	Reg. Tons	Port of Registry	Owners
Caspapedia ..	104,632	Dundee, Scotland, 1895.....	Screw 260 n. h. p..	245.2	35.2	15.0	1849	1185	Quebec, Que.....	Quebec Steamship Co., Quebec, Que.
Cingalee.. ..	126,419	Toronto, 1905	" 10 " ..	65.5	13.0	5.0	59	18	Toronto.....	Minister of Public Works, Ottawa.
City of Hamilton	126,526	Buffalo, N. Y., 1871	" 80 " ..	220.0	32.5	14.0	1574	869	Ottawa.....	Montreal and Lake Erie Steamship Co., Ltd., Montreal
Ilderim	126,466	Kingston, Ont., 1910	" 8 " ..	57.0	9.6	4.5	18	12	Kingston, Ont.. ..	J. H. Davis, Kingston, Ont.
Nootka	126,745	N. Vancouver, B. C., 1910 .	" 1 "	40.0	10.3	5.0	19	13	Vancouver, B. C.	F. Keeling, Vancouver, B. C.
Onawana.....	126,712	The Range, N. B., 1909 ..	" 13 "	52.7	13.0	5.2	30	20	St. John, N. B..	A. V. Rowan, M. O., Fredericton, N. B.
Skill	126,746	Vancouver, B. C., 1910	" 2 "	42.0	11.0	3.9	14	10	Vancouver, B. C.. .	Nanaimo Fish and Bait Co., Nanaimo, B. C.
W. Earlton...	126,747	Van Anda, B. C., 1908	" 1 "	35.5	9.4	4.3	14	10	" "	W. J. Gillis, Van Anda, B. C.
Wanakewan .	126,465	Kingston, Ont., 1910.....	" 8 "	70.2	15.4	5.2	68	44	Kingston, Ont.....	J. H. Davis, Kingston, Ont.
Ysidro	126,748	Vancouver, B. C., 1910	" 2 "	39.0	8.9	5.0	12	8	Vancouver, B.C.	W. S. Buttar, Vancouver, B. C

Formerly Japan.

LIST OF SAILING VESSELS AND BARGES REGISTERED IN CANADA DURING APRIL, 1910.

Name	No.	Where and When Built	Rig	Length	Breadth	Depth	Reg. Tons	Port of Registry	Owners
Beacon Bar	126,711	U. S., ——	Dredge	77.6	30 3	6.0	197	St. John, N. B.. .	J. E. Moore and G. McAvity, St. John, N. B.
Camille D.....	126,390	Levis, Que., 1904.....	Scow	84 5	33.8	6.0	197	Quebec, Que.....	Compagnie Etienne Dussault, Levis, Que.
Charles A. H....	122,188	West Arichat, N. S., 1909.....	Schr.	35.0	10.5	5.0	10	Arichat, N. S..... ..	C. V. Herbin, Arichat, N. S.
Francis Lemoine.	126,952	St. Pierre, Miq., 1901.....	Dredge	78.0	30.0	6.0	232	Montreal	F. Lemoine, Montreal.
Himble No. 1	126,514	Victoria, B. C., 1909.....	Scow	90.90	30.4	7.0	154	Victoria, B. C.... ..	Victoria Contracting Co., Victoria, B. C.
Horace D	126,389	Levis, Que., 1908.....	"	84.5	33 8	6.0	195	Quebec, Que.....	Compagnie Etienne Dussault, Levis, Que.
Jost.....	126,592	Port Greville, N. S., 1910	Schr.	184.1	32.2	11.2	299	Parrsboro, N. S.....	H W. Elderkin, M. O., Port Greville, N. S.
Leonard C.....	126,713	East Machias, Me., 1872.....	"	103.7	26.5	8.6	144	St. John, N. B.....	J. J. Christopher, Hopewell Cape, N. B.
Nonobiki	126,744	Steveston, B. C., 1910.....	"	51.0	13.0	4.9	25	Vancouver, B. C.....	M. Minakata, Vancouver, B. C.
Novelty.	126,811	Port Greville, N. S., 1910.....	"	117 7	30.6	11.1	246	Lunenburg, N. S.	D Ritcey, M. O., Riverport, N. S.
Poltalloch.....	102,822	Belfast, Ireland, 1893.....	Bk—B	284.4	42.0	24.4	2139	Victoria, B. C....	Ship Poltalloch Co., Victoria, B. C.
Stephen D. ...	126,841	Levis, Que., 1904.....	Dredge	71 4	29.0	6.1	211	Quebec, Que.....	Compagnie Etienne Dussault, Levis, Que.
T. F. M. No. 2 ...	126,753	Ogdensburg, N. Y., 1892.....	"	71.0	22.0	4.5	151	Montreal.....	T. F. Moore Co., Montreal.
T. F. M. No. 4 ...	126,754	" " 1895.....	"	76.4	23.7	3.6	143	"	" " "
Uda A. Saunders	126,590	Lunenburg, N. S., 1910.....	Schr.	108.4	25.8	10.8	95	Lunenburg, N. S..	S. Corkum, M. O., Lunenburg, N. S.
W. Rutherford . .	126,327	Hull, Que., 1910.....	Barge	108.0	22.8	7 2	147	Ottawa.	Ottawa Transportation Co., Ottawa.
X.....	126,741	Victoria, B. C., 1909	Scow	74.1	28.8	7.6	159	Vancouver, B. C.	Union Steamship Co. of B. C., Ltd., Vancouver.
XI.	126,742	Vancouver, B. C., 1909.....	"	76 7	28.6	7 7	159	" "	" " " " "
XII.....	126,743	North Vancouver, B. C , 1909	"	77 3	28.7	7 7	161	" "	" " " " "



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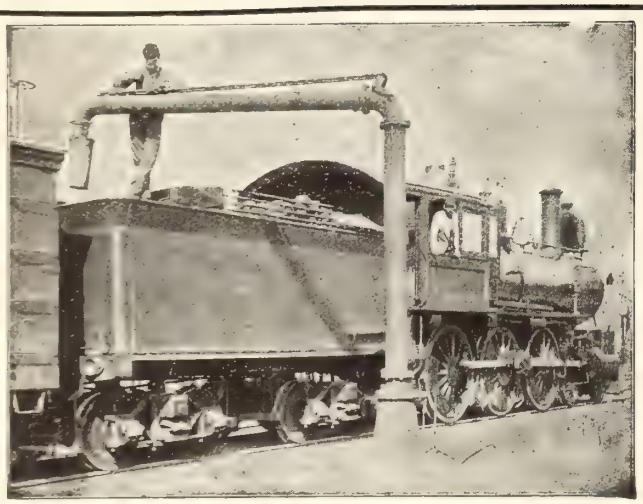

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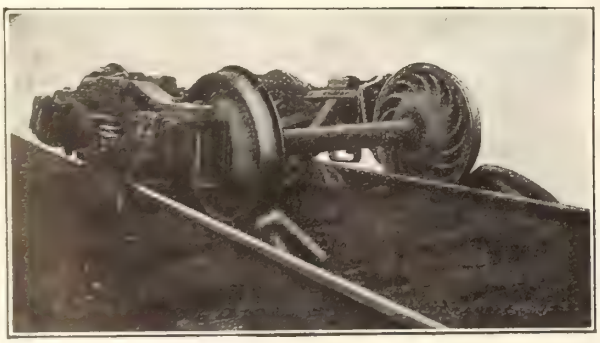

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Capt. Rollo, of the Thomson Line s.s. Iona, was presented with a walking cane by the Montreal Harbor Commissioners recently, his vessel being the first trans-Atlantic vessel to enter Montreal harbor this season. G. W. Stephens, Chairman, is reported to have stated that the old custom of making a presentation to the captain of the first ocean vessel arriving in each season, would be revived.

The Shipping Federation of Canada received a wireless message from Belle Isle, May 22, that three large passenger vessels had passed through the Straits of Belle Isle. These were the s.s. Cassandra of the Donaldson Line, the C.P.R. Empress of Ireland, and the Allan s.s. Tunisian. Although the Straits have been used by cargo vessels, the Manchester Mariner having passed outward May 17, this is the earliest date on record that the Straits have been used by passenger liners. Usually the latter take the southern route, via Cape Race, until July. The Empress of Ireland reported having passed 11 icebergs from the Straits to a point nine miles east.

Maritime Provinces and Newfoundland.

The Nova Scotia Legislature has voted various sums totalling $73,000 in aid of steamboat, packet and ferry services in the province.

The name of the schooner Cymbeline, no. 88,438, registered at Arichat, N.S., has been changed by order in council to Florrie V.

The Levis Ferries Ltd.'s ferry steamboat Levis was launched at Levis recently and christened by Miss M. Demers, daughter of the president.

The name of the schooner W. E. Young, no. 83,174, registered at Lunenburg, N.S., has been changed by order in council to Clara Hamilton.

The name of the steamboat Frederick A., no. 103,773, registered at St. John, N.B., has been changed by order in council to Kenton.

The name of the schooner Ada Louise, no. 90,737, registered at Charlottetown, P.E.I., has been changed by order in council to Flora T.

The Government steamship Stanley will sail from Halifax, N.S., during June, for Hudson Bay, with a surveying party. She will probably return in Aug.

An order in council has been passed defining the limits of the Minas Pilotage District as all the navigable waters south of a line drawn from Cape Blomidon to the south extremity of the largest of Five Islands, and fixing the pilotage rates.

The Government steamboat Gulnare left Pictou, N.S., May 9, with a number of Marine Department officials on an inspection trip to the Magdalen Islands, Chaleur Bay, Gaspe Basin and Labrador, in order to report as to the advisability of erecting lighthouses and other public works at various points there.

The schooner Sweet Marie, was driven ashore at Kouchibouac, N.B., May 5, during a storm, while bound from Campbellton, N.B., to Charlottetown, P.E.I., and became a total loss. She was built at Charlottetown in 1907, her dimensions being, length 75.8 ft., breadth 21.3 ft., depth 7 ft., tonnage 77 register, and was owned by M. P. Hogan, Charlottetown.

Notice has been issued that four spar buoys have been placed at intervals between Thrum Cap shoal and the eastern passage at Halifax, N.S., each painted red, with cross heads painted red and white, to mark the limits of the danger zone in the neighborhood of the rifle ranges there. A red flag will be hoisted at the south end of McNab's Island when shooting is in progress.

The ss. Belle of Scotland sailed from Sydney, N.S., May 2, with about 6,000 tons of rails, for the G.T.P.R. at Prince Rupert, B.C. The voyage by way of the Horn is expected to take about 70 days. This vessel is one of several which have recently, at stated intervals, left Sydney for Prince Rupert, under charter to the Dominion Steel Co., with rails. So far each has completed the voyage without accident or loss of any kind.

SAULT STE. MARIE CANALS TRAFFIC.

The following commerce passed through the Sault Ste. Marie Canals in April :

ARTICLES.			CANADIAN CANAL	U. S. CANAL	TOTAL
Copper	Eastbound	Net tons	5,447		5,447
Grain	"	Bushels	1,549,528		1,549,528
Building stone	"	Net tons			
Flour	"	Barrels	386,583		386,583
Iron ore	"	Net tons	937,049		937,049
Pig iron	"	"	1,850		1,850
Lumber	"	M. ft. B.M.	6,025		6,025
Silver ore	"	Net tons			
Wheat	"	Bushels	7,926,518		7,926,518
General merchandise	"	Net tons	4,270		4,270
Passengers	"	Number	218		218
Coal, hard	Westbound	Net tons	179,596		179,596
Coal, soft	"	"	360,327		360,327
Flour	"	Barrels	400		400
Grain	"	Bushels			
Manufactured iron	"	Net tons	24,833		24,833
Iron ore	"	"			
Salt	"	Barrels	46,676		46,676
General merchandise	"	Net tons	62,070		62,070
Passengers	"	Number	396		396
Vessel passages		Number	768		768
Registered tonnage		Net	1,812,404		1,812,404
Freight Eastbound		Net tons	1,325,379		1,325,379
" Westbound		"	633,534		633,534
Total freight		"	2,958,913		1,958,913

The Canadian canal opened Apr. 12.

Province of Quebec Marine.

The Montreal Harbor Commissioners have ordered a dipper dredge hull from the Polson Iron Works, To-

If you CANNOT CUT those HARD CASTINGS don't give up in despair, first try
NOVO SUPERIOR HIGH SPEED STEEL
Has already saved many castings from the scrap heap.
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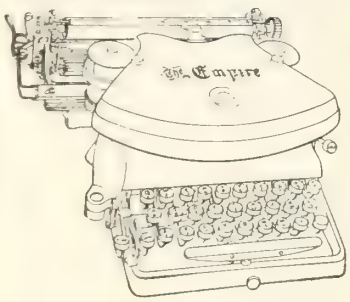

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ronto, length 104 ft., breadth 36 ft., depth 9¾ ft. The machinery and equipment will be installed at Montreal.

The Richelieu and Ontario Navigation Co. has declared its usual quarterly dividend of 1¼%, payable June 1 to shareholders of record at May 20.

The Department of Public Works is having built at the Polson Iron Works, Toronto, a twin screw steamboat for service on Lake Deschenes, Que. Her dimensions will be, length 45 ft., breadth 11½ ft., draught 3½ ft. The hull will be of steel and oak planking, and she will be equipped with a 6x7 high pressure engine and Fitzgibbon boiler.

The Snowdon Shipping Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $10,000, and office at Montreal, to own and operate steam and other vessels, and to carry on the general business of ship-owner and common carrier on the high seas and within inland navigation. The provisional directors are: G. I. Dewar, Ottawa; W. A. Taft, Arlington, Mass.; W. H. Chandler, Newton, Mass.; J. B. Fallon, Boston, Mass.; W. McKissock, Boston, Mass.

The Governor General in Council has sanctioned the repeal of sec. 20 of the Quebec Harbor Commissioners' by-laws, and the substitution of by-law 107, as follows:—"All steamships and all sailing vessels in tow in passing up or down through the harbor on the north (Quebec) side of the river while between the Mariner's Chapel and the entrance to the Louise docks shall keep out at least one-half cable's length from the front of the wharves. No ocean steamship in passing down through the harbor of Quebec shall exceed half speed between Cap Rouge point and the eastern boundary of Indian Cove and in passing up between the eastern boundary of Indian Cove and the site of the Quebec bridge."

Ontario and the Great Lakes.

The Department of Railways and Canals has let the contract for the construction of section 6 of the Trent Valley canal to Haney, Quinlan and Robertson, Montreal and Toronto.

The Department of Marine has placed four spar buoys and a gas buoy on Grubb's Reef in Lake Erie. This is considered a dangerous point, the steamboat George Stone, with six of her crew, being lost there last October.

The Government drydock at Kingston was handed over to the Kingston Shipbuilding Co., Ltd., May 2. The company has a lease of the property for 21 years at a rental of $10,000 a year. It is intended to extend the property considerably and improve the existing buildings and plant.

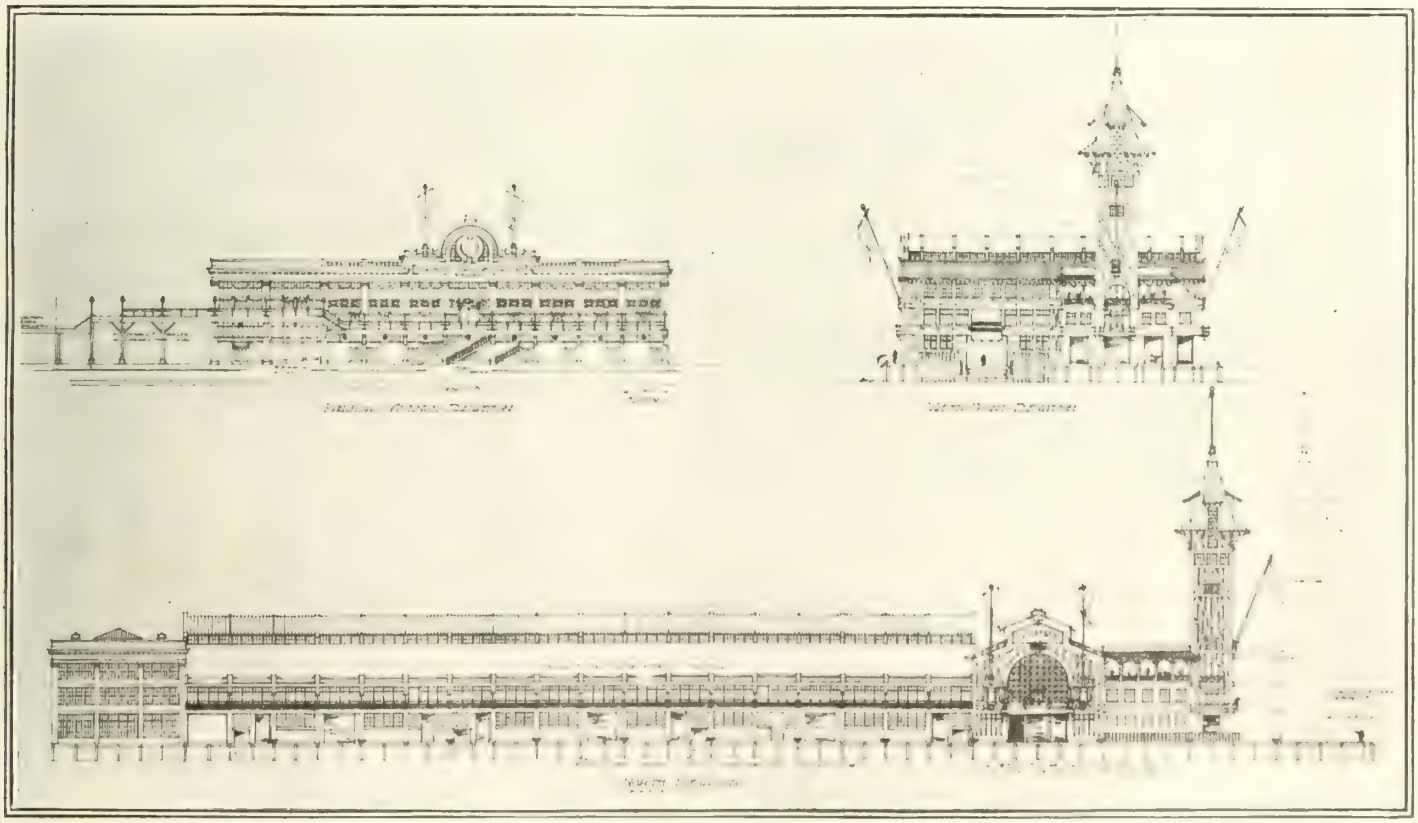
The Montreal and Lake Erie Steamship Co.'s steamboat City of Montreal arrived in Chicago, May 13, being the first time for eight years that an all water service has been operated between Montreal and Chicago. It is stated that the company will operate its vessels on this route throughout the season in both passenger and freight trades.

The Keenan Towing Co., Ltd., has been incorporated under the Ontario Companies act, with a capital of $40,000 and offices at Owen Sound, to carry on a general transportation and towing business and for such purposes to own and operate steam and other vessels. The provisional directors are, J. E., J. C. and W. P. Keenan, Owen Sound.

The U.S. Lake Survey reports the levels of the Great Lakes in feet above tidewater for April, as follows:—Superior, 601.60; Michigan and Huron, 580.27; Erie, 572.04; Ontario, 245.97. As compared with the average April levels for the past ten years, Superior was 0.39 ft. below; Michigan and Huron, 0.26 ft. below; Erie, 0.28 ft. below, and Ontario, 0.40 ft. below.

The Toronto Ferry Co. is having a ferry steamboat built at the Polson Iron Works, Toronto, which is, in the main, a duplicate of its steamboat Bluebell. The dimensions are: length 150 ft., breadth 45 ft. overall, depth 8 ft. 4 ins. She will be equipped with inclined compound engines with cylinders 17 and 34 ins. diar. by 48 ins. stroke, supplied with steam from a Clyde boiler 10" 6' by 11 ft. She will have capacity for about 3,000 passengers.

The Cornwall and Montreal Transportation Co., a recently organized company, is reported to have purchased the Montreal and Cornwall Navigation Co.'s steamboat Filgate, which it will operate on a semi-weekly service between Montreal and Cornwall. She was built at Montreal in 1879, her dimensions being: Length, 158 ft.; breadth, 25.4 ft.; depth,



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The building illustrated above will be erected on what was formerly known as the Flyer Dock property, acquired by the company at the end of last year. A pier 600 ft. by 130 ft. will be built and as soon as the sub-structure is sufficiently under way, a large warehouse and office building, of which the above is the preliminary sketch, will be erected. It is intended that the street front of the building will be three stories high, with stores on the ground floor, and offices above. The warehouse will have the second story devoted to ticket offices and about 45 other apartments, which will be rented for business purposes. At the outer end of this will be a large waiting room, with roof garden overhead. The dock and buildings will cost about $200,000, and when completed, will be the most handsome and up to date water terminal on the Pacific coast, and will possess many features which are not surpassed by similar terminals on the eastern coast.

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7.8 ft.; tonnage, 425 gross, 237 register, and she is equipped with engine of 100 n.h.p., driving a paddle.

The steamboat which was recently purchased in Kingston by Capt. Argue, of Parry Sound, which it was reported was to be operated between Parry Sound and Little Current, as mentioned in our last issue, is being run between Point au Baril Station dock and the Point au Baril hotels and cottages, in connection with the C.P.R. The vessel has been named Wanakewan, has been specially built for this traffic, and has seating accommodation for 125 passengers.

The Algoma Central Steamship Line's steamboat Thomas J. Drummond, which was launched at Dumbarton, Scotland, May 3, has been specially designed and constructed for the rail trade. Her dimensions are, length overall, 257 ft., between perpendiculars, 247 ft. 9 ins., beam 43 ft. 8 ins., depth 26 ft. The machinery consists of triple expansion engines, with cylinders 20½, 33 and 54 ins. diar. by 36 ins. stroke, supplied with steam at 190 lbs., by two Scotch boilers 10 ft. 6 ins. by 14 ft. diar.

Inland Lines, Ltd., has been incorporated under the Dominion Companies Act, with a capital of $3,500,000, and office at Hamilton, Ont., to carry on a general navigation business, and in connection therewith to own and operate steam and other vessels, dock and shipbuilding yards, wharves, piers, etc., and any other facilities conducive to the company's objects. The provisional directors are: W. Southam, J. P. Steedman, J. I. Hobson, F. A. Magee, Hamilton, and J. Playfair, Midland. The chief object of the company is the taking over of the Inland Navigation Co., the Midland Navigation Co., and the Empress Transportation Co., as outlined on pg. 237 of our March issue.

Manitoba, Saskatchewan and Alberta.

The Northern Fish Co.'s steamboat Chieftain opened the navigation season on Lake Winnipeg April 23, when she sailed from Selkirk with supplies for northern ports.

The opening of the St. Andrew's locks on the Red River, near Winnipeg, took place May 2, when the Government steamboat Victoria made the passage. The formal opening will, it is said, take place later in the season, when several members of the Dominion Government will attend.

A Winnipeg dispatch says the Hyland Navigation and Trading Co. operating steamboats on the Red River, mostly in the excursion business, has bought five acres at the foot of Lusted St., in the north end of Winnipeg, as a dock site. It is preparing to build scows and tugs for the freight business from Lake Winnipeg, made possible by the opening of St. Andrew's locks.

B.C. and Pacific Coast Marine.

The Comet Transportation Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $15,000, to own and operate steam and other vessels, and to carry on a general transportation and trading business.

The stern wheel steamboat which the C.P.R. is having built at Polson Iron Works, Toronto, for service on the Arrow Lakes, will be 200 ft. long, 38 ft. wide and 7½ ft. deep. She will be equipped with tandem compound engines, with cylinders 16 and 35 ins. diar. by 96 ins. stroke, supplied with steam by a large locomotive boiler. The parts will be shipped to Nelson, on completion, where they will be fitted up.

The s.s. Bruno, which has been purchased by the G.T.P.R. for its Pacific Coast service, arrived at Vancouver towards the end of May. Her name has been changed to Prince Edward, and she has been thoroughly overhauled since being purchased. She was built at Hull, Eng., in 1892, her dimensions being: Length, 232 ft.; breadth, 30 ft.; depth, 14.1 ft.; tonnage, 841 register. She was built to Lloyds' highest classification, and has a speed of about 13½ knots, and capacity for 1,200 tons, and accommodation for 50 first class passengers, in addition to third class. The route on which she will run is between Prince Rupert and Portland Canal ports.

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Tate Accumulator Co. of Canada, Toronto.
Aerated Waters
E. L. Drewry ..... Winnipeg.
Air Brakes and Fittings
Allis-Chalmers-Bullock Ltd.....Montreal.
Canadian Westinghouse Co. Hamilton, Ont.
Ales
E. L. Drewry.. .....Winnipeg.
Alloys
American Vanadium Co.....Pittsburg, Pa.
Angle Bars
Hamilton Steel & Iron Co...Hamilton, Ont.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Anti Rail Creepers
The Holden Co., Ltd.....Montreal.
Automobiles
Preston Car & Coach Co., Preston, Ont.
Axes
James Smart Mfg. Co.....Brockville, Ont.
Axles
Canadian Car and Foundry Co....Montreal.
Hamilton Steel & Iron Co.. Ltd., Hamilton.
James Hutton & Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Jas. W. Pyke & Co.....Montreal.
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International Marine Signal Co....Ottawa.
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Canadian Car and Foundry Co....Montreal.
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The Hudson Bay Co.....
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Polson Iron Works, Ltd.... .....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
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Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.
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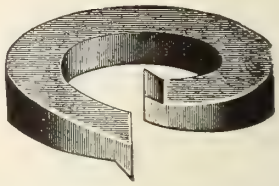

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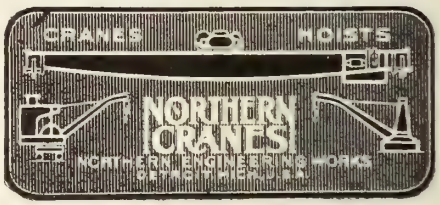

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Crowbars
B. J. Coghlin & Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.

Curtains and Fixtures, Car
The Holden Co., Ltd.....Montreal.
Preston Car & Coach Co...Preston, Ont.

Cuts
Acton Burrows, Limited.....Toronto.

Cylinders
American Vanadium Co.....Pittsburg, Pa.

Derailing Devices
General Railway Signal Co., Rochester, N.Y.

Derricks
American Hoist and Derrick Co..St. Paul.
M. Beatty & Sons.....Welland, Ont.
Mussens Limited.....Montreal.

Diaphragms for Vestibules
Guilford S. Wood .....Chicago, Ill.

Dies
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Ditchers
M. Beatty & Sons.....Welland, Ont.

Diving Outfits
John Date.....Montreal.
Mussens Limited.....Montreal.

Doors, Steel Rolling
Mussens Limited.....Montreal.

Door Signs
Acton Burrows Limited.....Toronto.

Draft Gear
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Standard Coupler Co.....New York City.
T. H. Symington & Co.....Baltimore, Md.
Waugh Draft Gear Co.....Chicago, Ill.

Draughtsmen's Supplies
John A. Hart & Co.....Winnipeg.

Dredges
M. Beatty & Sons.....Welland, Ont.
Polson Iron Works, Ltd. .....Toronto.

Drills, Air
Canadian Rand Co.....Montreal.

Drills, Flat Twisted
Cleveland Punch & Shear Wks., Cleveland

Dry Goods
The Hudson's Bay Co.....

Dump Cars (Contractors')
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montre l.
Peteler Car Co. .....Minneapolis, Minn.

Dynamos
Northern Electric & Mfg. Co.....Montreal.
Vandeleur & Nichols.....Toronto.

Dynamo and Electric Castings
American Brake Shoe & F'dry Co.Mahwah.

Economizers
Babcock & Wilcox (Ltd.).....Montreal.

Electric Apparatus
Allis-Chalmers-Bullock Ltd.....Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co.....Montreal.
Vandeleur and Nichols.....Toronto.

Electric Car Route Signs
Acton Burrows Limited.....Toronto.
Preston Car & Coach Co...Preston, Ont.

Electric Light Plant
Allis-Chalmers-Bullock Ltd.....Montreal.

Elevators, Grain
John S. Metcalf Co.....Chicago, Ill.

Enameled Iron Signs
Acton Burrows Limited.....Toronto.

Engines, Automatic
Robb Engineering Co., Ltd..Amherst, N.S.
Polson Iron Works, Ltd. .....Toronto.
Russel Wheel & Fdry. Co....Detroit, Mich.

Engines, Corliss
Allis-Chalmers-Bullock Ltd.....Montreal.
Robb Engineering Co., Ltd..Amherst, N.S.

Engines, Gas
Allis-Chalmers-Bullock Ltd.....Montreal.
Vandeleur & Nichols.....Toronto.

Engines, Gasolene
Canadian Fairbanks Co., Ltd.....Montreal.
Ontario Wind Engine & Pump Co.Toronto.
Vandeleur & Nichols.....Toronto.

Engines, Hoisting
Allis-Chalmers-Bullock Ltd.....Montreal.
American Hoist and Derrick Co..St. Paul.
M. Beatty & Sons.....Welland, Ont.
Dominion Equip't & Supply Co., Winnipeg.
I. Matheson & Co. .....New Glasgow, N.S.
Polson Iron Works, Ltd. .....Toronto.
Russel Wheel & Fdry. Co....Detroit, Mich.

Engines, Stationary and Marine
I. Matheson & Co. .....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto
Robb Engineering Co., Ltd..Amherst, N.S.

Engines, Steam
Allis-Chalmers-Bullock Ltd. ....Montreal.
Vandeleur & Nichols.....Toronto.

Explosives
Standard Explosives Limited ...Montreal.

Express Office Signs
Acton Burrows Limited.....Toronto.

Fencing
New Brunswick Wire Fence Co., Moncton.
Owen Sound Wire Fence Co., Owen Sound.

Ferro-vanadium
American Vanadium Co.....Pittsburg, Pa.

Fire Appliances
Miller Chemical Engine Co., Chicago, Ill.
Missouri Lamp & Mfg. Co., St. Louis, Mo.

Flags
The Hudson's Bay Co. .....

Flour
The Hudson's Bay Co. .....

Forgings
American Vanadium Co.....Pittsburg, Pa.
Canadian Car and Foundry Co....Montreal.
Cleveland City Forge & Iron Co., Cleveland.
Crossen Car Mfg. Co. .....Cobourg, Ont.
Hamilton Steel & Iron Co., Ltd., Hamilton.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Standard Steel Works Co., Philadelphia, Pa.

Foundry Appliances
Goldschmidt Thermit Co. .....Toronto.
Ont. Wind Eng. & Pump Co., Ltd., Toronto.

Frames, Steel for Cars
Canadian Ry. Equipment Co., Welland, Ont.

Frogs
Canadian Ramapo Iron Wks., Niagara Falls.
Peteler Car Co. .....Minneapolis, Minn.

Furnaces, Corrugated
Continental Iron Works.....Brooklyn, N.Y.

Fuse Batteries
Standard Explosives Limited....Montreal.

Fuse Detonators
Standard Explosives Limited....Montreal.

Fuses, Electric
Standard Explosives Limited....Montreal.

Gaskets
Franklin Mfg. Co. .....Franklin, Pa.
The Holden Co., Ltd.....Montreal
McCord & Co.....Chicago, Ill

Gates
New Brunswick Wire Fence Co., Moncton.
Owen Sound Wire Fence Co..Owen Sound.

Gates, Crossing
General Railway Signal Co. Rochester, N.Y
The N. L. Piper Ry. Supply Co..Toronto

Gauges, Locomotive
Taylor & Arnold.....Montreal.

Gears
American Vanadium Co.....Pittsburg, Pa.

Generators, Electric
Northern Electric & Mfg. Co.....Montreal.

Grates, Shaking
Babcock & Wilcox, Ltd.....Montreal
Polson Iron Works, Ltd. .....Toronto.
Vandeleur & Nichols.....Toronto.

Groceries
The Hudson's Bay Company.....

Guides and Outfitters
Otto Bros. ..... Field, B.C.

Hammers, Cast Steel
American Brake Shoe & F'dry Co.Mahwah.
James Smart Mfg. Co....Brockville, Ont.

Handcars
Canadian Fairbanks Co., Ltd.....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Rice Lewis & Son.....Toronto.

Hardware
The Hudson's Bay Co.....
Rice Lewis & Son.....Toronto.

Hats
W. H. Coddington .....Hamilton, Ont.

Headlights
Commercial Acetylene Co. ..... Toronto.
The N. L. Piper Ry. Supply Co..Toronto.
Pyle National Elec. Headlight Co..Chicago.

Headlinings
Crossen Car Mfg. Co.....Cobourg, Ont.

Heaters, Feedwater
Robb Engineering Co., Ltd..Amherst, N.S.

Heating, Car
Canadian Gold Car H'g & L'g Co.Montreal.
Safety Car Heating & L'ting Co.New York.

Hoists, Electric
American Hoist & Derrick Co....St. Paul.

Hoists (Pneumatic)
Taylor & Arnold.....Montreal.

Hollow Staybolt Iron and Steel Bars
Falls Hollow Staybolt Co.Cuyahoga Falls.

Hoppers, Car (Wet or Dry)
Duner Co.....Chicago, Ill.

Hose, Air Brake and Steam
Guilford S. Wood .....Chicago, Ill.

Hydrants
Canadian Fairbanks Co., Ltd.....Montreal.
Kerr Engine Co.....Walkerville, Ont.

Illustrations
Acton Burrows Limited.....Toronto.

Injectors
T. McAvity & Sons .....St. John, N.B.

Inspections
R. W. Hunt & Co. .....Montreal

Insurance, Accident
Can. Casualty & Boiler Ins. Co., Toronto.
Canadian Ry. Accident Ins. Co....Ottawa.
Imp. Guarantee & Acc. Ins. Co., Toronto.
London Guar. & Accident Co., Ltd., Toronto

Insurance, Boiler
Canadian Casualty & Boil. Ins. Co.Toronto.

Insurance, Vessel
Burnett, Ormsby & Clapp, Ltd., Toronto.

Interlocking Plant and Signals
General Railway Signal Co. Rochester, N.Y.
Montreal Steel Works.....Montreal.
Saxby and Farmer, Ltd.....Montreal.

Iron and Steel Bars
Hamilton Steel & Iron Co., Ltd., Hamilton.

Iron, Pig
Hamilton Steel & Iron Co., Ltd., Hamilton.
Nova Scotia S. & C. Co., New Glasgow, N.S.

Iron Signs
Acton Burrows Limited.....Toronto.

Iron Staybolt Bars
Falls Hollow Staybolt Co Cuyahoga Falls.

Jacks
Canadian Fairbanks Co., Ltd.....Montreal.
Dominion Equip't & Supply Co., Winnipeg.
H and E Lifting Jack Co..Waterville, Que.
F. H. Hopkins & Co, Ltd.....Montreal.
Montreal Steel Works, Ltd.....Montreal.
Mussens Limited.....Montreal.
A. O. Norton.....Coaticook, Que.
James Smart Mfg. Co.....Brockville, Ont.
A. R. Williams Mchy. Co., Ltd....Toronto.

Japans
The Dougal Varnish Co. Ltd....Montreal.

Journal Bearings
Canadian Bronze Co.....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Kerr Engine Co.....Walkerville, Ont.
Jas. W. Pyke & Co.....Montreal.

Journal Boxes
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.

Journal Jacks
A. R. Williams Mchy. Co., Ltd.. .Toronto.

Lager Beer, &c.
E. L. Drewry..... .....Winnipeg.

Lagging and Covering, Locomotive
Franklin Mfg. Co. .....Franklin, Pa.
Taylor & Arnold..... Montreal.

Lamps, Arc
Northern Electric & Mfg. Co.....Montreal.

Lamps, Incandescent
Canadian Westinghouse Co..Hamilton, Ont.

Lamps and Lanterns
The Hudson's Bay Company.....
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.

Lamps, Switch
The N. L. Piper Ry. Supply Co..Toronto.

Lathes
John Bertram & Sons Co.....Dundas, Ont.

Laths
J. Harrison & Sons Co..Owen Sound, Ont.

Lighting, Car
Canadian Gold Car H'g & L'g Co.Montreal
Safety Car H't'g & L't'g Co..New York.

Lights, Contractors' and Wrecking
F. H. Hopkins & Co.....Montreal.
International Marine Signal Co. ..Ottawa.
Mussens Limited.....Montreal.

Locomotives (Compressed Air)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co...Kingston, Ont.
Montreal Locomotive W'ks (Ltd.).Montreal.

Locomotives (Electric)
Baldwin Locomotive Works..Philadelphia.
Montreal Locomotive Wks (Ltd.).Montreal.

Locomotives (Logging)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co....Kingston, Ont.

Locomotives (Rack)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co....Kingston, Ont.
Montreal Locomotive Works.....Montreal.

Locomotives (Steam)
American Car & Equip. Co....Chicago, Ill.
Baldwin Locomotive Works..Philadelphia.
R. M. Burns & Co.....Chicago, Ill.
Canadian Fairbanks Co., Ltd.....Montreal.
Canadian Locomotive Co....Kingston, Ont.
Dominion Equip't & Supply Co., Winnipeg.
J. T. Gardner.....Chicago, Ill.
Hicks Locomotive & Car Works..Chicago.
The Males Co. .....Cincinnati, O.
Montreal Locomotive W'ks. .....Montreal.
Vulcan Iron Works.....Wilkesbarre, Pa.

Lorries, Tracklaying
Crossen Car Mfg. Co.....Cobourg, Ont.
F. H. Hopkins & Co.....Montreal.

Lubricators
McCord & Co.....Chicago, Ill.
Taylor & Arnold.....'..Montreal.

Lumber
Parry Sound Lumber Co.....Toronto.
J. Harrison & Sons Co., Owen Sound, Ont.

Machines and Plant, Contractors'
American Hoist & Derrick Co....St. Paul.
M. Beatty & Sons..... Welland, Ont.
R. M. Burns & Co.....Chicago, Ill.
Canadian Fairbanks Co., Ltd.....Montreal.
J. T. Gardner.....Chicago, Ill.
General Railway Signal Co., Rochester, N.Y.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Toronto Pressed Steel Co.....Toronto.

Machines and Tools, Prospecting
The American Well Works ....Aurora, Ill.

Machines and Tools, Well Drilling
The American Well Works ....Aurora, Ill.

Machines, Boring and Turning
John Bertram & Sons Co.....Dundas, Ont.

Machines, Car Shop
John Bertram & Sons Co., Ltd., Dundas
Cincinnati Punch & Shear Co., Cincinnati, O.
Greenlee Bros. & Co. .....Chicago, Ill.

Machines, Cement
Jas. W. Pyke & Co.....Montreal.

Machines, Drilling
John Bertram & Sons Co.....Dundas, Ont.

Machines, Hoisting
American Hoist & Derrick Co....St. Paul.
Brown Hoisting Machinery Co..Cleveland.

Machines, Logging
Russel Wheel & Fdry. Co....Detroit, Mich.

Machines, Milling
John Bertram & Sons Co.....Dundas, Ont.

Machines, Planing and Shaping
John Bertram & Sons Co.....Dundas, Ont.
Cleveland Punch & Shear Wks., Cleveland

Machines, Radial Drilling
John Bertram & Sons Co.....Dundas, Ont.

Machines, Shaping
John Bertram & Sons Co.....Dundas, Ont.

Machines, Slotting
John Bertram & Sons Co.....Dundas, Ont.

Machines, Straightening
Cleveland Punch & Shear Wks., Cleveland

Machines, Track
Greenlee Bros. & Co. .....Chicago, Ill.

Machines, Tracklaying
F. H. Hopkins & Co.....Montreal.

Machines, Wood and Iron Working
Canadian Fairbanks Co., Ltd.....Montreal.

Machine Tools
John Bertram & Sons Co.....Dundas, Ont.
Cincinnati Punch & Shear Co., Cincinnati, O.
Pratt & Whitney Co. .....Dundas, Ont.

Manhole Frames and Covers
American Brake Shoe & F'dry Co.Mahwah.
Canada Iron Corporation, Ltd....Montreal.

Marine Repairs
Goldschmidt Thermit Co.....Toronto.

Marine Supplies
Rice Lewis & Son.....Toronto.

Metal, Anti-friction
W. Abbott.....Montreal.

Metal, Babbit
Tallman Brass & Metal Mfg. Co. Hamilton.

Metals
Goldschmidt Thermit Co.....Toronto.

Metal Work, Structural
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Montreal Locomotive W'ks (Ltd.).Montreal.
Jas. W. Pyke & Co.....Montreal.

Milepost Numbers
Acton Burrows Limited.....Toronto.

Motors
Canadian Fairbanks Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.

Motors, Electric
Allis-Chalmers-Bullock Ltd.....Montreal.
Canadian Crocker Wheeler Co., Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co.....Montreal.
Vandeleur and Nichols.....Toronto.

Motor Generator Sets
Allis-Chalmers-Bullock Ltd.....Montreal.
Chapman & Walker, Ltd.....Toronto.
Vandeleur and Nichols.....Toronto.

Motors, Turntable
Taylor & Arnold.....Montreal.

Nickel
The Orford Copper Co.....New York.

Nickel for Nickel Steel
The Orford Copper Co.....New York.

Numbers
Acton Burrows Limited.....Toronto

Nut Locks
Positive Lock Washer Co....Newark, N.J.

Nuts, Clevis
Cleveland City Forge & Iron Co., Cleveland.

Nuts, Square and Hexagon
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto

Oakum
The Hudson's Bay Company.....

Office Fittings
Can. Office & Sch'l Furniture Co..Preston.

Office Signs
Acton Burrows Limited.....Toronto.

Oils
Galena Signal Oil Co..Franklin & Toronto

Packing
The N. L. Piper Ry. Supply Co..Toronto.

Paints
Standard Paint & Var. Co., Windsor, Ont.

Patterns
Hamilton Pattern Works....Hamilton, Ont.

Pile Drivers, Railway
F. H. Hopkins & Co.....Montreal.
Mussens Limited. .....Montreal.

Pinch Bars
The N. L. Piper Ry. Supply Co..Toronto.

Pipe, Culvert (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Pipe, Gas (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Pipe, Sewer (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Pipe Stocks
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Pipe, Water (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Planers
John Bertram & Sons Co.....Dundas, Ont.

Platforms, Steel
Standard Coupler Co.....New York City.

Ploughs, Contractors'
Mussens Limited.....Montreal.

Poles
J. Harrison & Sons Co., Owen Sound, Ont.

Porter
E. L. Drewry... .....Winnipeg

Posts
J. Harrison & Sons Co., Owen Sound, Ont

Powder, Blasting
Standard Explosives Limited.....Montreal

Preservative for Hose
Guilford S. Wood .....Chicago, Ill.

Printing
Southam Press.. .....Toronto

Pumps
Canadian Fairbanks Co., Ltd.....Montreal
S. F. Bowser & Co., Limited.....Toronto
Ontario Wind Engine & Pump Co..Toronto.
James Smart Mfg. Co.....Brockville, Ont.
Vandeleur and Nichols.....Toronto.

Pumps, Centrifugal
The American Well Works ....Aurora, Ill.
M. Beatty & Sons .....Welland, Ont

Pumps, Deep Well, Steam and Power
The American Well Works ....Aurora, Ill.

Pumps, Fire Pressure
The American Well Works ....Aurora, Ill.

Pumps, Irrigating
The American Well Works ....Aurora, Ill.

Pumps, Reclamation
The American Well Works ....Aurora, Ill.

Pumps, Sprinkler Systems
The American Well Works ....Aurora, Ill.

Pumps, Underwriters' Fire
The American Well Works ....Aurora, Ill.

Punches and Shears
Cincinnati Punch & Shear Co., Cincinnati, O.
Cleveland Punch & Shear Wks., Cleveland

Rail Benders, Roller
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works.....Montreal.

Rail Drilling Machines
A. B. Jardine & Co.....Hespeler, Ont.

Rails (new)
Dominion Iron & Steel Co....Sydney, N.S
Drummond, McCall & Co. .....Montreal.
J. T. Gardner.....Chicago, Ill.
J. J. Gartshore.....Toronto.
F. H. Hopkins & Co...'.....Montreal.
Peteler Car Co. .....Minneapolis, Minn.

Rails (for relaying)
F. H. Hopkins & Co...'.....Montreal.
J. J. Gartshore.....Toronto.
Mussens Limited.....Montreal.
Jas. W. Pyke & Co.....Montreal.

Rail Joints
Goldschmidt Thermit Co.....Toronto.
The Rail Joint Co. of Canada....Montreal.

The G. & S. W. Rwy., Albert Harbor Goods Station, Greenock, N.B.
"B. & W." 30 Tons Electric Travelling Goliath Crane, 70 Feet Span

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The Purchasing Agents' Guide—Continued.

Railway Supplies
Canadian Fairbanks Co., Ltd.....Montreal.
Franklin Mfg. Co. .....Franklin, Pa.
T. McAvity & Sons .....St. John, N.B.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Rice Lewis & Son.....Toronto.
Russel Wheel & Fdry. Co....Detroit, Mich.

Reamers
Butterfield & Co.....Rock Island, Que.
Cleveland Punch & Shear Wks., Cleveland
A. B. Jardine & Co.....Hespeler, Ont.

Replacers, Car and Locomotive
Alexander Car Replacer Mfg. Co..Scranton.
Dominion Equip't & Supply Co., Winnipeg.
The Holden Co., Ltd .....Montreal.
F. H. Hopkins & Co.....Montreal.
W. K. Kenly Co. .....Chicago, Ill.

Rivets, Boiler, Bridge and Structural
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.

Rivet Snaps
Cleveland Punch & Shear Wks., Cleveland

Rock Crushers
Allis-Chalmers-Bullock Ltd.....Montreal.

Rope
F. H. Hopkins & Co.....Montreal.
The Hudson's Bay Company.....

Ropes, Coal Haulage
The B. Greening Wire Co..Hamilton, Ont.

Ropes, Derrick
Dominion Wire Rope Co.....Montreal.
The B. Greening Wire Co..Hamilton, Ont.

Ropes, Switch
The B. Greening Wire Co..Hamilton, Ont.
F. H. Hopkins & Co.....Montreal.

Rubber Goods, Mechanical
Guilford S. Wood .....Chicago, Ill.

Scales
Canadian Fairbanks Co., Ltd.....Montreal.

Scows, Dump and Deck
M. Beatty & Sons.....Welland, Ont.

Scrapers, Wheel and Drag
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.

Screw Plates
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Screws, Coach and Lag
Montreal Rolling Mills Co.....Montreal
Toronto Bolt and Forging Co.....Toronto.

Seats, Station
James Smart Mfg. Co....Brockville, Ont.

Semaphore Arms
Acton Burrows Limited.....Toronto.

Semaphores
General Railway Signal Co., Rochester, N.Y.
The N. L. Piper Ry. Supply Co..Toronto.
Saxby & Farmer, Ltd. .....Montreal.

Shears, Angle, Bar and Plate.
Cincinnati Punch & Shear Co., Cincinnati, O.
Cleveland Punch & Shear Wks., Cleveland

Shafting, Hollow
Falls Hollow Staybolt Co..Cuyahoga Falls.

Shingles
J. Harrison & Sons Co..Owen Sound, Ont.

Ships
Polson Iron Works.....Toronto.

Shops
The Hudson's Bay Co.....

Signal House Numbers
Acton Burrows Limited.....Toronto.

Signals
General Railway Signal Co. Rochester, N.Y.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Saxby and Farmer, Limited.....Montreal.

Signals, Fog
International Marine Signal Co....Ottawa.

Signs
Acton Burrows Limited.....Toronto.

Sills, Steel, for Cars
Canadian Ry. Equipment Co., Welland, Ont.

Skidders and Loaders
Russel Wheel & Fdry. Co....Detroit, Mich.

Slack Adjusters
Chicago Railway Equipment Co..Chicago.

Sledges
James Smart Mfg. Co.....Brockville, Ont.

Smoke Jacks
Paul Dickinson, Inc. ..... Chicago, Ill.

Snow Ploughs
Canadian Car & Foundry Co.....Montreal
Crossen Car Mfg. Co.....Cobourg, Ont.

Solder
Tallman Brass & Metal Mfg. Co. Hamilton.

Spikes, Railway, Ship or Pressed
Hamilton Steel & Iron Co., Ltd., Hamilton.
F. H. Hopkins & Co.....Montreal.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Toronto Bolt and Forging Co.....Toronto.

Spreader Cars
F. H. Hopkins & Co.....Montreal.

Spring Dampeners
McCord & Co.....Chicago, Ill.

Springs
American Vanadium Co.....Pittsburg, Pa.
B. J. Coghlin & Co.....Montreal.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works.....Montreal.
Standard Steel Works Co..Philadelphia, Pa.

Stand Pipes
T. McAvity & Sons .....St. John, N.B.

Sprinklers, Electric
Preston Car & Coach Co. .. Preston, Ont.

Station Name Signs
Acton Burrows Limited.....Toronto.

Staybolt Bars, Charcoal Iron
Falls Hollow Staybolt Co..Cuyahoga Falls.

Staybolt Iron
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Taylor & Arnold.....Montreal.

Staybolt Iron or Steel Bars, Hollow
Falls Hollow Staybolt Co., Cuyahoga Falls.

Staybolts, Flexible
Flannery Bolt Co.....Pittsburg, Pa.

Staybolts, Locomotive
Falls Hollow Staybolt Co..Cuyahoga Falls.
Flannery Bolt Co.....Pittsburg, Pa.

Staybolt Taps
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Steam Couplers
Safety Car H't'g & L't'g Co....New York.

Steam Hammers
John Bertram & Sons Co.....Dundas, Ont.

Steam Shovels
M. Beatty & Son.....Welland, Ont.
R. M. Burns & Co.....Chicago, Ill.
F. H. Hopkins & Co.....Montreal.
The Males Co. .....Cincinnati, O.
Mussens Limited.....Montreal.

Steamship Signs
Acton Burrows Limited.....Toronto.

Steel
W. Abbott.....Montreal.
Hermann Boker & Co. .....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Wm. Jessop & Sons.....Sheffield, Eng.

Steel, Fire Box
Taylor & Arnold.....Montreal.

Steel for Axes
Montreal Steel Works.....Montreal.

Steel for Saws
Montreal Steel Works.....Montreal.

Steel for Springs
James Hutton & Co.....Montreal.

Steel Shafting
Nova Scotia S. & C. Co., New Glasgow, N.S.

Steel, Speedicut High Speed
Montreal Steel Works.....Montreal.

Steel, Nickel, for Nickel
The Orford Copper Co.....New York.

Steel Plates
Jas. W. Pyke & Co.....Montreal.

Steel, Tool
W. Jessop & Sons.....Sheffield, Eng.
Montreal Steel Works.....Montreal.

Stokers, Mechanical
Babcock & Wilcox (Ltd.).....Montreal.

Stoves
James Smart Mfg. Co.....Brockville, Ont.

Superheaters
Babcock & Wilcox (Ltd.).....Montreal.

Switches
Canadian Ramapo Iron W's Ld.Niagara Fs.
Montreal Steel Works.....Montreal.

Switch Stands
Canadian Ramapo Iron W's, Ld.Niagara Fs

Switch Targets
Acton Burrows Limited.....Toronto.

Tanks and Tank Fixtures
Ontario Wind Engine & Pump Co..Toronto.
Polson Iron Works, Ltd. .....Toronto.

Tanks, Oil
S. F. Bowser & Co., Limited.....Toronto.

Tapes, Measuring
Lufkin Rule Co.....Saginaw, Mich.

Taps
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Telegraph and Telephone Apparatus
Northern Electric & Mfg. Co.....Montreal.

Telegraph and Telephone Office Signs
Acton Burrows Limited.....Toronto.

Thermit
Goldschmidt Thermit Co.....Toronto

Ticket Cases
Can. Office & School Furniture Co.Preston.

Tie Plates
B. J. Coghlin & Co.....Montreal.
Hamilton Steel & Iron Co., Ltd., Hamilton.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
J. Harrison & Sons Co..Owen Sound, Ont.
Guilford S. Wood .....Chicago, Ill.

Tie Plugs
J. Harrison & Sons Co..Owen Sound, Ont.

Ties
J. Harrison & Sons Co..Owen Sound, Ont.
Parry Sound Lumber Co.....Toronto.

Tires, Steel
James Hutton & Co.....Montreal
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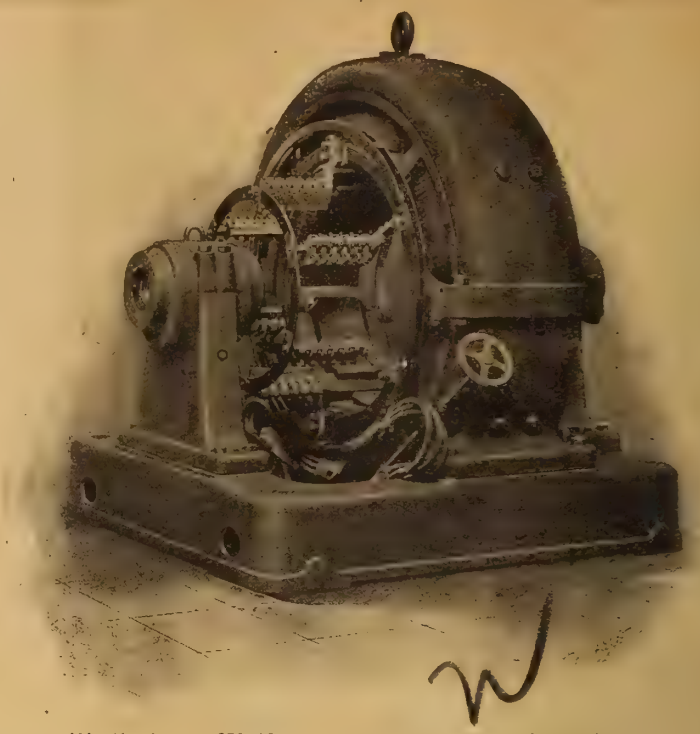

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Locomotive Fuel Consumption.

The following report, by a committee, of which D. Meadows, Division Master Mechanic Michigan Central Rd., St. Thomas, Ont., was chairman, was presented at the International Railway Fuel Association's meeting at Chicago:

For the purpose of gaining information to enable us to prepare this paper, your committee sent out the following explanation of the subject:

1. Methods of supervision, means, whether by fuel supervisors, road foremen or through the master mechanics or the division superintendents, or a combination of the above named officers. Whether fuel inspectors were employed at the mines in order to improve the grade of fuel, keeping in mind at all times to whom the officers or assistants named should and do report.

2. Instruction and encouragement in locomotive operation to include whether or not a definite programme of work has been installed; by whom and in what manner are engineers and firemen, as well as hostlers and roundhouse men instructed as to the best methods of promoting fuel economy in order to reduce the amount consumed. The above also to cover the question of examinations in progressive fuel economy of all interested in its use or having anything to do with its handling; the giving of premiums in order to stimulate and encourage every interest in the question.

3. The installing of any additional plans likely to mature the subject of efficiency in fuel consumption, its scope to be defined as follows:—How best to secure a reduction in cost at engine-houses in keeping engines alive, in dumping fires and again building them, in preparing engines for service. The results, so far as the three above divisions are concerned, to be tabulated.

The following list of questions was also sent out, and to those questions a fair number of replies were received. A few of these replies would indicate that some of the roads in the country are giving the supervision of coal careful attention, while on others it is a secondary consideration. However, we think it well to analyze the answers to each of the questions submitted, in order to consider them in a logical manner.

1. What methods of supervision are in vogue on your road or in your territory to promote the greatest measure of fuel economy, and who are responsible and to whom do they report?

The replies to this question show that a few railroad companies keep inspectors at the mines; the majority, however, do not. All the replies but one would indicate that the supervision of fuel economy is generally looked after by the road foreman of engines and his assistants, they reporting to the master mechanic or superintendent of motive power.

2. Instruction and encouragement in locomotive operation: a, What programme have you installed; b, By whom and in what manner are instructions given to enginemen?

Some roads have books of instruction for economical firing, which are given to the engineers and firemen. In the majority of cases, however, the instruction of enginemen is handled entirely by the road foreman and his assistants.

Marshall H. Brown,
General Freight Agent Local Traffic, Ontario Division, C.P.R. and President Canadian Freight Association.

3. Do you advise class or individual instruction? Give reasons.

Replies received would indicate that all believe in both class and individual instruction, but emphasize individual instruction.

4. Do you advocate as an example in the instruction of enginemen that they be shown how many pounds of coal are consumed per locomotive, or per ton mile, and then be urged to make a saving by using less?

All answering agree that enginemen should be shown how many pounds of coal are used per locomotive, or thousand ton miles, and comparisons made. The methods of doing this, however, vary considerably. This showing, or rather comparison, brings about a rivalry for a good record, and also shows the poor men who need special attention.

5. Do you have a system of progressive examination which engineers, firemen, hostlers and engine preparers are required to pass as to their knowledge of the properties of fuel and economies to be practised to secure results?

Replies to this question would indicate that the majority of roads have a progressive system of examination for firemen which includes fuel economy. On other roads instructions are given almost entirely by the road foreman of engines and his assistants.

6. Please name the method by which you require engineers and firemen to co-operate to avoid waste and loss of fuel and necessary firing.

All roads evidently attempt to bring about close co-operation between the engineer and fireman, instructing them that it is only by united efforts that the best results can be obtained, and the best means to this end is to feed the fire as lightly as possible, consistent with the service required, to feed the water to boiler evenly, to keep the fire clean, avoid waste of steam from pop valves by having a full understanding of work to be done, where steam will be shut off, etc.

7. Is it considered, from your experience, good practice to generally inform your engineers and firemen by circulars or charts, the temperature that can be obtained in a locomotive firebox by the varying degrees of heat and the color of the flame?

Some of the answers indicate that instructions by circulars and chart are very valuable; others simply answer "yes," while one states that he does not believe any good is obtained by going into technical details of this character with the average engineer and fireman. A good practical illustration, it is believed, will bring about the best results.

8. Does your company make up an individual performance sheet monthly, showing the cost of fuel per ton, and per locomotive mile, making comparisons between individual engineers from month to month?

All answers would indicate that individual performance sheets are not made out on the majority of roads.

9. Are money premiums or prizes of any sort employed by your road as an incentive to enginemen to improve and maintain a good fuel record? If so, of what do they consist?

To this all answer "no," it being gen-

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erally the impression that it would tend to make enginemen dishonest.

10. What influence, in your opinion, has the preparation of coal in small convenient sizes for use in making a good coal record? What is your practice?

To this all agree that the breaking of coal so that there are no lumps larger than three or four inches square has a great influence on fuel economy.

11. Which, in your opinion, will make the best fuel record, run of mine coal or coal that has passed over a three-fourths inch screen, price being considered; or, in other words, which will show greater economy, the amount of mine run coal purchased by $1, or coal that has passed over a three-fourths inch screen? If you consider run of mine will show most economy, give maximum per cent. of slack that can be used to bring about this economy.

Three replies say coal that has passed over a three-fourths inch screen will show greatest economy. The others state that this depends very largely on the field from which the coal is procured. The coal from some fields contains such a large percentage of impurities, that better results are obtained by screening same, in this way, removing a large percentage of the impurities. On the other hand, where the mining conditions are favorable, better results are obtained by burning run of mine coal.

12. What do you consider are the most valuable essentials of fuel economy outside the purchase price?

All replies agree that the most valuable essentials outside the purchase price consist in keeping the engines in thorough repair, eliminating all leaks, blows and waste of steam, ample grate area and heating surface, good terminal facilities for caring for power, enginemen trained to burn fuel economically, the operating department eliminating unnecessary delays, see that the coal delivered is the coal specified in the contract, and lastly, by keeping everlastingly at it.

13. Mention any device or appliance for use on engines and tenders to prevent waste en route, etc., and results obtained from same.

We find that some roads are covering all shaker bar holes and deck plates. The use of a flanged apron between engine and tender is also mentioned as being used to prevent waste.

14. What effect, if any, does the weather have on stored fuel coal where exposed for any length of time?

All answers agree that coal stored will depreciate in value, some classes more than others. Claim is made that on account of losses by exposure to the air and by handling, some coals will depreciate twenty per cent. in sixty days. Your committee believes that with some coals this high percentage of loss is reasonable. Generally speaking, however, five per cent. should cover all depreciation. A great deal depends on the manner in which the coal is stored, also how picked up. If coal is picked up with a clam shell or any other mechanical device, they may gather up quantities of gravel, clay, or other non-combustible substances and the value of the coal is depreciated greatly.

15. Do you furnish an analysis of the constituent parts of coal to your engineers and firemen, and do you consider this practice of value?

One reply states: "We bring this up at the classes, also at examination, to show importance of keeping fire free from clinkers and pans clean. It aids in keeping fire cleaner." Others answer: "No, nor do we think it of much value."

16. Do you consider it of value to furnish to your engineers and firemen an analysis of the gases of combustion, so as to show their relative heat value and consequent loss when unconsumed?

The answers to this question vary somewhat; some do give such instructions and believe it of value; others do not believe it of any value whatever. In the matter of supervision, quite a number of roads keep inspectors at the mines, whose duties are to closely watch the loading of coal into the cars, see that cars are properly cleaned before placed under the tipple, the inspector having authority to reject all cars which contain a high percentage of non-combustible matter, slack, etc. Those reporting in favor of inspectors at the mines claim that they receive a better grade of coal, due to this inspection, also a better loading of cars, thus requiring less cars to haul the same tonnage. In some cases the best mines are selected for loading of their fuel, which would not have been done if inspectors were not on the ground. The cars are cribbed with lumps so as to prevent loss while in transit. The cost of inspection at the mines being more than balanced by the better grade of fuel received. The majority of roads, however, do not employ an inspector at the mines, but rather put it up to the coal company to see that the coal is properly prepared and cleaned. It would appear that the latter method is the wiser, for various reasons. All coal companies employ experienced men to supervise the loading of cars, and at the same time throw out any impurities, bone coal, etc., that may have passed the men in the mine. This being a fact, why should it not be up to the coal company to deliver a grade of coal suitable to the contract or requirements of the contractor?

If you were contracting for a large quantity of flour to be delivered in quantities of 100 barrels each day, said flour to be of a certain grade, you would not feel justified in sending an inspector to watch the milling of this flour, but if the quality did not come up to the agreement, you would hold same for inspection and possibly cancel contract. The same would apply to almost any other business.

Again, would not the cost of this inspection more than offset a large number of small economies brought about in other ways? Presuming that a railway company uses 1,000,000 tons of coal in a year, which is a small average estimate, at one-fourth cent per ton for inspection at the mines, which we believe to be a very modest figure, the inspection will cost $2,500.00, a large sum to expend in looking after what should legitimately be done by the producer. The inspector for some railroad companies must inspect the coal from a number of mines, and as these mines are at times a distance apart, it naturally follows that while he is watching the loading at one mine, his work is being neglected at another, with the result that he knows nothing of the coal that was loaded while he was absent. We all know that you can form but a very poor opinion of coal from the appearance of the top of the car, more particularly if the car is loaded with run of mine coal. The top of a car of run of mine coal looks about as good as one loaded with coal that has passed over a commercial screen. This is due to the methods followed in loading.

We believe that greater economy will be affected by the railroad consumer, contracting for a certain class or grade of coal, instructing its coal dock foremen, as to the quality of coal contracted for, and to hold all cars that do not come up to standard, for inspection by a coal inspector, he, the inspector, to reject or hold for joint inspection with a representative from the coal company. The company's inspector should occasionally visit the mines and watch the preparation of the coal. He then will be in a position to say if the coal company is honestly trying to prepare and deliver the quality of coal contracted for.

Your committee further believes that in selecting coal, railway companies should be guided by practical tests, or in other words, should select a certain engine and assign it to a certain service, this service to compare with ordinary service on that division; weigh the coal, calibrate the tank, so as to know in pounds or gallons the amount of water used each trip, and figure the evaporation results from that data; the coal that shows the greatest evaporation per dollar of cost being selected. We believe this will be much more satisfactory than a laboratory test intended to determine its calorific value, and its chemical constituents. To quote from the West Virginia Survey, vol. 2: "The value of a coal as a steam producer is determined, primarily, by the total amount of heat it will produce in combustion, but in view of the very crude way in which we burn our fuel, even more depends on the manner in which it responds to ordinary conditions of handling and firing."

To illustrate, we will presume that a railway company deems it advisable for business reasons, to use a quick igniting, and somewhat rapid burning coal at two points on two connecting divisions; at another terminal they are offered a slow igniting coal at the same price, that requires a considerably sharper draft than the first mentioned coal to bring about results; they would hesitate in buying this last mentioned coal with a saving in haul, even if its B. T. U.'s value was higher than the first mentioned coal, owing to the fact that having to draft their engines more sharply to burn the slow igniting coal, would result in a considerable waste of the rapidly igniting or easily burned coal which is used at two of the three terminals.

All railways should endeavor to select a certain or suitable grade of coal, assigning it to a certain territory and have it definitely understood that no

Appreciation from England.

H. J. Cowie, who has represented the Canadian Northern Railway interests in England for several years, and who has recently been appointed European Traffic Manager, is a constant reader of The Railway and Marine World, of which he has on several occasions written appreciatively. A short time ago he wrote as follows:—

"The incoming mail brought with it the current number of the Railway and Marine World, and I write a line in appreciation of same, which as usual is full of information. Your publication is certainly invaluable to those who wish to keep 'au courant' with every branch of Canadian transportation."

In addition to its most thorough circulation among transportation officials throughout Canada, our paper is largely taken by representatives of Canadian transportation companies in the United States, in Great Britain, on the European Continent, and in Japan and China. They look to it, not only for information on Canadian transportation matters generally, but especially for news connected with their own lines, very much of which is not obtainable from any other source.

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change will be made except in grave emergency. This will enable the mechanical department to draft their engines so that the best results may be obtained from the fuel, rather than having to draft their engines to burn the poorer class of fuel to the detriment or waste of other classes. Enginemen also will become familiar with the fuel used and be enabled to handle it more economically.

Coal should be placed on the tender of engines in such size that the fireman can devote his entire time and attention to feeding the coal to the fire. If the lumps are larger than three inches square, whether the firemen break these lumps or not, is at the expense of a certain amount of coal wasted. The better coal is prepared before being placed on the tender, the more economical its use will be.

Instruction to engineers and firemen in any manner should be beneficial. Class instruction, progressive examinations, the distribution of books on combustion, etc., are beneficial, but we believe, however, the greatest benefits are derived from individual instruction by men who are fully qualified to do so. These men should be practical enginemen and fuel specialists, and should devote their entire time to instructing firemen and weak engineers. We believe that practical demonstration would be far more reaching and beneficial than class instruction, and will result in greater economy. Each man's territory should be sufficiently small to enable him to reach all under his charge at least once each month.

We believe that a locomotive performance sheet showing consumption in pounds per ton mile per hour would create a rivalry among the enginemen that would bring about good results. This method, we believe, gives the enginemen a fair showing for work done. A performance sheet showing the engine miles made per ton of coal is not worth the paper it is written on and a sheet on the ton or thousand ton mile basis is very little better. Nor are any of these of but little value if there is not some fairly accurate method of determining the amount of coal used by each engineman each trip. At present the majority of roads run their engines in what is called "the pool." An engineer takes one engine from the home terminal and returns on another, probably changes firemen half way over the division. The coal is put on the engine by a man who receives a small wage and who has no other aim in connection with this work than to properly coal the engine and have his accounts straight at the end of each week or month. He has full authority to say how much coal the tender will hold and should he be short of checks for coal given out he immediately proceeds to take checks for from one-half to two tons more coal than he puts on the engine. This may appear to some as an exaggeration, but we believe that if we look closely into this matter, we will find the above method is the practice on the majority of roads in America. Under such conditions, a comparative sheet of any kind is valueless and the time of the office man consumed in making out this report might be better be used in some more profitable work. Some roads, however, weigh the coal put on tenders, or have some fairly accurate way of measuring the coal. On these roads a performance sheet based on the ton mile per hour basis puts into the hands of the master mechanic or road foreman something fairly accurate and reliable and from which they can select the weak, careless or inefficient men, and put them in a way of doing better. It also will assist the road foreman in locating engines that need attention.

We believe that the supervision of coal placed on tenders and the performance obtained from the use of this coal is not given anything like the attention it deserves, that it is a secondary consideration to almost everything else on the majority of roads, and that until some accurate method of knowing how much coal is put on tenders, what percentage of it is consumed at the enginehouse, also some accurate method of determining the amount of work done for coal consumed is arrived at, that the desired results can scarcely be expected. We trust, however, that the committee handling this feature will be able to recommend a method which will enable railway companies to prepare a performance sheet which will be fairly accurate, and from which fair individual comparisons can be made.

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P207 W. S. Poole
Mechanical Superintendent Prince Edward Island Railway.

etc., in Charlottetown, is at the extreme end of the yard, running from Prince and Water Sts. They are very nicely situated, with abundance of light and every convenience for handling work. The Mechanical Superintendent's office is in the freight building near by.

The shops have concrete foundations with brick walls, and consist of carpenter, erecting, machine, and blacksmith shop combined, with a section 80 by 85 ft. partitioned off for the blacksmiths and boiler makers. The machine and erecting shops are 163 ft. 4 in. by 85 ft., with an annex of 20 by 34 ft. for a fan room. A monitor roof extends the whole length of the shop, with a raised monitor 40 by 85 ft. for the 60 ton electric travelling crane. There are three pits running the whole length of the machine shop, and one track running through the machine shop into the blacksmith and boiler shop. One pit is used chiefly for dissecting locomotives, and the other two for erecting and repairing them.

The machines in the erecting shop consist of 72 in. engine driving wheel lathe, 72 in. tire turning and boring mill, 16 in. slotting machine, standard planing machine of heavy pattern, with a table 12 by 45 ft. with three teeth slots and six rows of holes, cross rails to raise and lower by power with two heads, also two sets of heads on standards; 20 in., 24 in. and 36 in. lathes, gap lathe which will swing 3 ft., four 16 in. lathes, 24 in. and 36 in. drill presses, 300 ton wheel press, radial drill press, boring mill; all made by the John Bertram & Sons Co., Dundas, Ont.; also a universal milling machine. The blacksmith shop has eight fires, tube welding machine, power hammer, and 1,100 lbs. steam hammer; all made by the John Bertram & Sons Co. In the boiler shop there are 6 in. and 12 in. sets of rolls, and set punch and shears with 36 in. throats.

The car shop is 252 by 52 ft., with a monitor roof extended its whole length. There are two pits running the length of the shop; one used for repairing, and the other for building cars. The following machines are installed:—Small planer, small rip saw, large band saw with re-sawing attachment, tenoning machine, small cut-off saw, planer and matcher, knife grinding machine, small mortiser, dado machine, circular rip saw, large cut-off saw,, large hollow chisel mortiser, and a band saw. The paint shop is a wooden building 132 by 42 ft., with capacity for painting four cars. The brass and copper foundry is of stone, 48 by 40 ft.

The power house is 100 ft. by 50 ft., with concrete foundation and brick walls, with a generator, engine and air compressor. The generator is a continuous current machine capable of continuously supplying 75 kilowatts of electrical energy. There are three boilers of 250 h.p. each.

The new round house is 103 ft. in diameter, concrete foundation and brick walls, with 20 stalls.

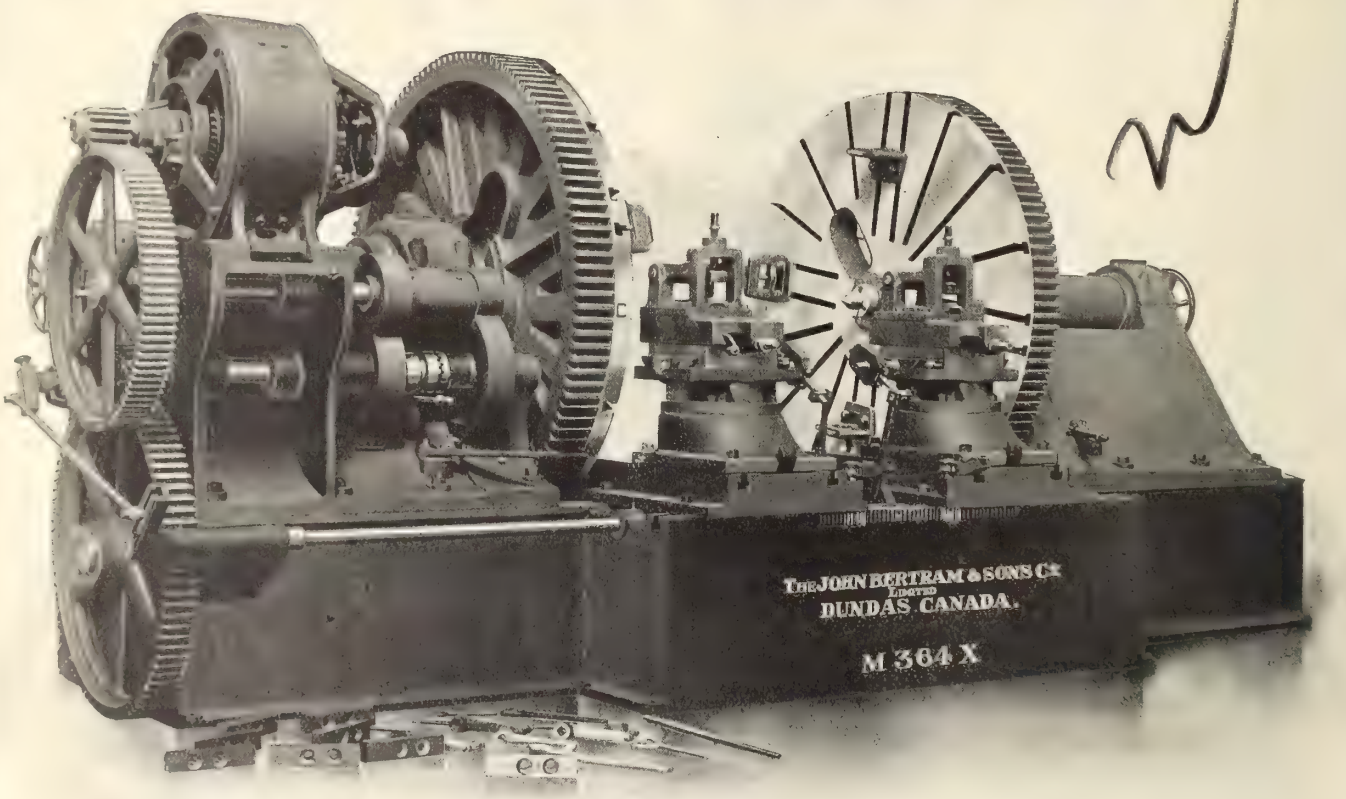
Marker Sockets on G. T. R. Trains

The Board of Railway Commissioners passed the following order, 10453, dated May 3:—Re location of markers on G.T.R. passenger trains. Where passenger cars are equipped with marker sockets in the lower position, markers shall be carried in such lower sockets. All passenger cars hereafter constructed shall be equipped with marker sockets in the lower position. All passenger cars now in use not equipped with marker sockets in the lower position, shall be so equipped on or before June 1, 1911.

E. J. Chamberlin, Vice President and General Manager G.T.P.R., on his recent return from a tour of inspection over the line between Winnipeg and Edmonton, intimated that some of the townsites at present obtaining a great deal of prominence from the efforts of real estate salesmen, are situated a great distance from the railway stations and even from the G.T.P.R. right of way.

S. P. Howard, who resigned his position as General Freight Agent, C.P.R., Montreal, recently, to engage in real estate business there, has written our Managing Director as follows:—"You will undoubtedly understand the deep regret I have in leaving railroading, particularly in severing the strong connections that have been formed during 28 years, and amongst these regrets is your own good self. One thing, however, is of considerable satisfaction, and that is that through your paper, I will be able to keep in touch with the railway world, and to keep posted as to what is going on, and I hope thereby not to get away from railroading and its associates."

BERTRAM RAILWAY TOOLS



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The Mexican Route to B. C.

In our May issue we gave the decision of the Board of Railway Commissioners disputing Elder Dempster Co.'s application against the C.P.R. and G.T.R. with respect to export rates. Chief Commissioner Mabee's decision is of such importance that it is given in full as follows:—

This is an application made under sec. 323 of the Railway Act "for an order directing the respondents to apply the established export basis covering general merchandise and commodities shipped from points in Eastern Canada to Montreal, St. John and Halifax, for export to Vancouver, Victoria, and other B.C. points." The Elder Dempster Co. is a steamship line operating, during the winter from St. John and Halifax, to, among other points, Puerto Mexico, which is the eastern terminus of the Tehuantepec National Ry., and it has for some months been carrying traffic destined for British Columbia points, delivering it to the Tehuantepec National Ry. at Puerto Mexico, the railway in turn delivering this traffic at its western terminus, Salina Cruz, to the Canadian Mexican Steamship Line, which carries it up the Pacific Coast to Vancouver, Victoria, and other B.C. points. There is no joint tariff between these three carriers making up this through route from St. John and Halifax to B.C. points, but one was said to be in course of preparation; and it was said the Elder Dempster Co. quoted rates over this route some 25% lower than the all rail rate from Montreal and other eastern points to B.C. points. It was stated that as to the traffic that had already moved, the applicants, the Tehuantepec National Ry. and the Canadian Mexican Co., had divided the through rate equally, and that it was the intention to do the same when the tariff was finally arranged.

The C.P.R. and the G.T.R. have tariffs on file with this Board giving much lower rates upon export traffic than upon domestic traffic. For instance, the export rate upon canned goods Hamilton to St. John is 21c., while the domestic rate is 32c.; upon the same commodity the export rate to Halifax is 22c., the domestic 33c.; Hamilton to Montreal export 19c., domestic 25½c.; a great variety of commodities is covered by these export tariffs, on most of which the variation between the export and domestic rates is not so great as upon canned goods, without attempting to be exact, it may be that, roughly estimated, upon all the traffic covered by these tariffs the export are about 10% lower than the domestic rates. This system of export rates was established by the railway companies for the benefit of the Canadian producers, and the tariffs covering these rates make them applicable only to traffic moving to British or foreign points and as they are framed, they do not apply to traffic destined to points in B.C. The application is to compel either their amendment so they may be applicable to such traffic, or that the railway companies be directed to file tariffs that would be applicable to such traffic.

The products of Canada that move under the export rates come into competition in British and foreign markets with those of many other countries, and to meet such competition and to permit their reaching these markets, the railway companies make these reductions in the rate to the seaboard; the same system prevails in the U.S., and all the rail export trade of both countries moves under these tariffs. This system grew up years before the Tehuantepec route was in existence, and these tariffs when framed were not intended to apply to traffic moving to B.C. points. The question is whether it is fair and proper, assuming, but without deciding, that there is jurisdiction, to require the application of these tariffs to traffic moving over this new route.

It was argued that the movement under these export tariffs would build up a trade that did not now exist; but it was clearly established upon behalf of the railway companies that they have for years been carrying to B.C. points exactly the same class of articles that might go to the same points over this water and rail route; so that the result of applying these export rates to this traffic would be to compel the companies to divert their long haul westbound business to a short eastbound haul under a low rate; and for whose benefit?

This application is made by the Elder Dempster Co. and supported by the Canadian Mexican Steamship Co. All the traffic that could be diverted to this route would add to the receipts of these companies and the Tehuantepec National Ry. Upon the face of the matter then, it is a struggle to obtain from the railways part of their westbound traffic; and it is by no means clear that the shippers would obtain any material benefit if the application succeeded.

The rates over these railways are under the control of the Board; the westbound rates have been adjudged reasonable and fair; if at any time, owing to changed conditions, it is thought that they should be reduced, it is open to anyone concerned to apply, or the Board, upon its own initiation, can reduce them. How about the rates over this Tehuantepec route? All the traffic over it would be carried by the applicants to Puerto Mexico. There is no competition between St. John and Halifax to that point: there is only one railway across the Isthmus, and the Canadian Mexican Steamship Co. carries all the Canadian traffic from Salina Cruz. The rates over this route, even from St. John and Halifax, have to be submitted for approval to the Mexican Government, as the following extract from the evidence of Mr. Worsnop, Manager of the Canadian Mexican Co., will show:—

"Q. You said that your through rates were subject to control by the Mexican Government? A. Yes.

Q. That is, even the rate from Montreal say around to Victoria? A. It has to go for the approval of the Tehuantepec Ry., which then submits it to the Government, and it is approved.

"Q. That is the whole rate has to go? A. Yes.

"Q. Not just the Tehuantepec proportion? A. The through rate, I understand.

"Q. That would seem to be an extraordinary thing I wanted to make sure that I understand you, that that rate over which the Government of Mexico had really no control, and practically no interest, so long as the Tehuantepec got a proper share, should be subject to that control? A. It does seem a very extraordinary thing, I will admit, but that is what the railway company informs me. That is the excuse I get every day, that we have to submit the whole thing. That is my information.

"Q. On what basis do the Mexican Government pass upon the reasonableness of the through rates? A. I am not aware, I do not know anything of their deliberations outside.

"Q. You do not know of any particular rate that has received their approval as a through rate, do you? A. All the rates, so far as I understand. If there is an alteration in the rates, an alteration in any one item, so far as we are aware it comes to us for approval, and then it is submitted, according to the Freight Traffic Manager's letters, back to the Mexican Commissioner for his final endorsation.

"Chief Commissioner Mabee:—Your used the expression alternately, 'Mexican Commissioner' and 'Mexican Government.' I thought the road was operated jointly by the Pearsons, and somebody representing the Government."

"Mr. Worsnop:—I do not know under whose control, whether it is a commission, or the Minister. I only used the word 'commission.' There is a Minister, or some official, whom they have to consult. The operation of the road is simply a matter of equal shares. The Mexican Government take a half and the Pearsons take half."

Mr. Kelly of the Elder Dempster Co. was called, and with reference to the through rate, the following is an extract from his evidence:

"Chief Commissioner Mabee:—Are you not at liberty to carry from here, Montreal, or from St. John to Puerto Mexico, through shipments to B.C. points at any charge you choose from here to Puerto Mexico, so long as the shipper pays two-thirds of the through rate to the other two carriers? A. No, that is not as I understand it.

"Q. What is there to prevent you? A. There is nothing really to prevent us, but we do not do it.

"Commissioner McLean:—Does the Tehuantepec Ry. charge a higher rate on a shipment like that than the through rate? Supposing a shipper just ships to Puerto Mexico? A. They would charge their local rate further.

"Chief Commissioner Mabee:—How would they know it? You turn over to them two-thirds of the through rate, do you not? A. Yes, but they have no rate in effect from Puerto Mexico, or Salina Cruz to Vancouver.

"Q. What is there to prevent your sending shipments right straight through and making any rebate you choose between here and Puerto Mexico? A. There would be nothing; but we do not do it.

"Q. What is to prevent your doing it if you choose? A. There would be nothing.

"Chief Commissioner Mabee:—Then if the Mexican Ry. Co. compels you to charge more then you are willing to charge a Canadian shipper from the Canadian point to B.C. points, what would be morally wrong about your making the shipper a rebate? A. The only thing we know is that we have not done it before. We know we will always live up to our rates."

Upon the hearing, I expressed the opinion that the Board should be satisfied by reasonable evidence that the through rate now quoted over this route was a reasonable one, and further consideration has strengthened this view. These three carriers quote to shippers a certain rate over this route; two of the three join in this application to compel the railways to assist in moving traffic over it. Why should the railways and not the applicants and the Tehuantepec National Ry. Co. do the cutting? We were given no information whatever of the reasonableness of either the through rate quoted by the applicants or the reasonableness of the division between the three carriers concerned. It would appear that the steamship companies are entirely in the hands of the Tehuantepec National Ry. Co. or the Mexican Government, or both, not only as to the total through rate, but also its division, and that the applicants cannot quote a rate to Puerto Mexico, without the consent of the railway company. Supposing the present through rate over this route is highly remunerative to the three carriers, and that they could well afford to absorb the difference between the domestic and export rail rate, would it be fair to compel the railways to make the export rate and thereby swell the receipts of

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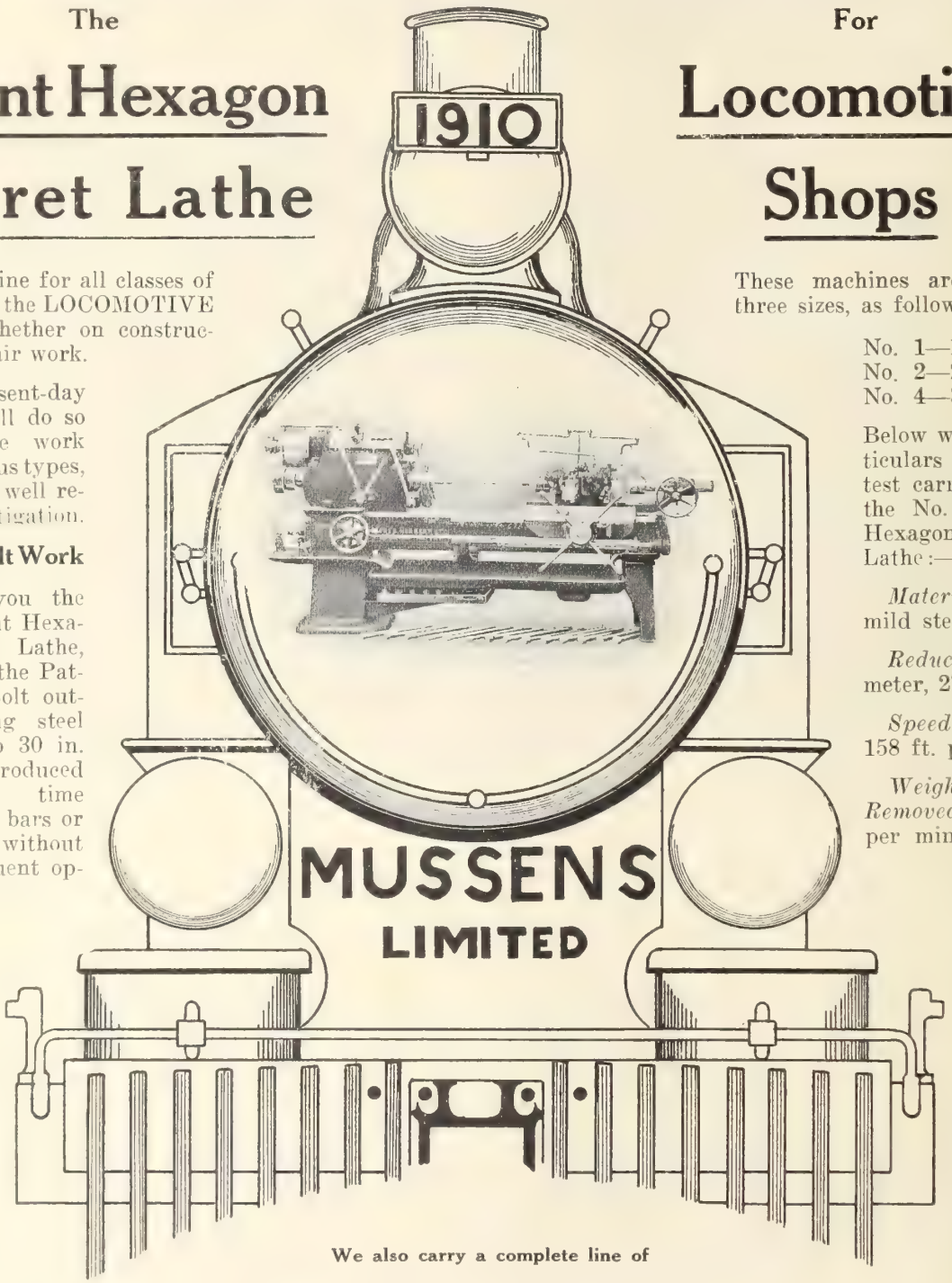

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the applicants at the expense of the railways' traffic? If the rates over this joint ocean and rail route were under the control of this Board, one would have the machinery to work the matter out, and would be able to give the shippers all the benefit of this competition, and at the same time preserve some reasonable proportion of profit between the competing routes; but as the matter is presented, we have carriers outside of the Railway Act, free and unfettered as to external control over rates and facilities, attempting to make use of the Act, to divert to themselves the legitimate traffic of the railway companies by the enforced application to that traffic of tariffs that were not intended to apply. So long as there is no Government control over ocean traffic, control over the land rates must necessarily produce the exporter or importer but a limited benefit. In the present case, upon a shipment from Hamilton to Montreal, this Board has control over the rate for that 375 mile haul, and it is that power that is asked to be exercised that traffic may be moved from Montreal to Victoria, 7000 miles, at rates to be established at the carriers' will, and free from control or interference. The Board is anxious that the shipper should be allowed to avail himself of every competitive condition of carriage, and every available route, but in the exercise of its powers must have equal regard to the interests of all concerned; and while the granting of this application might have some advantage to shippers of certain commodities, it seems, upon the information now before us, that it should be refused.

A very considerable volume of traffic has moved under the domestic bill rate over this route; what is there to guarantee the shipper that if the export rail rate were applied, the through rate in question would not proportionately rise? It could be put up apparently by those controlling the Tehuantepec National Ry., even against the protest of the two steamship companies, and if that were done, how would the shipper have been benefited by the granting of this application and would not the railway companies have been injuriously affected by an improper or unwise exercise of the powers of the Board? If the alternative ocean route were under control, one could preserve the existing rate, if that were proper, to the shipper, or otherwise deal with it as might be just, but as matters stand the position does not justify our interference.

In the Seattle rate case the Interstate Commerce Commission referred to traffic originating at South Bend and destined to Spokane, going via New York over the Tehuantepec National Ry., thence to Seattle and by rail to destination; also that the route offered active competition to the railways as to all traffic originating east of a line drawn between Buffalo and Pittsburg, and it is interesting to note that all the traffic that has moved via this route has carried the domestic and not the export rail rate. No application has been made to the Interstate Commerce Commission similar to the present, and if this traffic can move from eastern U.S. points to New York under the domestic rate, I do not see why it cannot here.

The applicants, in the alternative, asked for the application of tariffs for "furtherance" to Maritime Provinces, Newfoundland, the West Indies, etc., in the event of not getting the export rate. This was not covered by the formal application but was discussed at the hearing. These so-called "furtherance" tariffs are the necessary result of competitive conditions at Boston and New York, and compelling their application to this B.C. traffic would be no more equitable than requiring the railway companies to apply the export rate.

It was argued for the applicants that if they were unsuccessful in obtaining relief, Canadian traffic for B.C. points would go via New York, and the haul would be lost by the Canadian railways as well as by the Elder Dempster Co. It would seem, however, from a regulation of the Customs Department, that this is not possible, as unless the traffic went in British ships from New York to Puerto Mexico, they must be treated upon arrival at B.C. ports as imported, and would be liable to duty. The following is the regulation:—

"Except as otherwise ordered, goods in transit from one part of Canada to another part of Canada, wholly or partly by water carriage through the U.S., shall be transported in British registered vessels under customs manifests, and the transfer of such goods from car or vessel, and vice versa, shall be made in the presence of a special officer of the Canadian Customs and be certified by him. The salary of the special officer shall be paid by the carrier applying for his services."

The water route travelled by the Canadian Mexican Steamship Co. from Salina Cruz to B.C. ports is covered by an order in council of May 29, 1909, granting that company an additional subsidy of $25,000 upon the understanding that "the steamships performing the service on the Pacific shall fly the British flag."

It will, of course, be understood that the reasonableness of the westbound rail rates is not involved in this controversy. They are not attacked either in evidence or argument, and the sole contention was that the eastbound export rates should be arbitrarily applied to this new route.

Upon the facts as they now stand, no order will be made; but the dismissal of the application must be without prejudice to the rights of any person interested in this matter to any relief the Board may deem proper upon a different set of facts being presented to it.

Claims Against the Government Railways.—An act to provide for the adjustification of small claims arising in respect of the operation of the Government railways has been passed by the Dominion Parliament. It provides that suits for amounts not exceeding $200 may be taken in any provincial court having jurisdiction, under the ordinary rules of procedure, in every respect as "in like cases in the said court between subjects." The process shall be issued against the "Government Railways Managing Board," and may be served on any member of the Board, on any officer of the railway, or any person specially authorized to receive the same; no personal liability being attached to any of them. In determining any action the court shall be governed by the rules and principles of law which should be applied if the Crown were defendant and consented to the court's jurisdiction. If the provincial courts have not the necessary jurisdiction, the cases may be transmitted to the Court of Exchequer and dealt with as if they had originated there. The Managing Board is authorized to pay out of any money appropriated for that purpose damages or costs adjusted in any action brought under this act.

Advance in Passenger Fares.—The Boston and Albany Rd. issued a tariff recently, effective June 1, advancing local fares on its main line from 2c to 2¼c. per mile—substantially the basis which was in effect prior to 1906, at which time a voluntary reduction was made. This action is made necessary on account of the sharp advance in the cost of everything that enters into the conduct of railway transportation and the consequent demand for increased revenue, of which the passenger traffic must of course produce its share.

Quebec Public Utiiities Commission.

F. W. Hibbard, Chairman Quebec Public Utilities Commission, in a recent address at Montreal, reviewed fully the commission's object and scope. After a general review of principles governing the control of public utilities, he stated that the public had, under the act, power to complain to the Commission, which would, after hearing evidence, adjust the matter about which there was a difference. In general, he said, every company and person supplying any service to the public and liable to the enactments of the Quebec Legislature is within the jurisdiction of the Commission. The Commission had no right to set aside or disturb the terms of a contract between a municipality or a person on a public utility, except in the case of a monopoly; neither had it anything to do with cases of damage. The Commission had general supervision over all public utilities under its authority; it superseded the authority of the Railway Committee of the Province. It might require and regulate the carrying of goods upon any tramway, fix all tolls for any public utility, but always subject to any contract existing, regulate the placing of rails, posts, wires, conduits, pipes and other appliances along, across, over or under any road, street, square or water course; settle difficulties as to use of streets, roads, etc., between municipalities and public utilities; see that wires are so placed and supported that they are neither dangerous, unsightly nor obstructive; upon the application of any city, town or village compel the putting of wires under ground upon the conditions the commission may fix. In the carrying out of these powers it might require the construction or demolition of any works, or that they should be altered and repaired, and decide how and at whose expense this, or any of it, shall be done. It might also take entire possession of any public utility and all its property and powers, using and exercising them until its orders have been carried out. The consent of the Commission must be obtained to any amalgamation of one public utility with another; and an appeal could be made to the Attorney General to secure the dissolution of any corporation which refused to obey the orders made.

The Commission has prepared rules regulating the proceedings before it, and the chairman said at a meeting held in Quebec recently, that these were being printed for distribution. It had been decided, said the Chairman, to carry out the rules now observed by the Dominion Railway Commission and similar organizations in the United States. Anyone could appear before the Commission in support of his own complaint, but otherwise advocates only could appear.

Concrete.—In the 19th edition of Trautwine's Civil Engineer Pocket Book, issued in 1909, there was given a mass of information concerning concrete, plain and reinforced, and its use in structures of all kinds. This information has been collected out of the Pocket Book, brought up to date, added to and issued in a separate volume, provided with thumb index for handy reference. The subjects dealt with include:—Strengthening materials, general principles, tranverse strength, cement mortar, cement, sand, mortar, concrete, reinforced concrete, experiments, specifications, following the is a bibliography of the subject and an index covering 12 pages. The publishers are John Wiley and Sons, 43 and 45 East Nineteenth St., New York City, and the price of the book is $2 net.

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PRESIDENT

Charge for Stop-off for Orders on Grain, Etc.

On the application of the C.P.R. and the G.T.R. under sec. 29 of the Railway Act, for an order amending order 6147, Jan. 21, 1909, fixing a stop-over charge of 25c. per car a day for the first 48 hours, and the car service toll thereafter, on western grain and grain products, in car loads, consigned to Cartier and Sarnia Tunnel, Ont., "for orders."

The Board of Railway Commissioners gave judgment Mar. 15, advancing the charge from 25c. to $1 a day.

Chief Commissioner Mabee gave the following oral judgment:—When this question was before the Board in Dec., 1908, the disposition that was made of it at that time was upon considerably more limited material than has been presented to-day. There was a difference of opinion as to the proper disposition of the matter after hearing, and in the memorandum that I made at that time the charge was left at the old rate, viz., 25c. a day, and Tariff Supplement 13, effective Sept. 1, 1908, was disallowed for the reasons there appearing. These reasons were practically two: one that there never had been any affirmative evidence given to satisfy the Board that the old 25c. charge had not been considered when the rate was being fixed; the other ground was, that there had been given to the Board no evidence showing the additional expense or trouble imposed upon the carrier by reason of the stop-over privilege. This clause appears in my memorandum: "Perhaps the carrier is also put to some small expense by reason of granting the privilege." At that time I had no knowledge whatever that the expense connected in performing this service was anything like it is now said to be. The Assistant Chief Commissioner differed from me, and was of the opinion that a rate of $1 a car would under the circumstances be reasonable. Since that time, viz., in April of this year, we had before us the consideration of what sum would be a reasonable toll for the carriers to take for the extension of the re-consignment privilege to the shipper. We had at that hearing considerable evidence given showing the expense and burden to the carrier connected with the granting of that privilege, and the view that the Board took was that $3 a car would not be an unreasonable sum for the shipper to pay for the re-consignment privilege. Of course, it was present to the minds of all when that $3 rate was provided for, that it was considerably out of joint with the 25c. charge which the railway companies had been limited to under the judgment of the Board in the Dec. previous, for the stop-over privilege, because, while each is not exactly upon all fours with the other, yet the services are largely similar. The benefit to the shipper and the privilege is much the same, and the expense to which the carrier is put in carrying out the wishes of the shipper to re-consign, and not acting upon the instructions of the shipper to continue the car where the stop-over privilege is granted, are, while not exactly identical, largely the same. Later on, counsel representing the railway companies drew to my attention the fact that these two charges did not appear to be at all harmonious, and it was suggested that application might be made for the purpose of re-hearing this matter. I gave leave later on to apply to have the matter re-opened, and to present any additional features that had not been offered to the Board when it had been previously discussed, that the companies might think proper.

Upon this application a good deal of information has been given to the Board that we had not access to when the 25c. charge was required to be re-established by the railway companies. Upon further consideration, so far as I personally am concerned, I am not satisfied that it is quite fair to, in every case, assume or take for granted, that each and every service, from the initial point to destination, is always taken into consideration in fixing the initial rate by the carrier. Perhaps, generally speaking, an assumption of that sort might not be improper or unfair, but I am inclined to the view that a good deal of injustice might be done if it were laid down as a rule that in every instance every service performed must be assumed to have been considered in the fixing of the rate. Of course, we know that such a holding as that would put upon the company the onus of disproving that fact in every case in which the question arose, and it strikes one that that might possibly put the carrier in a very unfair position to be required to go back 20 or 30 or 40 years for the purpose of ascertaining what was in the minds of the men who originally framed the rate. In the great majority of cases such a view as that, even after the lapse of a very few years, would place the carrier in such a position that it would be quite impossible for him to establish affirmatively or negatively that any given service performed was present in the minds of the men who established the rate. Therefore, in my view, perhaps the fair way would be to withdraw the conclusion that was embodied in that memorandum, covering the particular matter I have just adverted to.

When the matter was considered before, the Board's Chief Traffic Officer, Mr. Hardwell, who gave the Board the benefit of his views, and the Assistant Chief Commissioner were both of the opinion that I was in error in requiring the company to re-establish the 25c. rate. After the discussion of today and upon a further consideration of the matter, I am entirely free to admit that I was in error, and I am of the opinion that an injustice was done to the companies in disallowing the tariff that had been filed, and in requiring them to reinstate the old toll of 25c. The members of the Board present (Commissioners Mills and McLean) neither of whom were in the former hearing, are both of the opinion that the 25c. toll is too low, and that some higher sum should be fixed. The question now is what would be a fair sum to allow. It has been suggested, and not without some force and show of reason, that the services connected with the re-consignment situation, are so nearly the same as the services connected with the stop-over, that the tolls should be the same. We are of the opinion that there is a sufficient difference to justify a lower toll being established in the present matter, than was fixed in connection with the re-consignment case.

In the judgment of the Assistant Chief Commissioner in the re-consignment matter, he referred to the various steps that might be taken when a re-consignment was required, and he says:—"First, there must be a telegram to the agent at the point where the change is to be made; second, the agent at that point must be on the lookout for the car, and this may require his going to the van of each freight train that passes in order to examine the conductor's record; that when the car is found it must be rebilled and the waybill must be checked; the amount of charges must be verified and the auditor of the department informed; then the car must be cut out of the train, put to one side, and all this will require shunting, switching, and so forth, which takes up the time of the train crew and causes delay; then the car must be picked out and put on the new train; the railway company must assume the legal responsibility of deciding whether the party who asked that the destination of the car be changed owns the merchandise and has the right to deal with it."

It will be observed that many of these matters do not apply to the stop-over situation. No telegram is necessary, the agent does not have to look out for the car, he is not required to go along the freight train to examine the conductor's records; the switching and shunting and so on is the same, but there is no legal responsibility of deciding whether the party who asks the destination of the car changed owns the merchandise and has a right to deal with it. Therefore, upon a closer examination it will be seen that there are a considerable number of matters involved in the re-consignment that are not present in the stop-over case. As stated during the discussion on the re-consignment case, and speaking altogether from recollection, it seems to me that considerably more than $1 was mentioned as being the cost of the telegraphic service to the railway company connected with the re-consignment of a car. However that may be, we have nothing left but to try and fix such a reasonable sum as we are able to for this particular service. It is said that the actual cost connected with the switching and order clerk amounts to $1.12 a car. These amounts are no doubt gotten up honestly and with the best of intentions, but they lend themselves at once to the criticism that it is next to impossible, perhaps absolutely impossible, to make up an exact statement of the expense connected with this particular service. All that any one can do is to make an estimate based upon the general expense of maintaining and operating a switching engine and crew, and making certain repairs, and so on. They are, of course, and they must be, based upon a general average. For instance, the locomotive engineer is set down at 35c. an hour. That is what the locomotive engineer gets, but to say that 35c. an hour for a locomotive engineer should be applied to every car, or to the cars that are switched, is hardly proper, because there is a switching engine in the yard, and that switching engine may be standing idle and doing nothing, if these cars were not to be switched. The same remark applies to the fireman and to the conductor and the trackmen and the fuel consumed. It does not always happen, and it is impossible to tell how frequently it does or does not happen, that the time of this man should be strictly and accurately and properly charged against any particular movement of cars from the train to some particular siding, because if the cars were not there to be moved, it might be that the engine would be standing steaming, and these men would be loafing about and not doing anything. However, the matter is fairly put by the companies in the way it is, because it is the only way it can be put. But at the same time it does not necessarily mean that there is the same outlay every time these services are performed. The sum here made up in this way and upon these estimates shows an expense of $2.39 connected with the movement of each car, and it is not at all likely that in the actual working out of the matter there is such an expense as that. The toll allowed should not be confined, of course, to the actual cost of the service. It should be some toll that should include some reasonable return for the service. The shipper is not necessarily entitled to have a privilege of this kind at actual cost, but it is next to impossible to fix with accuracy a charge that would to some extent remunerate the carrier.

Upon the former hearing of this case Mr. Scott thought that $1 a car would be reasonable, and that view was concurred in by Mr. Hardwell. Both my

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brother commissioners now are of the opinion that $1 is not an unreasonable charge and an order may go that the present charge of 25c shall be increased to $1 and as Mr. Scott stated in his judgment before: "I would not differentiate between a case where the instructions for re shipment arrived at Cartier before the car, and a case where the car arrived before the instructions, although the service rendered by the railway company in the second case would be more than in the first, because of the question as to which arrived first at Cartier became an important element in determining the charges, there would undoubtedly be found confusion and friction between the shipper and the railway company. As pointed out by the Chief Traffic Officer it would be fair to set off the advantages to the railway in the first case against the extra service in the second case and merely allow the standard charge of $1 per car for 24 hours in all cases."

There only remains a word to be said with reference to the situation at Sarnia Tunnel. There was an unfortunate misunderstanding with reference to that when the case was disposed of before. It was not known that these were foreign cars that were principally held at Sarnia, and I think in disposing of the case I stated that the facts were similar. As a matter of fact the facts are not similar with regard to the two places, and the matter has been sufficiently cleared up to-day to show that. The dollar will have application to both Sarnia and Cartier.

July Birthdays.

Many happy returns of the day to—

J. H. Black, Superintendent Temiskaming and Northern Ontario Ry., North Bay, Ont., born near Smiths Falls, Ont., July 8, 1874.

M. S. Blaiklock, Engineer Maintenance of Way G.T.R., Montreal, born at Quebec, July 19, 1859.

D. E. Blair, Superintendent of Rolling Stock, Montreal St. Ry., Montreal, born at St. Thomas de Montmagny, Que., July 25, 1877.

D. C. Coleman, Superintendent Car Service, C.P.R. Western Lines, Winnipeg, born at Carleton Place, Ont., July 9, 1879.

Geo. Collins, General Manager Central Ontario Ry., Trenton, Ont., born at Kingston, Ont., July 20, 1860.

D. D'E. Cooper, Canadian Freight Agent Lehigh Valley Rd., Toronto, born at Buffalo, N.Y., July 8, 1862.

John Corbett, General Foreign Freight Agent C.P.R., Montreal, born in Lanarkshire, Scotland, July 19, 1863.

E. J. Coyle, ex-Assistant General Passenger Agent C.P.R., Vancouver, B.C., born at Stayner, Ont., July 23, 1870.

S. E. Dewey, Travelling Freight Agent G.T.R., New York City, born at Beckenham, Kent, Eng., July 4, 1879.

J. F. Dolan, City Passenger and Ticket Agent Richelieu and Ontario Navigation Co., Montreal, born at Kingston, Ont., July 1, 1868.

F. C. Foy, Canadian Passenger Agent New York Central Lines, Toronto, born there, July 5, 1881.

J. A. Goodearle, General Manager Turbine Steamship Co., Toronto, born at Kingston, Ont., July 4, 1867.

J. H. Gordon, Travelling Freight Agent C.P.R., Winnipeg, born there, July 21, 1883.

W. R. Haldane, General Freight Agent C.P.R., Kootenay and Boundary Districts, Nelson, B.C., born at Galashiels, Scotland, July 6, 1867.

J. H. Hanna, ex-Division Freight Agent G.T.R. at Hamilton, Ont., now at Calgary, Alta., born at London, Ont., July 27, 1867.

R. K. Harris, Resident Engineer C.P.R. Orford Mountain Branch, Kingsbury, Que., born at Maitland, Ont., July 20, 1866.

A. D. Huff, Division Freight Agent G.T.R., Ottawa, born at Chatham, Ont., July 17, 1866.

C. A. Jaques, General Manager Merchants Montreal Steamship Line, Montreal and Lake Erie Steamship Co., and Montreal and Great Lakes Steamship Co., Montreal, born there July 15, 1849.

J. P. Kavanagh, Local Manager Ogdensburg Coal and Towing Co., Montreal, born at Plattsburg, N.Y., July 17, 1862.

E. W. Kolb, Superintendent Sleeping Dining and Parlor Cars and News Service, C.P.R. Central Division, Winnipeg, born at Cincinnati, Ohio, July 22, 1878.

R. G. McNeillie, District Passenger Agent C.P.R., Calgary, Alta., born at Lindsay, Ont., July 1, 1883.

T. J. Maguire, Accountant Quebec Central Ry., Sherbrooke, Que., born at Quebec, July 31, 1860.

R. E. Perry, Assistant General Freight Agent and Chief of Tariff Bureau Intercolonial Ry., Montreal, born at Drayton, Ont., July 5, 1876.

R. Preston, Master Mechanic Central Division, C.P.R., Winnipeg, born at Toronto, July 28, 1863.

J. E. Quick, General Passage Agent G.T.R. and G.T.P.R., Toronto, born at Richmond, Ontario Co., N.Y., July 10, 1851.

G. G. Ruel, Chief Solicitor Canadian Northern Ry., Toronto, born at St. John, N.B., July 5, 1866.

P. E. Ryan, Secretary National Transcontinental Railway Commission, Ottawa, born there July 26, 1876.

Geo. Stephen, General Freight Agent Canadian Northern Ry., Winnipeg, born at Montreal, July 5, 1876.

R. F. Struthers, Chief Inspector of Time Service C.P.R., Winnipeg, born at Stratford, Ont., July 31, 1879.

T. Tait, Chairman Board Railway Commissioners for Victoria, Melbourne, Australia, born at Melbourne, Que., July 24, 1864.

H. T. Wilgress, Agent C.P.R. Pacific Steamship Service, Yokohama, Japan, born at Lachine, Que., July 29, 1857.

By what Unit of Measure is the Efficiency of a Storekeeper Properly Determined.

By E. J. McVeigh, Storekeeper G.T.R., Ottawa

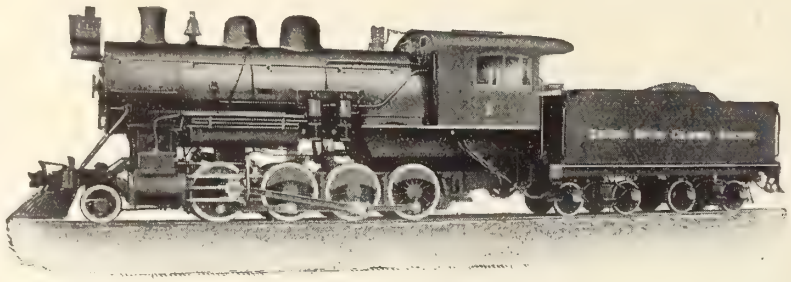
If this read by what unit of measure should the efficiency of a storekeeper be determined, I could simply say "results," and let it go at that. By that method I could avoid at least repeating many things that others have said, and save some time. But the way the question reads places me in doubt. It would seem to imply that today his efficiency is properly determined, meaning judged, or decided, and the truth of the matter is that it is not properly determined, at all. Who is to determine? The individual storekeeper each for himself? I have no doubt many of us think we are quite capable of doing that, but I doubt if our judgment would be accepted as final in the case. Then who is to do it? The president, the general manager, the general superintendent? Say any of them, or all of them on any one road. Now, how are they going to do it; on what will they base their judgment? On the fact that the storekeeper is a good chap and doesn't bother them much? On the fact that his storehouses are kept in good order, that there are not too many complaints against him, and that he doesn't ask for an increase of salary too often? These are all good things, but while they all help, they cannot be the chief determining factor that we know, so when they get through the list thus far, they will take up his [illegible] and if they are good live men, they will want to know:—How many miles of road he supplies. What is the amount of his stock balance? What is the monthly issue? The amount of the store pay roll? How does that figure out on a percentage basis with business done? Good work, that—these are the determining factors, but there is one lacking without which these are of no value, and that is Comparison. Let me say again that a thing is good or bad, only by comparison with something of like nature and, until this comparison is made, you don't know.

The thing of like nature in this case is the storekeeping results of some other road, and who has as yet ever made this comparison? How many have even attempted to make it? Don't forget that the mere figures, even when available, are not always sufficient for an intelligent comparison. We know that figures cannot lie, but we also know that liars can figure, and even if this last were not true, our "systems" of supply accounting are like our human bodies, so fearfully and wonderfully made that a proper diagnosis can only be made after careful dissection. In case there should be any misunderstanding as to what I mean by dissection as I apply the term to the handling and accounting of railway supplies, I may say my meaning is this: When a member of this association tells us that the handling of supplies on his road costs 3%, his "stock on hand" so much, and his "issues" so much, it conveys no meaning until we look into the system followed out on his road, take it apart as it were, and see the wheels go round, for these figures may mean one thing on one road, and quite another thing on some other road. For instance—suppose a general storekeeper would give us these figures from his general store. They might mean that the handling of supplies for that road had cost 3% at one stage in the turnover between the factory and when they are actually put to use. But how many additional turn-overs do they get, and what more expense is added. We don't know. They may go from the general store to a division store, and from there to a motive power store, a bridge and building, or a road stock, away beyond the jurisdiction of the stores department altogether, and be turned over three or four times before they are used. What meaning have these figures got by this time? They simply show one stage in the process and have no meaning as to the cost to the road for the handling of supplies. Nor are the figures of "stock on hand" more satisfactory. They don't mean the actual cash tied up in stock by that road, whatever else they may mean, and that is what we want to know. A running shot that only takes off a little hair will not stop the game.

I don't think the above is an exaggerated picture of the methods of some of the big systems. But if these figures were given us by a storekeeper on a small road, and that road carried two stocks only, fuel and supplies, and the storekeeper received his supplies direct from the factory and supply house, and disbursed these supplies in detail direct to the user, what a different meaning these figures would have then. These are the two extremes, in one case the figures mean practically nothing, in the other, everything. There are many cases that come in between, and without careful dissection, how are we to judge whether good or bad work is being done? And who is to be the dissector? I say the storekeepers as a body. If they don't, others will, and it is time we got at it, and I say in reply to the question that the efficiency of the storekeeper is not, and cannot yet be properly determined until this work is done.

The foregoing paper was read before [illegible]

LOCOMOTIVES FOR ALL CLASSES OF SERVICE



Consolidation Type Freight Locomotive, Built for Eastern British Columbia Railway.

Total weight of engine in working order, 186,310 pounds. Weight on driving wheels, 166,100 pounds. Diameter of driving wheels, 51 inches. Boiler pressure, 210 pounds. Cylinders, 20 x 28 inches. Maximum tractive power, 39,200 pounds.

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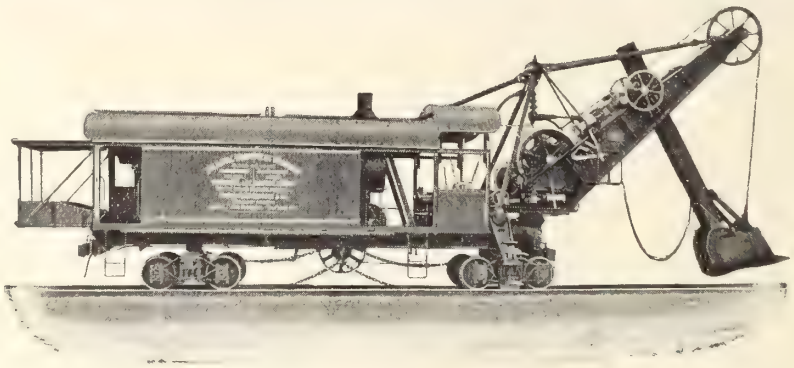

Direct wire rope hoist with but one sheave, instead of chain hoist with from five to seven sheaves, reduces delays and loss of time due to breakdowns, increases the efficiency of the engines, and reduces repair bills as well as fuel consumption.

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Amendments to the Railway Act.

The Dominion Parliament last session passed an act amending in a number of details the Railway Act, chap. 37 of the Revised Statutes, and making some additions thereto. Sub-section 3 of section 56 respecting the right of appeal to the Supreme Court as to jurisdiction is repealed, and a new sub-section as to appeals "on questions of law is substituted." This provides that leave to appeal to the Supreme Court upon questions which, in the opinion of the Board, are questions of law, may be made upon leave being obtained within one month after the order is made, or within such further time as the Board may allow. Due notice must be given to the opposite party, stating the grounds of appeal, and such appeal must be entered within 30 days of the making of the order granting leave to appeal.

A new section, 59A, is added, providing that wherever the act requires or directs that the Board's approval must be obtained before the doing of any work, if the work has been done before Dec. 31, 1909, without such approval, the Board shall have power to approve and to impose such terms and conditions as may be thought proper.

Section 121 provides for the making of by-laws by directors and a sub-section has been added making provision for the election or appointment of officers, styled vice presidents, who need not be directors of the company.

A new sub-section is added to section 246, setting out that an order of the Board shall not be required in cases in which telegraph, telephone or electric light wires are erected across the railway with the consent of the company, in accordance with any general regulations, plans or specifications approved by the Board for such purposes.

The word "lands" is added to sub-section 3, section 254, which deals with the erection of fences, gates and cattle guards, and the word "freight" is struck out of sub-section 7, section 261, which deals with the carrying of traffic over any portion of a railway not opened for general traffic.

Section 276 deals with the moving of trains or cars reversely in cities, and to this a sub-section is added providing that the Board may order that section 276 shall not apply to any particular train or classes of trains, but that no such order shall apply to trains engaged in shunting, switching, yard or terminal movements.

The question of damages caused to or by cattle on railways is dealt with by section 294, and the recent act repeals sub-section 4, substituting for it a new sub-section; providing that the value of animals killed or injured on the line may be recovered in any court, unless the company establishes that such animal got at large through the negligence or wilful act or omission of the owner or his agent, or of the custodian of the animal or his agent. Section 295 is amended to bring it into conformity with the alterations made in sections 254 and 294.

Section 298 deals with the liability for fire caused by locomotives. This is repealed and a new section inserted setting out the procedure to be taken to recover damages for fires caused by sparks from locomotives, limiting the damages to $5,000, less any insurances on the property destroyed, and providing that the company shall not be liable for damages if modern and efficient spark arresters are used, and if it has not been otherwise guilty of negligence. Pending litigation is not to be affected by the new section.

The granting of free or reduced rates is dealt with in section 341, and a new sub-section C has been inserted in place of the one previously existing. The only change in the new sub-section is that the railways may grant free or reduced rates to former employes of any railway, members of the Interstate Commerce Commission of the U.S., its officers and staff, their baggage and equipment, in addition to the persons mentioned in the old sub-section.

The words "and such damages should not be subject to any special limitation, except as expressly provided for by this or any other act," are added to sub-section 2, section 427, dealing with penalties not otherwise provided for.

Section four of the amending act passed in 1908, deals with the approval of telegraph and telephone tolls, and sub-section 8 has been repealed, and a new sub-section as to the conditions under which the working agreements between companies are to be made and approved by the Board substituted.

Section 238a has been amended so that any railway constructed after May 19, 1909, shall at its own cost (except otherwise provided by agreement), provide, subject to the order of the Board, all the necessary protection for the public at highway crossings.

Under sub-section 4, section 275, if a fatal accident has happened at any crossing since Jan. 1, 1900, the trains are not to go at a greater speed over that crossing than 10 miles an hour, unless it is protected. This section is now amended by substituting 1905 for 1900.

Recent Quebec Legislation.

Among the acts passed last session of the Quebec Legislature were the following affecting transportation interests:—

CIVIL CODE.—To amend the civil code respecting contracts made with public utility companies.

LITTLE NATION RIVER RY. Extending time for construction and authorizing an extension.

MONTREAL STREET RY. — Amending powers of company, and authorizing it to build underground lines.

LONG SOO AND ABITIBI RY. — Incorporation.

SHERBROOKE STREET RY.—Extension of powers.

SUBURBAN TRAMWAY AND POWER CO.—Extending powers as to construction, etc.

Railway Subsidy Contracts.

The Dominion Government has entered into agreements, under the act providing grants in aid of railway construction, as follows:—

CANADIAN NORTHERN QUEBEC RY.—From the main line near L'Epiphanie, to Rawden, by way of St. Jacques l'Achigan, 16 miles. (May 23.)

QUEBEC, MONTREAL AND SOUTHERN RY. —For construction of bridges over the Nicolet, Gentilly and Becancourt Rivers. (June 1.)

International Traffic Rates. J. P. Mabee, Chairman of the Dominion Board of Railway Commissioners, has been appointed Canadian representative in connection with the discussion of an arrangement for the just control of International traffic rates between Canada and the United States. It is understood that a member of the Interstate Commerce Commission will be designated to act with Canada's representative in this matter, and that the representatives of the two countries will meet at an early date to discuss the question of organization, etc. The whole question, we are informed, is in a preliminary stage, and nothing has yet been determined as to how the matter will be worked out.

Manitoba's Early Railway History.

The Managing Director of the Railway and Marine World wrote the editor of The Mail and Empire, Toronto, recently, as follows:—"I have read with a great deal of pleasure T. A. Gregg's reminiscences of his trip with the first colonist train to Winnipeg in 1879, as published in your issue of June 4.

"I fully agree with him as to the debt Canada owes to Sir Wm. Van Horne, who will go down in history as one of the greatest of Empire builders. There are, however, two little inaccuracies in Mr. Gregg's most interesting narrative, which I desire to point out. He says that Mr. Van Horne came from the Missouri Central Rd. to the Canadian Pacific Ry. This is not correct. At the time of his selection by the Canadian Pacific Ry. directors, Mr. Van Horne was General Superintendent of the Chicago, Milwaukee and St. Paul Ry.

"Further on Mr. Gregg says that Mr. Van Horne 'did not begin where Egan left off at Winnipeg, but he made a complete alteration of plans and began anew,' the inference being that Mr. Van Horne succeeded Mr. Egan. The facts are that almost immediately after the incorporation of the Canadian Pacific Ry. Co. in 1881, A. B. Stickney, of St. Paul, Minn., was appointed General Superintendent, with headquarters at Winnipeg, and took charge of the construction and operation of the western lines. Mr. Stickney resigned at the end of that year, and Mr. Van Horne was appointed General Manager, with headquarters at Winnipeg. He took J. M. Egan from the Southern Minnesota Rd. to Winnipeg, making him General Superintendent of the Western division. Mr. Egan retained that position until September, 1886, when he was succeeded by Wm. Whyte, the company's present Second Vice President."

Quebec Transportation Club.—Following are the officers, elected at the recent annual meeting:—Hon. President, C. E. A. Carr, General Manager Quebec Ry., Light, Heat & Power Co.; Hon. Vice Presidents, E. O. Grundy, General Freight and Passenger Agent Quebec Central Ry., and W. M. MacPherson, White Star-Dominion Line; President, J. A. Everell, Superintendent Montmorency Division Quebec Ry., Light, Heat & Power Co.; Vice Presidents, M. P. Connolly, General Agent Richelieu & Ontario Navigation Co., and G. B. Ramsay, White Star-Dominion Line; Hon. Secretary-Treasurer, J. S. Blanchet, General Freight and Passenger Agent, Quebec Ry., Light, Heat & Power Co.; Committee, J. Hone, Jr., City Passenger and Ticket Agent C.P.R.; G. Stott, City Passenger and Ticket Agent G.T.R.; F. S. Stocking, City Passenger and Ticket Agent Quebec Central Ry.; W. J. Thompson, Manager Quebec and Levis Ferry Co., and F. M. Spaidal, General Superintendent Canadian Northern Quebec and Quebec and Lake St. John Rys.

Stock Yards for Winnipeg. The Stock Yards Commission, which has been considering the provision of stock yards at Winnipeg, has completed its work, and it is said that a report will be prepared recommending the formation of the St. Boniface Union Stock Yards Co., in which the C.P.R., the Canadian Northern Ry., and the G.T. Pacific Ry. will be jointly interested; that the yards when equipped will be managed by a Board of Commissioners, the C.P.R. to be represented by two members, and the other two lines and the Manitoba Government by one each. The rates to be charged are to be subject to the Government's approval. The legislation necessary to carry out the plans of the Commission is expected to be introduced in the Legislature next session.

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When so added, it combines with oxygen and nitrogen and removes these gases in a fusible slag, making the remaining metal dense, non-porous, homogeneous and stronger to a marked degree.

Its action is consistent, because while it increases the tensile strength and elastic limit of steel, it maintains the ductility, as may be seen from this experiment.

A pocket knife with a Vanadium Steel blade will cut chips from a steel spike; a carpenter's saw of Vanadium Steel will cut through a two-inch gas pipe unharmed; locomotive cylinders of Vanadium Cast Iron wear five times as long as ordinary iron without reboring; forgings from Vanadium Steel ingots are the strongest, most elastic and longest lived forgings possible. Vanadium Steel Springs, owing to their freedom from crystallization wear three times as long as carbon steel springs.

We are the largest exclusive manufacturers of Vanadium Alloys in the world. Our mines are rich enough and extensive enough to supply the world's demands. Our factory is now producing six thousand pounds of carbonless Ferro-Vanadium a day, and its capacity is being increased. We guarantee deliveries.

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C.P.R. Betterments, Construction, Etc.

Dominion Atlantic Ry.—J. G. Sullivan, Assistant Chief Engineer C.P.R., and P. B. Motley have made a complete examination of the Dominion Atlantic Ry. for the C.P.R. Sir Thos. G. Shaughnessy, with other C.P.R. directors, subsequently went over the line, and then proceeded to Halifax, N.S., to inspect the terminal facilities there. A press report states that the C.P.R. has purchased a property on Hollis St., Halifax, for use as an office building.

St. Stephen Wharf, etc.—The existing wharf at St. Stephen, N.B., is to be replaced with a new one, about 150 ft. out from the present shore line, and having a frontage of 600 ft. The additional space gained will be filled in, and the whole space covered with tracks, six new tracks being added. The yard layout will be from a lead independent of the main tracks. The freight shed is to be moved to another point in order to suit the rearranged yard.

Branch to Mattawamkeag.—W. Downis, General Superintendent Atlantic Division, is quoted as stating, June 2, that there was no foundation for the press reports to the effect that the company proposed to build a branch line to Mattawamkeag, Me. The report was circulated in connection with the statement that the C.P.R. had acquired the Washington County Ry., and would connect it up with Mattawamkeag, so as to give a new route into St. John, N.B.

Tobique and Campbellton Ry.—The New Brunswick Legislature has granted an extension of time for the construction of this projected line.

Lachine Bridge.—The bridge across the St. Lawrence River, at Lachine, Que., constructed at a cost of over $2,000,000, in 1884, is to be replaced by a double track structure. Plans are being prepared for the work, and a contract for the steel superstructure has been let to the Dominion Bridge Co. The contract for the piers and abutments has not been let, as the question of whether entirely new piers will be erected or the existing piers widened has not been decided. It is expected that some of the pier work will be built this year, and that the whole structure will be completed in two years. The superstructure of the present bridge will be utilized in bridges on other parts of the line.

Ottawa Entrance.—D. McNicoll, Vice President, was present at the meeting of the Ottawa board of control, June 7, and explained that the conditions affecting the C.P.R. in Ottawa were anything but satisfactory. The Central station, under existing conditions, was not suitable; the operation of trains via Hull was roundabout, consequently the company had been for some time looking for a new route for some of the trains. The plans filed by the company were produced and explained. They show the closing up of the Rideau Canal, north of the deep cut, and the building of a tunnel from the Central station, under the Post Office, down Wellington St., and after a detour, coming out at the Union station. By this means trains would be run from one station to the other in five minutes, instead of 25, as at present. The company recognized that the closing of the canal might meet with much opposition, but it was impossible to find a route equally advantageous. This company was ready to start work on the construction of the necessary works at once, and the Dominion Government wished to have the city council's opinion before giving consideration to the question. The board promised to give full consideration to the proposal.

Toronto.—D. McNicoll, Vice President, stated June 8, that the C.P.R. was the purchaser of the Government House property on King and Simcoe streets, Toronto, at $800,000. The property would not be taken over by the company until 1912. The company had in view an extensive programme of improvements in Toronto, but nothing could be said as to just what the plans would be. When they were prepared they would be submitted to the city council, and to the Board of Railway Commissioners. This property is immediately to the north of the old Legislative Buildings, on which site the G.T.R. laid out its local freight yards about four years ago.

The Board of Railway Commissioners had under consideration June 7, the plans of the C.P.R. viaduct at Yonge St. and Avenue Road. The plans show that the gradient begins at Rosedale Ave., and at Yonge St. reaches a height of 12½ ft.; and at Avenue Road it is 9½ ft., reaching the original level at Poplar Plains crossing. Yonge St. will have to be depressed 5½ ft., and Avenue Road 7½ ft., in order to provide for a 14 ft. headway. The board of control at a meeting June 9, expressed the opinion that the plans did not provide a final solution of the difficulty, and their further consideration was postponed.

North Parkdale Station.—A contract has been let to Wells & Gray, Ltd., Toronto, for the erection of a new passenger station building at North Parkdale, Toronto. They began work June 13.

London Improvements.—In an interview at London, Ont., recently D. McNicoll, Vice President, said the company would have an interesting and important announcement to make shortly, so far as London was concerned. Plans had been prepared for improvements there, but nothing would be made public about them until the company was ready to go ahead with the work.

Fort William-Winnipeg Ballasting.—Referring to the press reports that the C.P.R. had appropriated $250,000 to be expended for the purpose of reducing dust on the line between Fort William, Ont., and Winnipeg, Man., we are advised that the company intends putting some ballast on the line which will, it is hoped, do away to a certain extent with the dust nuisance that has been so prevalent since the first coat of ballasting was put down. There has been no especial arrangement made, such as the press reports indicated, to eliminate the dust.

Winnipeg-Brandon Second Track.—The grading for the laying of a second track between Winnipeg and Portage la Prairie has been completed, and the contractors, J. G. Hargrave and Co., received instructions to continue to grade westerly from Portage la Prairie toward Brandon. W. Whyte, Second Vice President, stated June 10, that it had been decided to carry the second track as far as Brandon, but whether the work would be completed this season or not, he could not say.

Six miles of track had been laid from Winnipeg towards Portage la Prairie, June 11, and it was expected that the second track would be laid into that place, and be ready for operation in August. The contractors state that it is expected to have the second track completed into Brandon in time for the grain movement of 1911.

Weyburn-Lethbridge Line.—A revised location map of the route of the projected line from Weyburn, Sask., to Lethbridge, Alta., which has been submitted to the Lethbridge city council, shows a line passing 50 miles due south of Walsh in tp. 3, and 42 miles south of Medicine Hat, in tp. 5, passing into tp. 6 range 7, in the middle of sec. 12, into tp 6 range 7 8, on the second line between secs. 12 and 13, thence almost due west to the northwest corner of sec. 13, tp. 6, range 12, thence almost in a direct line northwesterly into Lethbridge.

Lethbridge, Alta.—Representatives of the C.P.R. and the Alberta Ry and Irrigation Co., had an interview recently with representatives of the Lethbridge council, as to the Coutts St. bridge and other matters. The bridge is estimated to cost $90,000, and it is said that an arrangement was made by which the city will pay half of the cost. The question of a spur track to industrial sites was discussed, and the company proposes to make an offer to the city as to the location of the same. At a meeting of the council June 3, the arrangement as to the Coutts St. bridge was approved.

Carmangay Branch.—A construction gang arrived in Carmangay, Alta., June 4, and began work on the extension of the line northerly. This work includes the construction of a bridge across the Little Bow River. The bridge will be a somewhat similar structure to that at Lethbridge, but will not be as long nor as high.

Strathcona - Edmonton Bridge.—We are advised that the negotiations between the company on the one hand, the Dominion and Alberta Governments and the Edmonton and Strathcona councils on the other, with respect to this projected bridge, have not been completed. As soon as a satisfactory arrangement can be effected with regard to the addition of a highway section to the bridge the plans will be completed, and preparations for its construction gone on with.

The location of the Calgary and Edmonton Ry., from Strathcona to Edmonton, which was recently approved by the Board of Railway Commissioners, is the re-approval of an old plan which was filed two years ago.

Kootenay Central Ry.—A Vancouver press dispatch states that the C.P.R. has let a contract to Foley, Welsh and Stewart for the construction of the first 25 miles of this projected railway, the work to be completed within a year. The section to be built will start from near Wardner on the Crow's Nest Pass branch to Fort Steele. The line will ultimately be extended to Golden, on the C.P.R. transcontinental line. The route is a direct one to Fort Steele, thence it will follow the valley of the Kootenay River to Canal Flat, past upper Columbia Lake and the Upper Columbia River to Golden. A survey party in charge of A.E. Sharpe arrived at Golden, from Vancouver, recently and are making their headquarters at Windermere, for the survey of the Golden end of the line. The Board of Railway Commissioners has approved the revised location from mileage 0, a little south of Wardner, to mileage 24.9, a little north of Fort Steele.

Steel Snow Sheds.—We are advised that the recent reports as to the erection of steel snow sheds in the Rocky and Selburn mountains in place of the present timber structures is merely newspaper talk.

Revelstoke via Lardo, B.C.—We are advised that the reports that the company would make an early start towards connecting the transcontinental line at Revelstoke, via Lardo with the Crow's Nest branch, is only a newspaper rumor.

New Westminster Station.—Plans have been prepared for the enlargement of the station at New Westminster, B.C. The extension will consist of a one story brick building on stone foundation, at each end of the present building.

Esquimalt and Nanaimo Ry.—We are advised that a contract for clearing the right of way of the extension north of Union Bay to Black Creek, 14 miles, has been let to Sabin and Stevens, Victoria, B.C., to be completed in five months.

In connection with the building of the proposed Cowichan Lake branch, we are advised that if the state of the labor market will admit of its being

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done, the company will begin the clearing of the right of way in the fall so as to be in a position to go on with grading in the spring.

Minneapolis, St. Paul and Sault Ste. Marie Ry.—The company is preparing to build the following additional lines: From Moose Lake, Carlton county, Minn., northwest to near McGregor, Aitkin county, 23 miles, and from Lawler, Aitkin county, westerly to Cuyana, in Crow Wing county, 37 miles. (June, pg. 479.)

A Railway to Hudson Bay.

Sir Wilfrid Laurier, in company with Hon. G. P. Graham, will visit Pas Mission during their western tour, which will be begun early in July. The Minister of Railways, in a recent interview at Ottawa said the Government would shortly be letting a contract for the erection of a bridge across the Saskatchewan River at the Pas, as the initial step toward the building of the railway. The first section of the line, extending for 160 miles from the Pas, would then be gone on with. This mileage can be built whether it is finally decided to have the terminal at Fort Churchill or Port Nelson.

With a view of securing all the data possible as to the two routes three parties have been dispatched to investigate the resources of the country through which the line will pass. The water routes will be investigated by two parties which were expected to sail from Halifax early in July, one by the s.s Stanley and the other in the schooner Chrissie Tyron, recently purchased in Newfoundland by the Dominion Government. The Stanley will survey the whole route, to both Fort Churchill and Port Nelson while the Chrissie Tyron will explore the rivers and inlets inside the bay.

An announcement was made in Ottawa June 13, that tenders would be called for at an early date for at least 50 miles of this line from Pas Mission. On June 16 it was announced that the steamer Stanley would leave for Hudson Bay by the end of June, and that the work would be in charge of W. J. Stewart, Chief of the Hydrographic Survey. H. B. Pariseau will have charge of the party to survey the water approach to Fort Churchill, and A. A. G. Bachaud charge of that to survey the water approach to Port Nelson. The surveys are expected to be completed during the summer, so as to have a report ready for the meeting of Parliament.

House of Commons Railway Committee.—Speaking in the House of Commons recently, E. A. Lancaster, M.P., suggested that the number of the members of the Railway Committee be reduced. The present membership is nearly 200, of which 40 form a quorum. It now frequently happens, he said, that one day a quorum will vote upon a section of a bill, and two or three days later a different set of members will be sitting, and will reverse that decision. The result was that the work of the committee was unsatisfactory as far as precedents were concerned. It was considered by a large body of members that the committee should consist of not more than 40 members, with 25 as a quorum. The committee would then be able to present to the House reports on some stated principle, instead of making reports, as at present contradictory in principle. He had had ten years experience on the Committee, and it was apparent that the evils were increasing. The question was allowed to stand over to next session, when Mr. Lancaster will submit a resolution.

Railway Commissioners' Traffic Orders.

Summaries of other traffic orders are given on another page under "Orders by Railway Commissioners":—

NO JURISDICTION OVER QUEBEC CENTRAL RY.

10561. May 10.—In our last issue we noted the dismissal of complaint by Auger and Son, of Quebec, that the Quebec Central Ry. failed to supply cars of not less than 35 ft. long, for pulpwood shipments. The Chief Commissioner gave the following judgment:—"The applicants, carrying on business at Quebec, complain that the Q.C.R. neglects or refuses to supply to them cars of not less than 35 ft. in length, for pulpwood shipments. This railway is not under the jurisdiction of this Board. It is a Provincial corporation and has never been declared by Parliament to be a work for the general advantage of Canada. The shipments made by the applicants, and for which the cars in question are required, move almost entirely to points in the U.S.—the State of New York and some to Wisconsin—from the lines of the Q.C.R., these cars pass to the Boston and Maine. The point, therefore is, can the Board make any order regarding the equipment that should be supplied where traffic originates upon a Provincial road in direct connection with a foreign road? The point of transfer was not mentioned at the hearing, nor do I think it material. The only ground upon which an argument in favor of jurisdiction could be put, is, I think, sec. 8, sub-sec. (b) of the Railway Act. Is this 'through traffic,' and are the cars 'matters pertaining thereto?' It is traffic of an international character and clearly should be under the Federal control; but even if it could be regarded as 'through traffic,' since the judgment of the Supreme Court in the case of the Montreal S.R. Co. v. the City of Montreal, this Board would be powerless to interfere; and if I understand the effect of that judgment, it is to hold the above sub-section ultra vires of Parliament. We do not deal with the merits of the application. It is sufficient to say the Board could not interfere, no matter what the merits were."

LIVE STOCK RATES, TORONTO TO SMITH'S FALLS.

10649. May 17.—The complaint of J. Tucker, of Smiths Falls, Ont., complaining that the rate of 17c. per 100 lbs. charged by the C.P.R. on shipments of live stock, in carloads, from Toronto to Smiths Falls, is excessive and discriminatory against Smiths Falls as compared with the rate charged from Toronto to Montreal. It is ordered that the railway company put into effect, not later than June 6, a rate not exceeding 14c. per 100 lbs. upon shipments of live stock, in carloads, from Toronto to Smiths Falls aforesaid.

GRAIN EX-LAKE RATES.

10653. May 19.—Re application of the Montreal Board of Trade, under sec. 323 of the Railway Act, for order directin the C.P.R. and the G.T.R. to publish rates on wheat, oats, and barley "ex-lake" from Montreal to points in Ontario and Quebec on the same mileage basis as that in force on the same commodities from Georgian Bay elevator ports to points in Ontario. It is ordered as follows:—The rates of the G.T.R. and C.P.R. on ex-lake western grain carried from lake or river ports to points on the lines of the said companies in the Provinces of Ontario and Quebec, shall be the same for equivalent distances from all lake and river ports at which facilities exist for the transhipment of the said grain from vessels to cars, between Depot Harbor and Montreal, inclusive, and shall include the cost of like services at all such ports of transhipment and at all points of destination, whenever the said cost is included in the rate or rates at one or more port or ports of transhipment, or at one or more point or points of destination; and to points off the lines of the said companies to which points joint rates are made by the addition of "arbitraries," the said arbitraries shall be the same on shipments from all the said ports of transhipment. On such grain transhipped at ports west of Montreal, destined to points east of Montreal to which points through rates are based on arbitraries, the western portion of the said rates shall be based on St. Henri mileage in the case of the G.T.R. and an Outremont mileage in the case of the C.P.R. The G.T.R. and C.P.R. shall give effect to this order by publishing and filing special tariffs to take effect not later than June 13.

INTERNATIONAL BILL OF LADING.

10761. May 17.—Re application of Canadian Freight Association for approval of uniform bill of lading in use in the United States on shipments from points in the U.S. to points in Canada, and from points in the U.S. through Canada to points in the U.S. It is ordered that the Uniform Bill of Lading in use in the U.S. and approved by the Interstate Commerce Commission as respects all traffic which may be carried from any point in the U.S. into Canada, or from the U.S. through Canada to the U.S., be approved.

Canadian Northern Ry. Earnings, Etc.

Gross earnings, working expenses, net profits, increases or decreases from 1908-09, from July 1, 1909:

	Earnings.	Expenses.	Net Earnings.	Net Increase or Decrease.
July	$ 843,300	$613,900	$229,600	$ 26,700+
Aug.	807,100	602,700	204,400	18,300+
Sept.	1,076,800	765,300	311,500	60,400+
Oct.	1,384,200	903,500	480,700	60,600+
Nov.	1,517,600	970,100	547,500	134,000+
Dec.	1,160,300	825,900	334,400	49,300+
Jan.	792,200	669,700	122,500	22,200+
Feb.	698,900	567,400	131,500	33,100+
Mar.	934,100	661,800	272,300	67,800+
Apr.	1,153,100	821,900	331,200	107,300+
	$10,367,700	$7,402,200	$2,965,500	$585,500+
Inc.	$ 2,223,900	$1,638,400	$585,500	

Approximate earnings for May, $1,224,900, and for two weeks ended June 14, $556,600, against $720,100 and $359,900 for same periods 1909.

C.P.R. Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits, increases or decreases over 1908-9, from July 1, 1909:

	Earnings.	Expenses.	Net Profits.	Net Increase or Decrease
July	7,140,029.93	4,660,159.20	2,479,870.73	205,297.48+
Aug.	7,426,984.62	4,462,926.75	2,964,057.87	385,159.16+
Sept.	8,323,178.03	4,891,288.86	3,431,889.17	1,317,281.40+
Oct.	9,744,596.87	5,358,299.68	4,386,297.19	1,731,030.48+
Nov.	9,075,963.93	5,383,625.98	3,692,337.95	1,471,258.60+
Dec.	8,214,758.04	5,099,334.94	3,115,423.10	918,671.53+
Jan.	6,104,426.90	4,787,830.51	1,316,596.39	926,846.56+
Feb.	5,992,052.14	4,505,032.40	1,487,019.24	724,874.46+
Mar.	7,796,337.54	5,085,164.15	2,711,173.39	907,465.26+
Apr.	7,985,230.21	5,004,119.08	2,981,111.13	837,603.61+
	$77,803,558.21	$49,237,782.05	$28,565,776.16	$9,425,488.54+
Inc.	$14,461,030.97	$5,035,542.43	$9,425,488.54	

Approximate earnings for May, $8,215,000, and for two weeks ended June 14, $3,743,000, against $6,333,000 and $2,902,000 for same periods 1909.

DULUTH SOUTH SHORE AND ATLANTIC RY.

Operating revenue for April, $279,388.81; expenses $197,852.17; earnings $81,536.64, against $209,422.98 operating revenue; $140,787.52 expenses; $68,635.46 net revenue for Apr., 1909. Aggregate operating revenue for 10 months ended Apr. 30, $2,701,054.37; expenses $1,841,618.91; net revenue $859,435.46, against [illegible] revenue; $1,597,582.76 expenses; $605,424.05 net revenue for the period 1909. Approximate earnings for May, $309,595 and for two weeks ended June 14, $131,489, against $241,674, and $125,968 for same periods 1909.

MONTREAL [illegible] RY. Operating revenue for April, $59,738.28; expenses $61,139.06; deficit $1,400.78; against $67,513.97 operating revenue; $55,686.42 expenses; $11,827.55 net revenue for

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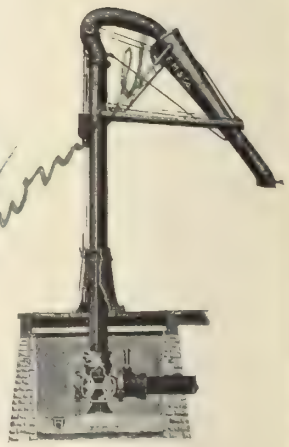

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Apr., 1909. Aggregate operating revenue for 10 months ended Apr. 30, $699,862.55; expenses $614,549.04; net revenue $85,313.51, against $689,687.14 aggregate operating revenue; $574,444.50 expenses; $115,242.64 net revenue for same period 1908-09. Approximate earnings for May, $62,390, and for two weeks ended June 14, $29,283, against $68,983 and $30,718 for same periods 1909.

Grand Trunk Ry. Earnings, Expenses, Etc.

The following figures show the earnings of the G.T.R., C.A.R., G.T. Western Ry., and D.G.H. and M. Ry., separately, for Apr., as compared with Apr., 1909:—

	1910.	1909.
GRAND TRUNK RAILWAY.		
Earnings	$2,684,600	$2,377,500
Expenses	1,891,300	1,619,200
Net earnings	$793,300	$758,300
CANADA ATLANTIC RAILWAY.		
Earnings	$158,400	$138,900
Expenses	138,300	130,300
Net earnings	$20,100	$8,600
GRAND TRUNK WESTERN RAILWAY.		
Earnings	$569,600	$495,200
Expenses	438,600	331,700
Net earnings	$131,000	$163,500
DETROIT, GRAND HAVEN AND MILWAUKEE RY.		
Earnings	$154,700	$131,100
Expenses	136,600	117,900
Net earnings	$18,100	$13,200

Approximate earnings for May, $3,731,820, and for two weeks ended June 14,, $1,682,606, against $3,245,791 and $1,433,823 for the same periods 1909.

TRAFFIC RECEIPTS OF THE SYSTEM.

Aggregate from Jan. 1 to May 31:—

	1910.	1909.	Incr.
Grand Trunk	£2,683,966	£2,309,061	£374,905
Can. Atlantic	156,003	132,022	23,981
G.T. Western	,536,731	454,909	81,822
D.G.H. & M.	159,840	128,639	31,201
Totals	£3,536,540	£3,024,631	£511,909

G.T.R. Betterments, Construction, Etc.

Southern New England Rd.—According to the information filed with the Massachusetts Railroad Commission, June 1, the G.T.R., through its subsidiary company, the Central Vermont Ry., proposes to build under the S.N.E.R. charter, 58 miles of line in that State at a cost of $3,500,000. The estimate includes the following items:—Right of way, $192,381; grading, $1,163,287; bridging, $1,047,221; tracks, $536,769; station buildings, $26,000; telegraph lines, $17,433; water service, $9,000. Of the 10,000 shares into which the capital stock has been divided, the G.T.R., through President C. M. Hays, holds 9,860 shares. The plans show that the new road will leave the New London and Northern Rd. at Palmer, Mass., and by almost a straight line will enter Providence, R.I. The New York, New Haven and Hartford line will be crossed twice overhead. The application came before the Commission June 8. E. H. Fitzhugh, First Vice President G.T.R., and Vice President Central Vermont Ry., said:—"The line is to be an extension of the G.T.R. system, its purpose being to link up the manufacturing interests of New England with the West, the north-west and the Orient. If the right to build the line is granted the plan will be carried out by the G.T.R.

The route of the projected line in Massachusetts, is described as follows:—At Palmer it will leave the New London and Northern Rd. and go through Monson, Brimfield, Sturbridge, Dudley, Webster, Douglas, Uxbridge and Blackstone, a little over 58 miles. It is not a straight line, but one of easy grades and easy curves. From Palmer it will run to Brimfield Summit, through Brimfield, Fiskdale, Westville and Southbridge, crossing three streets in Southbridge; then through Sandersdale to Dudley Summit, six miles east of Sandersdale, then to Webster, crossing streets in that town overhead. From Webster the line will rise again to Mount Daniel Summit and descend to Douglas, Millville Heights, and finally to the line between Massachusetts and Rhode Island. The New York, New Haven and Hartford Rd. is crossed overhead a mile west of Douglas and again at a point 2,000 ft. north-west of the State line.

Lachine, Jacques Cartier and Maisonneuve Ry.—The decision of the Quebec Legislature, not to allow any more level crossings in Montreal, is likely to considerably modify the company's plans. The line is projected to give the G.T.R. access to the water front at the east end, where there are larger manufacturing concerns. In order to get into that district the line will have to cross a number of streets, the levels of which are such that the construction of subways or overhead bridges would be very expensive. An alternative route with a terminus at some distance north from the waterfront, has been surveyed, but it is not so convenient to the factories as the route first laid out.

Montreal Level Crossings.—In an interview, June 13, W. Wainwright, Second Vice President, said the company's plans for the elimination of level crossings in Montreal would be filed Aug. 1. It was proposed to apply to the Railway Commissioners for approval of the same. The plans would provide for doing away with 13 crossings between Bonaventure Station and Turcot village, west of St. Henri, at an estimated cost of $4,000,000. An important question to be decided by the Board will be the proportion in which the cost of the work will be divided between the company and the city.

Montreal-Ottawa Line.—It is reported that negotiations are in progress between the company and the Dominion Government which will result in the building of a second track between Coteau Junction, Que., and Ottawa, which would give double track connection between Montreal and Ottawa, 116 miles. The Montreal-Ottawa trains run over the existing double track line to Coteau Jct., 38 miles, so that the second track will be required on 78 miles, which forms part of the Canada Atlantic Ry. The general understanding is that the projected work is being contemplated in connection with the completion of the National Transcontinental Ry. One of the G.T.P.R. plans is the building of a branch southerly to Ottawa, and if a double track were provided from Ottawa to Coteau Jct., trains from the west could be taken into Montreal without disturbing the present traffic.

Toronto Belt Line.—We are officially advised that arrangements are being made to rebuild the section of the old Belt Line between Fairbank Jct. and the west side of Yonge St., and to use it for freight and switching service only. This section extends from the junction of the line with the old Northern Ry. to Yonge St. A portion of the line east of Yonge St. is used by the Canadian Northern Ry.

Ottawa Terminal Station.—C. M. Hays, President G.T.R., made an inspection of the work in progress at the new terminal station and hotel at Ottawa, recently. He expressed his satisfaction with the progress made, and stated that it was expected to have the station completed in the fall, and the hotel ready for the summer traffic of 1911.

Brantford Improvements.—G.T.R. officials and representatives of the city council of Brantford, Ont., had a conference June 6, with reference to the building of a switch into the Holmedale district. The route proposed by the city is from the G.T.R. main line, skirting the westerly limits of the Institute for the Blind, via St. Paul's Ave. to Holmedale. The Council asks that this line be completed and utilized as a part of the Tillsonburg branch, and so do away with a number of level crossings on that branch's existing route through the city. (June, pg. 473.)

Great Northern Ry. Lines in Canada.

Midland Ry. of Manitoba.—The recent negotiations between representatives of the C.N. Ry. and the railway committee of the Winnipeg city council have resulted in an agreement by which, in order to cross various streets, six subways will be constructed at Brant St., Tecumseh St., Elgin Ave., lane between Elgin and Ross Streets, Ross St., and Nena St. A resolution was passed by the committee agreeing to a level crossing at McPhillips St., provided that a subway or overhead bridge be provided when the council at some future date might decide it was necessary, and that in the meantime the crossing be protected to the City Engineer's satisfaction. The company is allowed six months from July 1 to construct the subways, and the whole work has to be completed by April 1, 1911. The agreement applies to the entry of the line into the city, and the work to be completed by April 1, includes the track, shunting yards and freight sheds. These latter will take up the whole of the property acquired by the company between Ross and Pacific Avenues, west of Isabella St.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—In a recent interview at Keremeos, B.C., J. H. Kennedy, Chief Engineer, said construction on the line was proceeding satisfactorily beyond Princeton, but he did not think that any tracklaying would be done this year. A contract has been awarded to Ferguson for clearing about seven miles of the right of way in the vicinity of Abbotsford.

The by law confirming an agreement made between the company and the city council was voted upon by the citizens of Vancouver June 28. The city in 1907 granted certain lands on False Creek, east of Westminster Ave., to the Vancouver, Westminster and Yukon Ry., which company transferred them to the V.V. and E. Ry. This latter company acquired other lands in the same vicinity, and being desirous of obtaining further areas, after considerable negotiations with the city, an agreement was entered into by which the city grants the company, subject to Provincial and Dominion sanction, all its right to the bed of False Creek, east of Westminster Ave., above the ordinary high water mark, except the area to be occupied by Boundary Ave., extended 66 ft. from the north shore of False Creek to Glen Drive on the south shore, and some other small areas near by. The company agrees to reclaim the territory and to lay out its freight and passenger terminals there, within five years, and to expend on the work not less than $2,500,000. A union passenger station is to be built near the intersection of Park Lane and Prior St., for the use of the G.N.R., the Northern Pacific Ry., the G.T. Pacific Ry., the Canadian Northern Ry., or any other railway which may in future secure an entrance to the city. (June, pg. 439.)

A. Ramsey, local manager Canadian Baggage Transfer, was recently fined $3 and costs for trespassing on C.P.R. property at Winnipeg, for the purpose of soliciting orders for his company. He appealed the case, and the C.P.R., not appearing, the appeal was upheld, the C.P.R. to pay the costs.

During April, 16 employes were killed and 40 injured, in the course of their work on Canadian railways. Of the fatalities, six were due to being run over, and five each to derailments and to falling material; while of the other accidents, 14 were due to derailments, eight to falling material, seven to being run over, three each to collisions, to machinery and to flying material, and two to falls.

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Railway Construction Notes.

This paper is compiled from notes made by the writer whilst Resident Engineer of Construction for the C.P.R. grade reduction and revision, Medicine Hat section, 1907-8. It is submitted primarily with a view to elicit the practice of the profession with regard to shrinkage and overhaul, and the discussion on points raised herein, the author trusts, will be of greater value than the paper itself.

SHRINKAGE.—The first question that comes up in this connection is, "What is the contractor to be paid for?" On prairie work, when light, embankment quantities are often taken, and, considering the practical impossibility of accurately measuring shallow borrow pits, as left by the generality of contractors and sub-contractors, it would seem to be the most accurate method. If, however, work is paid for from cut quantities, to be rational, all borrow pits must be staked and measured. The practice of paying for cuts up to limit of haul and balance on embankment quantities is not logical. In the case of excavation quantities, the question of shrinkage is not a live one with the contractor, but the reverse is the case when embankment is paid for.

A method of applying shrinkage is required to be sufficiently elastic to meet the variety of conditions met with in the field, and at the same time sufficiently exact to do justice as between the company and the contractor. This question is often a bone of contention between them on account of the magnitude of the quantities involved being overlooked.

On side-hill ground, and when cuts and fills alternate rapidly, and are of considerable extent, the theoretical shrinkage, if applied on top, would lead to anomalous conditions. When track laying has closely followed construction, cases are not unknown where the top shrinkage applied has had to be removed, or where, as illustrated in fig. 4, the shrinkage, if not immediately taken up by settlement, might exceed the permissible grade. From these considerations it would appear reasonable to omit raising the fill above profile grade and applying side shrinkage only to make a full shoulder so as to carry the material required to make up to grade as bank settles.

Fig. 1 shows the usual method of applying shrinkage, whilst figs. 2 and 3 show modifications of this method according as to whether or not excess quantities are permissible, or whether or not it is thought desirable to steepen the side slopes. Setting the slope stakes 1.3, 1.4, 1.6 or 1.7 to 1 instead of the customary 1.5 to 1 is easily done in the field by adding or subtracting 1-10 or 2-10 for every foot in height of fill to the 1.5 to 1 half breadths. Tables 1, 2, and 3 are inserted for purposes of comparison; the quantities being based on these different methods of applying shrinkage (figured to profile grade only) whilst the actual percentage increase from the standard roadbed and side slopes, is stated.

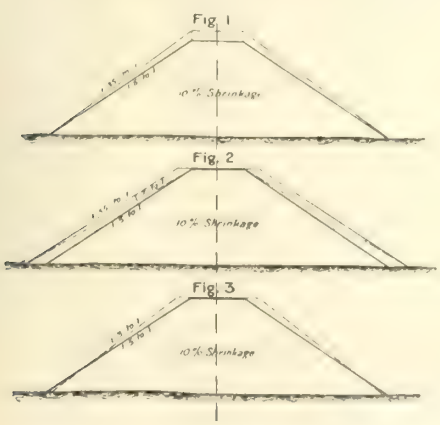
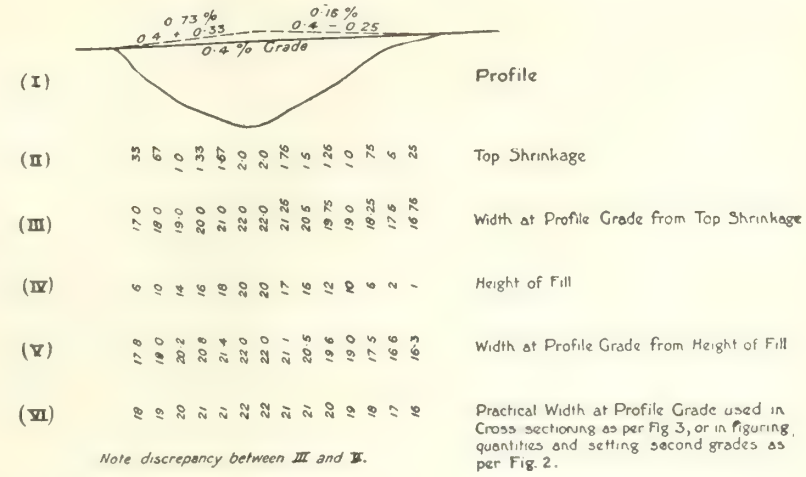


Fig. 4



To provide the full shoulder (always desirable), the width required at profile grade from considerations of height of fill at that point (fig. 4) is taken, reduced for practical purposes to the nearest foot and slope stakes set in accordance with fig. 2 or 3. This representation in the cross section notes of the quantities to profile grade represents the cross sections as they are staked without additions or alterations, and avoids complication and consequent chances of error in figuring the quantities. It gives a definite and straightforward basis to work on, and enables another man to pick up one's notes and follow what has been done.

In paying for embankment quantities if an arbitrary classification of shrinkage is adopted, such as:

Team and slip work	Nil
Wheeler and wagon work	5%
Dumpcar and wheelbarrow	10%

and from a consideration of the fact that earth, when first moved by these several methods, expands about that same percentage, it would appear that the old expedient of putting on shrinkage and paying for neat embankment quantities is not very wide of the mark after all.

TABLE 1.

Fill Ht. in ft.	Slopes.	R.B.	Cubic yds.	5% Fig. 1 Cub. yds.	Slopes.	Actual %	10% Fig. 1 Cub. yds.	Slopes.	Actual %
10	1.5	16	1,428	28	1.425	2	55	1.35	5
20	1.5	16	3,407	111	1.425	3	222	1.35	6
30	1.5	16	6,778	250	1.425	4	500	1.35	7

TABLE 2.

Fill Ht. in ft.	Slopes.	R.B. for setting stakes	R.B. used in figuring X sect.	Cubic yds.	Nominal shrinkage 5%—Fig. 2 Cub. yds.	Actual percentage increased quantities over a 16′ roadbed 1.5—1
10	1.6—1	16	17.5	1,185	30+ 37= 67	6%
20	"	"	19	3,555	118+148=266	8%
30	"	"	20.5	7,111	266+333=599	9%
					10% Fig. 2	
10	1.7—1	16	19	1,222	63+ 74=137	12%
20	"	"	22	3,703	252+296=548	16%
30	"	"	25	7,444	566+666=1232	18%

TABLE 3.

Fill	Slopes.	R.B. for X section and setting stakes	Cubic yds.	Nominal shrinkage 5% Fig. 3 Cub. yds.	Actual percentage increased quantities over 16′ roadbed 1.5—1
10	1.4	17.5	1,166	18	1%
20	"	19.0	3,481	74	2%
30	"	20.5	6,944	166	3%
				10% Fig. 3.	
10	1.3	19	1,185	37	3%
20	"	22	3,555	148	4%
30	1.3	25	7,111	333	5%

To provide the full shoulder (always desirable), the width required at profile grade from considerations of height of fill at that point (fig. 4) is taken, reduced for practical purposes to the nearest foot and slope stakes set in accordance with fig. 2 or 3. This representation in the cross section notes of the quantities to profile grade represents the cross sections as they are staked without additions or alterations, and avoids complication and consequent chances of error in figuring the quantities. It gives a definite and straightforward basis to work on, and enables another man to pick up one's notes and follow what has been done.

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OVERHAUL.—Here, again, the first question that arises is, "What is the contractor to be paid for, theoretical or actual overhaul?" If paid for actual overhaul, it often happens that through some extraneous conditions as, for instance, down-hill haul, by the method of handling the work, or perhaps on account of a structure not being built in time, the most economical distribution of the material, from the company's point of view, is not followed out. When, however, the material expands considerably, as in a rock cut, the contractor would get the worst of the bargain unless the actual haul is used.

Another point in connection with the actual haul made by contractor is the case where borrow is made between two hauls; generally this borrow is put in by slip work, all in the bottom of the fill, and the actual haul made difficult of determination without elaborate figuring and close watching of the work, as the two hauls close on completion, and is often impossible under these circumstances. In this case it is necessary to give the theoretical overhaul, unless, in cases of rock, when the method shown in fig. 5 should be used, assuming some equitable percentage of expansion as found by measurements or taking actual haul.

Fig. 5 illustrates the method, which is self-explanatory, of figuring expansion in overhaul. Fig. 6 is a typical cut hauling both ways, and serves to illustrate some of the points raised, but on account of the small quantities of overhaul, does not bring out very forcibly the discrepancies in the various methods of calculating. From this figure it is evident that the c.g. of cut is not the most economical distribution point, but the point that such a cu. yd. can be hauled either way at the same cost is the point

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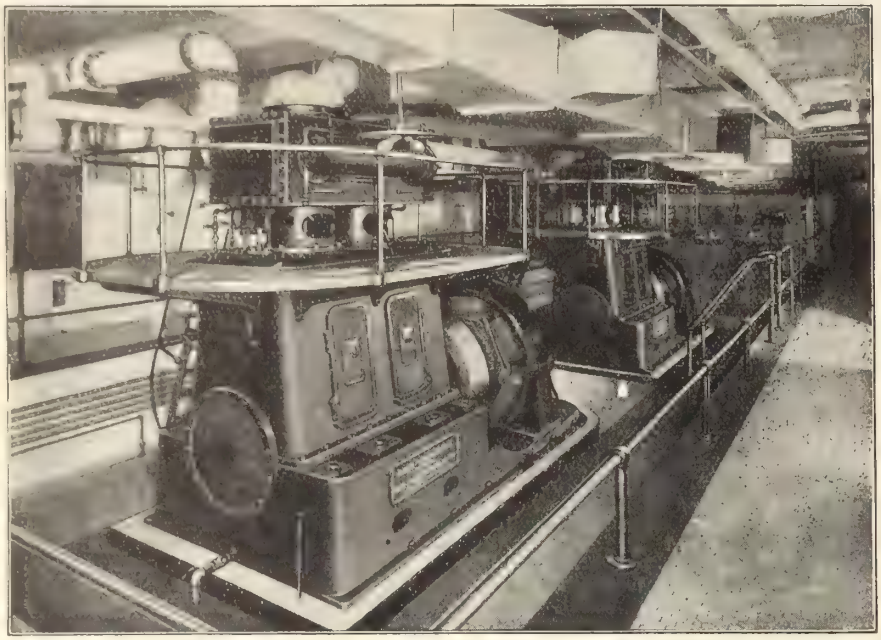

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wanted. Considering the many assumptions necessary in preparing the overhaul diagram on account of shrinkage and expansion, it would appear that the large scale diagrams are not offset by increased accuracy sufficiently to warrant their use, and that a diagram on the field profile (fig. 6) will give the information to as great a degree of accuracy as the method warrants, besides being always available for giving the contractor his points for distribution of material on the ground.

By using the planimeter various methods of distribution can be easily computed. Set the index to read square inches and ascertain the area of diagram under balancing line drawn in accordance with the method noted above. This, multiplied by the proper factor according to scale (fig. 6—2000 cu. yds. to 1" and 400 ft. to 1"=8000 cu. yds.) gives the total yards hauled to 100 ft. Ascertain area of free haul, and to this add the number of cubic yards hauled 10 stations. Subtracting these two from the whole area of diagram gives the pay overhaul.

With a small outfit, without variety of equipment, it often pays the contractor to waste and borrow (freehaul limit, 1000 ft.) rather than haul, the extra price for overhaul enabling him to do this. Care must be exercised, or one is apt to pay him for material wasted at his own expense.

ROAD CROSSINGS.—Although relatively unimportant, yet having to be established on prescribed lines and at regular intervals, often occur in places where the quantities involved are considerable. Also as they frequently cross the roadbed at an oblique angle, a method of figuring them may be of service, although open to criticism from its being an approximation only. Figs. 7 and 8 show a road crossing on a skew.

A (fig. 7) is calculated from ordinary cross sections. Area of $Y = \frac{\text{Area X}}{\text{Cos } 0}$.

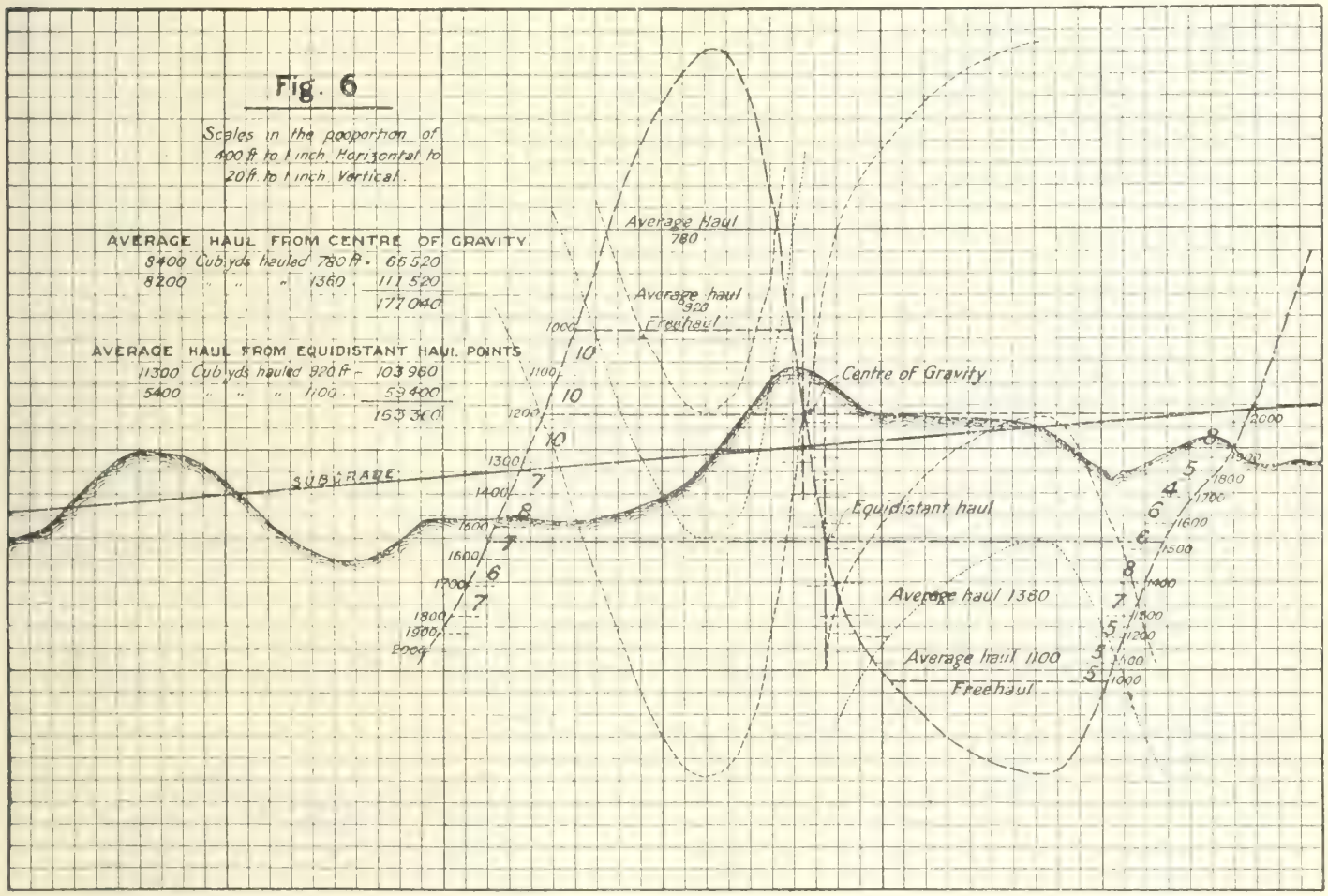
B (fig. 7) can be divided into two truncated triangular prisms, whose solidities are given by the following formula: Area of right section ÷ ⅓ sum of lateral edges.

C (fig. 7) can be divided into pyramid and tetrahedron:

Solidity of pyramid $= \frac{\text{Area X}}{\text{Cos } 0} \times \frac{1}{2}$ (half breadth—½ roadbed)..

Solidity of tetrahedron=⅓ depth at M × (half breadth—½ roadbed) × ½ roadbed of road crossing.

GRADING MACHINES.—Figs. 9 and 10 are diagramatic plan and rear elevation of a grading machine, which requires 42 ft. to work in, but has a 3 ft. extension section on the elevator, so that when required, this can be removed, making it capable of working in a 36 ft. cut. With sand or loose material, however, the extra height to which the elevator has to be raised to properly clear wagons, exceeds the workable angle of repose of the material, and it refuses to elevate. With the short elevator the cut requires to be taken down very uniformly, or the wagons catch on the underside of elevator, even when used with one side board removed. Working in a 36 ft. cut with a full length elevator, about 6 furrows in the centre have to be thrown to the sides of cut and reloaded at a disadvantage as the loose material will not throw a good



DATA RELATING TO FIGURE 6.

HAUL FROM EQUIDISTANT POINTS.			
1,000	50	500	100
1,000	150	1,500	"
1,000	250	2,500	"
700	350	2,450	"
800	450	3,600	"
300	520	1,560	"
4,800		12,110	

HAUL FROM CENTRE OF GRAVITY.			
1,000	50	500	100
900	145	1,305	"
1,900		1,805	"

FOR COMPARISON.			
1,000	50	500	100
1,000	150	1,500	"
1,000	250	2,500	"
700	350	2,450	"
800	450	3,600	"
700	550	3,850	"
600	850	3,900	"
700	750	5,250	"
6,500		23,530	

HAUL FROM EQUIDISTANT POINTS.			
500	50	250	100
500	150	750	"
500	250	1,250	"
700	350	2,450	"
800	450	3,600	"
200	520	1,040	"
3,200		9,340	
		12,110	
		21,450	

HAUL FROM CENTRE OF GRAVITY			
500	50	250	100
500	150	750	"
500	250	1,250	"
700	350	2,450	"
800	450	3,600	"
600	550	3,300	"
600	650	3,900	"
400	750	3,000	"
500	850	4,250	"
6,100		32,370	
		1,805	
		34,175	

FOR COMPARISON			
500	50	250	100
500	150	750	"
500	250	1,250	"
1,500		2,250	
		23,550	
		25,800	

800	950	7,600	100
200	1,010	2,020	"

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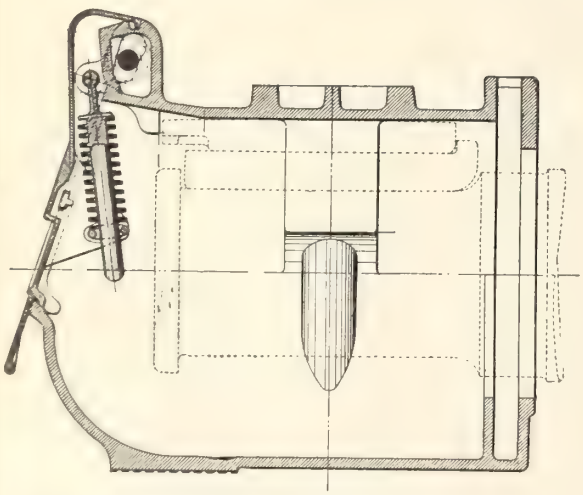

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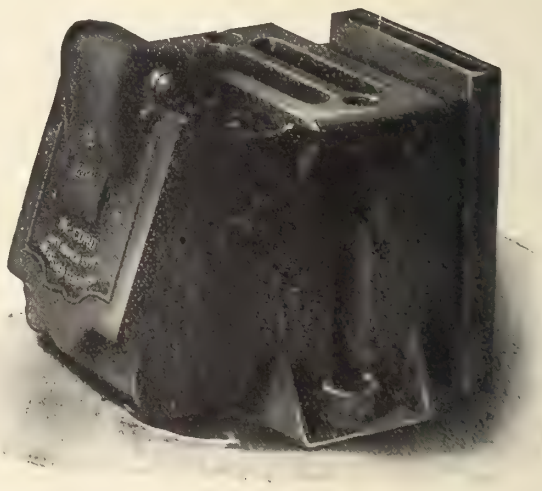

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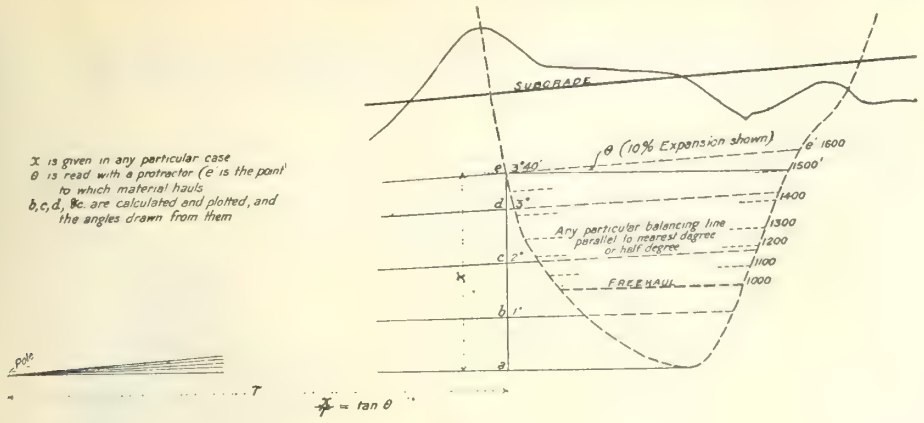
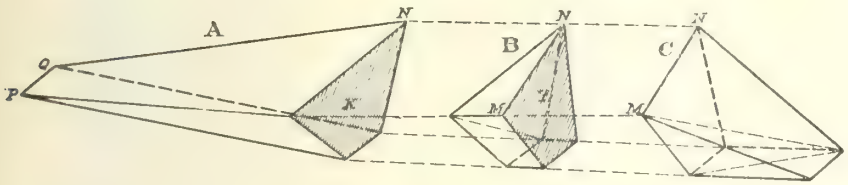


Fig. 5

Fig. 7



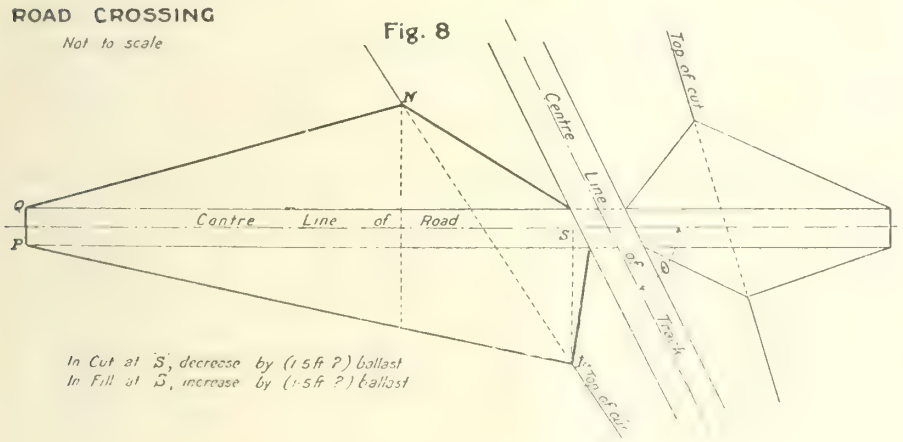
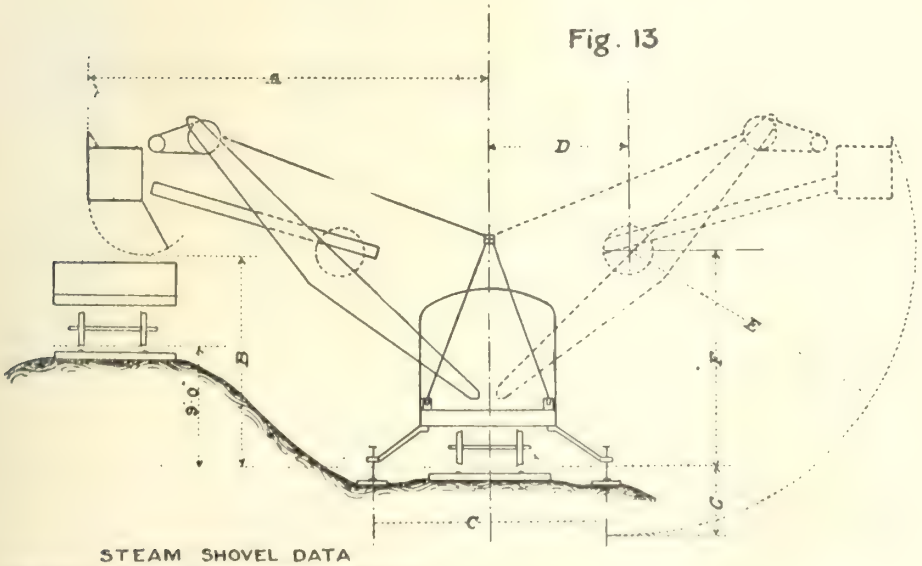


Fig. 8

Fig. 13



STEAM SHOVEL DATA

STYLE	A	B	C	D	E	F	G
90 Ton Shovel	31·9	17·0	20·3	10·0	21·9	18·6	3·3
70 " "	30·0	15·0	17·9	9·6	20·6	16·0	4·6
45 " "	26·0	14·0	17·0	7·0	19·0	13·8	5·4

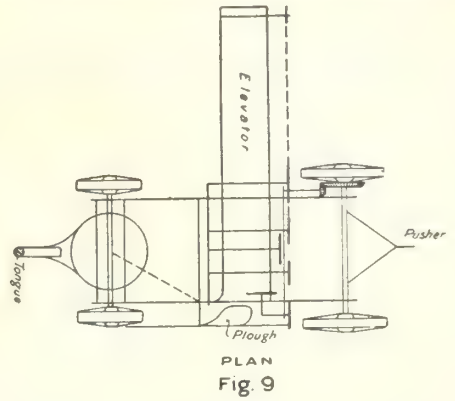


Fig. 9

furrow and is, besides, in the way of the wagons. On the Medicine Hat section, in order to give the required width for these machines to work in, cuts were staked, as shown in fig. 11, and in the cross-hatched section of fig. 12. This increased the cut quantities slightly (as in fig. 12 at ends of cut only), but the material being required in the fill, the overhaul only was increased. This cutting away of the toe of slope would be objectionable, if not impossible, in some instances, but here the banks caved back to a natural slope very quickly. With six pairs of horses the machine could be

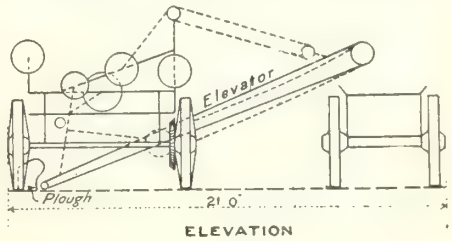


Fig. 10

turned in 36 ft. by crowding, but to turn quickly more room is required. With a cut, say 1232 ft. long, the lost time turning, at 2½ min. per turn, amounts to 1½ hours per day, while the lost time ploughing furrows to waste for the lower 5.6 of cut was two hours. Whilst actually at work a wagon was loaded on an average every 65 seconds, including stop for next wagon. This gives an output for the main part of cut, 404 wagons=505 cu. yds. per day, and for the lower 5.6, 307 wagons, at say, 1.25 cu. yds.=384 cu. yds. per 10-hour day, which

Fig. 11

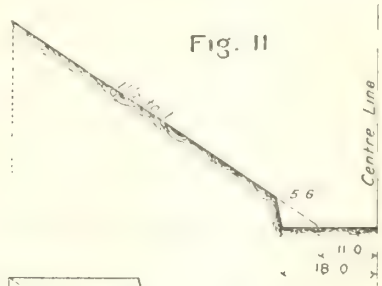
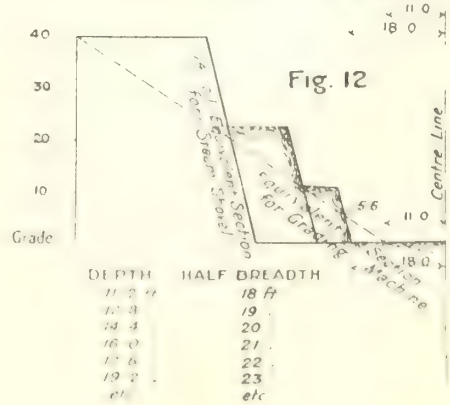


Fig. 12



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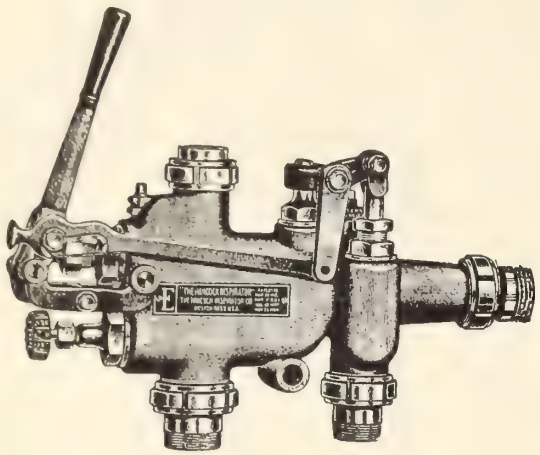

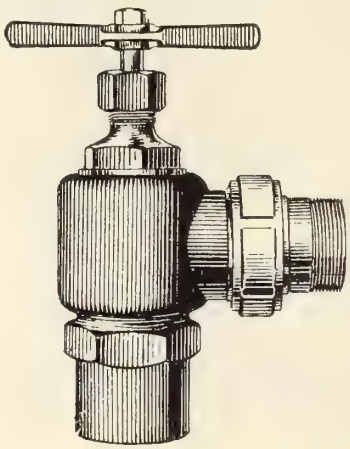

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is a very poor showing for the number of teams required. Whilst of great service in shallow borrow pit, street grading, and open work of that nature, this machine is all that is claimed by the makers, the writer is of opinion that money can easily be lost by trying to use it where boulders or hardpan are encountered, or where cuts are limited in width. Its chief drawbacks are: Too many delicate parts, frame not heavy or rigid enough, and consequently too much lost time for minor repairs, and as there is usually a big outfit waiting on account of the repairs, a series of short stoppages soon make a big loss..

STEAM SHOVEL WORK.—Fig. 12 shows the diagram used to stake cuts for this work, giving equivalent quantities to the roadbed used, viz., 22 ft. slopes 1½—1. It is advisable to stake these cuts to a 1½—1 also, and cut a grip along this line to induce the bank to break back to the correct lines. If this is not done it breaks away in pockets. Fig. 13 will be found useful in determining what a given size of shovel will do, and enable one to lay out the most economical lifts which should be taken in making a thorough cut. The question of water supply for the shovel, its quality and quantity, should never be overlooked, as it materially affects the cost of the work. The use of heavier steel than the dinkeys and dump cars call for, is not economical, as it costs too much to move around and handle. An all around shovel on traction wheels with a 1½ or 2 yd. dipper, and 2½ yd. cars on 30 lb. steel, would often be more serviceable than the heavier types of shovels, where the frequency and distance of moves is considered, and if it could be operated by a gasoline motor to solve the fuel difficulty, an almost ideal machine for railway work would be available.

On deep cuts and high fills it is very convenient for purposes of running fence stakes, etc., to have them set out before ground is broken, as great trouble is experienced in setting them afterwards, particularly around curves.

The foregoing paper by F. P. Wilson, was read before the Canadian Society of Civil Engineers.

The Manual of Statistics and Stock Exchange Year Book for 1910, has been issued from the publishing office, 20 Vesey St., New York City. This is the 32nd annual issue of a carefully compiled review of the financial position of the principal railways—steam and electric—and other transportation, industrial and financial companies whose stocks are dealt in on the principal exchanges in the U.S. and Canada. The section near the end of the volume, dealing with the range in prices of the stocks dealt in on the principal exchanges of North America for 1907, 1908 and 1909, is of importance to all investors. There are also added a large number of tables covering prices of various commodities, visible wheat supply, average prices, value of exports, etc., as well as much other information to which all interested in financial matters need constantly to refer. The price is $5.00.

The New Brunswick Railway Act was amended at the last session of the Legislature, by substituting for sec. 9 a new one providing that the right of way which may be taken without the consent of the owner, shall not exceed 100 ft. in width, except where necessary for banks, slopes, etc., or for stations, yards and other buildings. A new section, 90, was added providing for the making of agreements for the construction of temporary or permanent spur tracks, to gravel and ballast pits, etc.

Sir Wm. White, who was recently elected a director of the G.T.R. in the place of Sir Chas. Rivers Wilson, was in Montreal early in June.

Railway Finance, Meetings, Etc.

Albert Ry.—A press dispatch from Moncton, N.B., June 11, stated that the Government Railways Managing Board had made an inspection of this line. This is one of the branch lines which it has been proposed should be acquired by the Intercolonial Ry.

The railway extending from Salisbury, on the I.C.R. for about 50 miles, through Albert County to Albert and Harvey, was originally the Albert Ry. For some years it was known as the Salisbury and Harvey Ry., and in 1909, after a sale and reorganization, it was renamed the Salisbury and Albert Ry. There is an extension of 19 miles known as the Alberta Southern Ry., which has not been operated for some years. (See Salisbury and Albert Ry., May, 1909, pg. 357.)

Alberta Ry. and Irrigation Co.—Approximate net profits from all sources, exclusive of land sales, for April, $30,360, against $10,089 for Apr. 1909. Cumulative net profits for 10 months ended Apr. 30, $407,516. Traffic receipts for May, $31,863 against $22,293 for May 1909. Aggregate traffic receipts for 11 months ended May 31, $355,137.

Atlantic, Quebec and Western Ry.—Application is being made to the Board of Railway Commissioners for approval of an agreement of sale of the lines forming the Baie des Chaleurs section of the Atlantic and Lake Superior Ry., from Matapedia to Paspebiac, Que., to the Quebec Oriental Ry. The Q.O. Ry. is the title of the company incorporated by the Quebec Legislature, working under a Dominion charter as the Atlantic, Quebec and Western Ry.

Canada Southern Ry., Niagara River Bridge Co.—Niagara Grand Island Bridge Co. At the annual meetings of these companies, at St. Thomas, Ont., June 1, with Nicol Kingsmill, K. C., in the chair, the following were elected directors for the current year:—W. K. Vanderbilt, F. W. Vanderbilt, C. M. Depew, W. H. Newman, W. C. Brown, J. E. Brown, E. A. Wickes, L. C. Ledyard, New York, and H. B. Ledyard, Detroit.

Canadian Northern Ry.—A trust deed, dated Jan. 27, has been deposited with the Secretary of State, between the C.N. R., the British Empire Trust Co., and the National Trust Co., supplementary to a trust deed of Oct. 21, 1908, securing an issue of 3½% 50-year debenture stock, guaranteed by the Government.

Canadian Pacific Ry.—In connection with press reports that the C.P.R. had secured control of the New York, Ontario and Western Ry., and of the Washington County Ry., Sir Thos. G. Shaughnessy said the stories represented cases of "some one buying a railroad for us without consulting us."

Another report credits the C.P.R. with having under consideration the formation of a company to take over and deal with its lands. Similar reports have been denied on numerous occasions.

The bonds issued by the Midland Ry. of Nova Scotia, amounting to $1,200,000, are reported to have been acquired by "interests friendly to the C.P.R." at 85 per cent. of face value, from the holders: Hon. S. H. Holmes, Halifax, N.S.; T. G. McMillan, Truro, N.S.; P. Lyall, Montreal; the A. Putnam estate, and the Sir Robt. G. Reid estate. The company's common stock has also passed under the control of the same friendly interests.

Central Ontario Ry.—Following are the directors and officers for the current year:—President, C. E. Ritchie; Vice President, J. J. Warren; General Manager, G. Collins; other directors, J. H. Moss, E. B. Stockdale.

Dominion Atlantic Ry.—Gross earnings for Apr., $86,000 against $89,773 for Apr. 1909. Aggregate earnings for 10 months ended Apr. 30, $990,750, against $953,977 for same period 1908-9.

A circular has been addressed to the shareholders in which the directors recommended the acceptance of the offer made through the Bank of Montreal by interests friendly to the C.P.R. to purchase a controlling interest in the company at 60% for the preferred stock, and 20% for the ordinary stock.

Grand Trunk Western Ry.—Notification has been given that this company (which is the western U.S. end of the G.T.R. Co.) is to pay on Dec. 1, under the optional provision of the mortgage, 85 per cent. of the principal and all interest earned and accrued on the second income mortgage bonds, of which $1,500,000 was originally issued.

Intercolonial Ry.—The financial statement for the fiscal year ended Mar. 31 shows a revenue of $9,268,234.99, and operating expenses of $8,645,070.33, leaving a surplus of receipts over operating expenses of $623,164.33. The revenue from freight was about two-thirds of the total, and that from passengers about one-third. There was expended on capital account during the year $1,278,409.45.

Kettle River Valley Ry.—A special meeting of shareholders has been called for July 8, in Toronto in connection with the issuing of first mortgage bonds.

Minneapolis, St. Paul and Sault Ste. Marie Ry.—There has been listed on the New York Stock Exchange $1,207,000 additional first consolidated mortgage 4½ per cent. bonds. Of the proceeds of the sale of these bonds $1,200,000 was used to pay for extensions, and $7,000 was exchanged for a like amount of Minneapolis and Pacific first mortgage bonds.

Montreal and Vermont Jct. Ry.—Following are the officers and directors for the current year:—President, C. M. Hays, Vice President, E. H. Fitzhugh; A. H. Gilmour, Secretary-Treasurer; W. H. Chaffee, Assistant Secretary-Treasurer; other directors, G. C. Jones, E. C. Smith and C. W. Witters.

New Brunswick Coal and Ry. Co.—The New Brunswick Legislature has authorized the Government to pay to the Dominion Government $48,919.05 on account of the N.B.C. and Ry. Co., as follows: For rails and fastenings supplied during construction in 1902-03, $39,459.11; for car service, freight balances, ticket balances and car repairs, $9,459.94.

Quebec and Lake St. John Ry.—The bondholders at a meeting held in London, England, May 28, decided to continue the receivership with a view of dealing with pressing debts, and to raise £50,000 on special priority securities, so as to provide for the continued operation of the line.

The Railway Share Trust and Agency Co., London, Eng., acting as trustees for the holders of prior lien, first mortgage and income bonds of the Q. and L. St. J. Ry., and A. J. Gorrie, Receiver, have entered an action aginst the company, and the Canadian Northern Quebec Ry., to recover about $8,000,000, the amount of bonds outstanding, and overdue interest.

Temiscouata Ry. Profits for Apr., $1,010, and for four months ended Apr. 30, $9,646.

Toronto, Hamilton and Buffalo Ry.—Following are the officers and directors for the current year:—W. C. Brown, W. H. Newman, C. F. Cox, New York; H. B. Ledyard, Detroit, Mich.; Sir Thos. G. Shaughnessy, D. McNicoll, Montreal; E. B. Osler, N. Kingsmill, W. P. Torrance, W. L. Scott, Toronto.

A Quebec jury has given $25,000 damages to a man who was permanently injured by the collapse of the Quebec Bridge in Aug., 1907.

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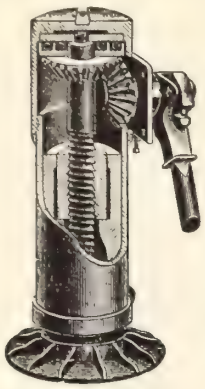
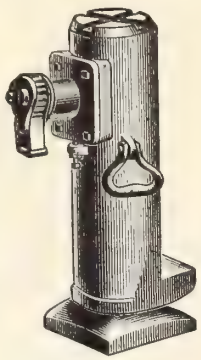

Sectional View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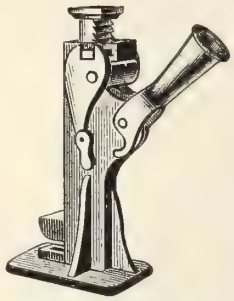
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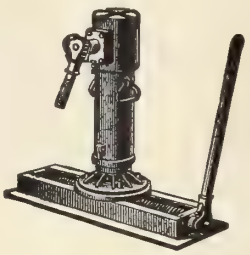
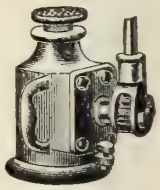

Traversing Jack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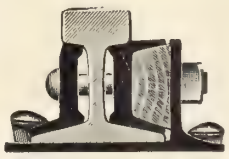
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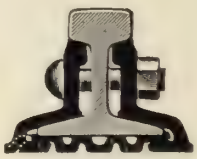
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Albert and Moncton Ry.—The New Brunswick Legislature has authorized the Aluminum Production Co., of N.B., to build a line from its mines to Hillsborough, and thence to Moncton, with such branches, spurs, etc., as may be necessary, and to be known as the Albert and Moncton Ry. The Aluminum Production Co. has acquired 1,480 acres of mineral lands in Albert County, covered by mining lease 81, granted in 1891 to H. A. Calhoun, and transferred by him to J. L. Peck.

Alberta, Peace River and Eastern Ry.—Press reports from Pincher Creek, Alta., state that those interested in this newly incorporated company are completing arrangements to begin construction on the Pincher-Cardston section, and that it is proposed to use the McGuire survey, placing the station at the police reserve, and to start work by the end of July. (June, pg. 447.)

Algoma Central and Hudson Bay Ry.—A contract has been let, we are officially advised, to the O'Boyle Construction Co., Sault Ste. Marie, Ont., for building the portion of the line from Hawke Lake Jct., to Hobon, on the C.P.R. transcontinental line, about 30 miles. This piece of line will connect up the Michipicoten branch with the C.P.R.

The work to be done on the line between Hawke Lake Jct., and Hobon, on the C.P.R., will be difficult, as the country is rocky and broken. The maximum gradient will be 0.6%, and the maximum curvature 12 degrees. There will be 17 trestle bridges on the 31 miles of line. The company will build a round house at Hobon.

London, Eng., cables state that arrangements have been completed for placing on the market £770,000 first mortgage 5% bonds, at an early date. The bonds are guaranteed, principal and interest by the Lake Superior Corporation.

Anticosti Island.—We are advised that arrangements are being completed for the building of a logging railway of about 10 miles. It will extend from the logging camps in the interior to a convenient shipping point.

British Columbia and Alaska Ry.—Reports from Lytton, B.C., state that survey parties have been organized to proceed with the location of this projected line; that the first party, in charge of J. Early, will work between Lytton and Eagle Lake, and the second party, in charge of E. C. Simpson, will work from Fort George, and that as soon as these surveys have been completed a branch from Lillooet to Vancouver will be located. The provisional directors named in the act of incorporation, passed last session of the B.C. Legislature, were local men acting as representatives of a New York syndicate which proposes to construct a railway from Vancouver through B.C. and Alaska. The syndicate has been incorporated in the State of Delaware with a capital of $12,000,000, with the title of the British Columbia Ry. and Development. R. Smailes, Greenwood, B.C., one of the provisional directors, stated that the surveys from Lytton to Fort George were being made first, in order to secure the right of way, but the first section of the line to be constructed would be that from Vancouver to Lillooet. (May, pg. 349. See also Howe Sound and Northern Ry.)

Chibougamou District.—The commission which the Quebec Government has appointed to investigate the resources of the Chibougamou district consists of Dr. A. E. Ballou, E. R. Laribault, of the Provincial Geological Survey, and J. G. Gwilim, of the School of Mines, Kingston, Ont. The first two will investigate the geology of the district, and the last named the economic value of the mineral showings. Topographical surveys will be made by —. Valliquette, Quebec, and the commissioners will be accompanied by a party of student assistants. The commissioners have nothing to do with locating a route for a railway, although, if their report on the country is favorable, the Government, as stated by the Premier, will consider the question of either aiding the building of a line, or building one as a provincial undertaking.

Delaware and Hudson Co.—The Dominion Government, under the terms of the act granting aid to certain railways, has entered into a contract with the Quebec, Montreal and Southern Ry. (the title of the D. & H. Ry.'s Canadian line) for the construction of bridges over the Nicolet, Gentilly and Becancourt Rivers, Que. These bridges are on the section of the line completed in 1908. (Oct., 1909, pg. 743.)

The Eastern Canada Lumber and Construction Co. has been incorporated in New York City for the purpose of taking over and developing the Prescott property of 20,000 acres of timber lands in Albert County, N.B. The company has also acquired 3.5 miles of railway extending from the saw mill to the wharf at Harvey. The officers are: President, W. H. Malcolm; Vice President, J. H. Moran; Treasurer, A. Tippett; Secretary, J. W. Clow, all of New York.

The Fredericton and Grand Lake Coal and Ry. Co. was incorporated last session of the New Brunswick Legislature to build a line from Gibson, on the Intercolonial Ry., to a junction with the N.B. Coal and Ry. Co.'s line near Minto. The provisional directors are:—A. R. Slipp, H. P. Zimmerman, C. F. Chestnut, H. W. Words, A. B. Wilmot, D. K. Hazen, P. Glasier. The company is authorized to arrange for running rights over the Intercolonial Ry., the C.P.R., the New Brunswick Ry. and Coal Co.'s line, and the line which may hereafter connect with the National Transcontinental Ry. (May, 1910, pg. 349.)

Halifax and Eastern Ry.—An order-in-council has been signed by the Lieut.-Governor of Nova Scotia, under the authority of chap. 1 of the statutes of 1906 incorporating a company with this title, having for its object the construction of several lines of railway for the development of the Alfred Dickie and Co.'s timber limits in Halifax and Guysboro counties, which have been acquired by the syndicate now incorporated. The company is given power to build a railway from Halifax or Dartmouth to Guysboro, with branches to Country Harbor and other points, for the construction of which various projects, subsidized by Nova Scotia and the Dominion, have been put forward during the past 15 years under the titles of the Musquodoboit Valley Ry., New Glasgow and Sunny Brae Ry., Halifax Northeastern Ry., North-Eastern Ry., Halifax and Eastern Ry. The provisional directors are:—J. B. Bartram, Toronto; T. P. Fogg, Toledo, Ohio; G. H. Raw and S. Hirsch, London, England, brokers. The board of directors is to consist of not less than two nor more than nine members of the company. The Governor-in-Council is to have the right to appoint two, who shall not be shareholders. The head office is to be in Halifax or such place in Nova Scotia as the directors determine. The capital stock is to be $3,000,000. The company is to have free right of way over Crown lands, and the charter is to cease unless the company be actually organized and engaged in business in two years. It is expected that the contract for the construction of the road will be signed in a few days. Surveys have been made for the line by different companies which from time to time have had the matter under consideration, as well as by the N.S. Government. The Government report, together with the subsidies voted by the Dominion Parliament and the Nova Scotia Legislature, will be available for the new company. (See Halifax and Eastern Ry., June, pg. 449.)

The Hartland and Miramichi Ry. Co. has been incorporated by the New Brunswick Legislature to build a railway from Hartland, Carleton County, to a convenient point on the National Transcontinental Ry. The provisional directors are:—E. A. Britton, D. H. Lamont, S. S. Miller, M. L. Hayward, and H. A. Smith. (May, pg. 349.)

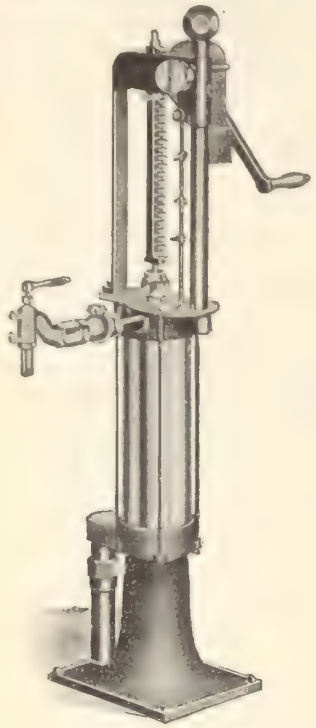
Howe Sound and Northern Ry.—Announcement was made recently in Vancouver that a contract had been let for the completion of the line from the present terminus to Newport, B.C., and that it was expected to have the portions of the line now under construction ready for operation at an early date. It is also reported that construction is being proceeded with on the Marquain River branch, which is intended to open up some extensive timber areas. Nothing, it is reported, has been decided as to construction between Pemberton Meadows and Lillooet. J. C. Gill, Manager, is quoted as stating that the company is an independent one, and it was proposed ultimately to extend its line to Fort George on the Grand Trunk Pacific Ry. (June, pg. 449. See also British Columbia and Alaska Ry.)

Hudson Bay and Pacific Ry.—We are advised that at present only survey work is being done, and that the company is not in a position to give any details as to its ownership, organization or construction programme.

From another source we learn that there is a hitch in the organization proceedings of the company, and that it will be some weeks before permanent directors can be elected. The provisional directors are at variance among themselves and some technical objections, arising out of which one side has obtained an injunction to prevent the others acting, in the transfer of the charter to the new company. "The people have the money and are ready to go on," we are advised. The court proceedings taken in Ottawa show that the difference is between the Canadian and the British directors, against whom an injunction has been issued. The British directors are Colonel Josiah Harris, J. Weston, H. Spicer and J. F. Greville, and along with them is associated in the injunction the Hudson Bay and Pacific Development Co., which they had organized to finance the construction. The Canadian directors are R. Jones, E. E. Latiere, Ottawa; A. Racine, E. H. Lemay, Montreal, and they allege in their complaint that the British directors desire to get control and oust them.

Several conferences have been held at Ottawa between J. A. Taylor, New York, and members of the Government relative to railway construction in the vicinity of Hudson Bay. J. A. Taylor, who has been mentioned as head of the firm, having a contract to build the H.B. and P.R., is said to have as associates W. C. Teebier, P. Tiffany, and E. Van Etten, of New York.

Since the above was written we have been officially advised that the officers and directors are: The Earl of Essex, Lord Tenterden, Col. Sir A. FitzGeorge, Col. N. Fleudver, Col. I. Josiah Harris, J. Western, S. Homage, W. Vaughan Williams, M. S. Jobling, C. H. Spicer, J.G.F. Greville, (Managing Director); (these directors reside in London, Eng.); H. Spicer, Managing Director in Canada; C. R. J. Bethune, K.C., Ottawa; Secretary, J. G. Hatton; Solicitors, Shepheards



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Intercolonial Ry.—The contract for building a line from Nelson to Chatham, N.B., 8.5 miles, has been let to Morrison and Clark, Summerside, P.E. I. The object is to reduce the heavy gradients on the main line between Nelson and Loggieville.

A. W. Campbell, Deputy Minister of Railways, left Ottawa June 6, for the purpose of making a trip of inspection over the line. He was accompanied by the other members of the Board of Management, and met the officers of the different divisions along the route. At various points he received deputations from local organizations desirous of bringing forward proposals for improvements. At St. John, N.B., June 9, he delivered an address before the Canadian Club, in which he announced that the deep water terminals at that port would be extended. The property to be used in these extensions would be that originally granted by the city for the sugar refining project, and later exchanged by the promoters for some property belonging to the I.C.R.

E. Tiffin, a member of the Managing Board, in a recent interview at Montreal, said the time was coming when it would be officially recognized that Halifax should be both the summer and winter port for the mail steamers. As to the future of the I.C.R. it was recognized that the markets for the country through which the line passed, lay in Montreal and west, and he thought, personally, it would be a good thing, both for the I.C.R. and the Maritime Provinces, if the line were extended to Toronto. (June, pg. 449.)

Kettle Valley Lines.—Surveys for the extension of the line from Grand Forks to Vancouver, B.C., are being completed. H. D. Lumsden, being reported to be in charge of the work. (June, pg. 449..)

London and Port Stanley Ry.—It is estimated that the cost of electrifying this line, owned by the city of London, Ont., will not exceed $250,000. This includes the laying of a second track, and the provision of a sufficient number of cars. A suggestion is made that the city should run its own electric service and give running rights over the line to the several steam railways running into London and desirous of having a connection with Port Stanley. (April, pg. 271.)

Long Soo and Abitibi Ry.—The Quebec Legislature has incorporated a company with this title, to build a railway from some point on James Bay, between the Ontario and Quebec boundary and the East Marn River, and the Long Sault at the foot of Lake Timiskaming, and the Desmoines River, Que., and to connect with the National Transcontinental Ry., and the C.P.R. The company may operate its line by steam, electricity or other motive power. The provisional directors are:—T. G. Brigham, G. E. Mulligan, D. B. Mulligan, W. E. Hayes, Jr., J. Ayler.

Michigan Central Rd.—The work of raising the track and otherwise improving the main line through Essex county, Ont., is being proceeded with, and will be completed this summer. The tracks of the electric railway which cross the line at Talbot St., Essex, have been raised for some distance on each side of the track to correspond with the new M.C.R. levels.

The old buildings on the site of the proposed new station in Detroit, Mich., have been cleared away, and everything is now ready for making a start on the building. (June, pg. 451.)

Montreal Central Terminal Ry.—Plans showing the company's proposed lines and a tunnel under the St. Lawrence River have been filed with the Department of Railways. The proposed line starts a short distance east of Montreal Junction, north of the Lachine Road, and runs into the city via St. Antoine St. A detour is made north-easterly at Windsor St., between Craig and Dorchester Streets, as far east as Amherst St., where it crosses St. Catharine St., and continues to Delorimier St., passing along between Ontario and Sherbrooke Streets to a junction with the C.P.R. near Viauville. A branch line to the C.P.R. station at Place Viger is shown from near the corner of Craig St. and St. Lawrence Boulevard. Another branch starts from between Amherst and Delorimier Ave., to the river, across to Ile Ronde, thence to Longueuil and on to a junction with the Central Vermont Ry. to Chambly. The company's application to the Dominion Parliament for an extension of time was defeated last session, but it is claimed that its charter does not expire until 1911. (Jan., pg. 21.)

Nasuga Gulf to G.T. Pacific Ry.—The British Columbia Legislature will be asked next session to incorporate a company to build a line from Nasuga Gulf, on Portland Canal, following the Naas River to its headquarters, and down the Kitsum Kalum River to the G.T. Pacific Ry. Barnard and Robertson, Victoria, are solicitors for applicants.

Nelson River Ry.—A meeting of the shareholders is to be held in Winnipeg, July 2, to elect directors, change the location of the head office, pass bylaws, and transact other business incidental to organization. (June, pg. 451.)

Northern New Brunswick and Seaboard Ry.—The total authorized bond issue is $390,000 of 4% 30-year gold bonds, being at the rate of $15.000 a mile on not exceeding 26 miles of railway. Of this there has been built 16.9 miles and there has been placed on the market by the Royal Trust Co. $253,500 of the bonds at 99¼. They are guaranteed by the Canada Iron Corporation and by the Province of New Brunswick.

Peace River Ry.—Press reports from Edmonton, Alta., state that application will be made to the new Legislature by J. Revillon and the other partner of Revillon Freres, for the incorporating of a company with this title to build a line from Edmonton north-westerly via Sturgeon Lake to Grand Prairie, on Peace River, about 250 miles.

Port Moody, Indian River and Northern Ry.—A press report states that 50 men with teams started grading, May 23, north of Port Moody, B.C., on a line to tap the country north of Burrar Inlet. The first four miles from the head of the Inlet, it is reported, is to be completed within three months. (May, pg. 353.)

Quebec and New Brunswick Ry.—A press report states that T. Malcolm, President of the International Ry. of New Brunswick, has secured control of the Quebec and New Brunswick Ry. charter. The latter company was incorporated by the Dominion Parliament in 1900 to build a line from Connors, N.B., on the Temiscouata Ry., St. Francis branch, to St. Charles Jct., Que., on the Intercolonial Ry., St. Anselme, Que., on the Quebec Central Ry., or Chaudiere Jct., on the G.T.R., about 130 miles. Some small amount of grading was done near Connors, in 1903, in order to hold the charter, and an extension of time for construction was granted in 1903, and at subsequent dates. In 1908 a further extension of time was granted for construction, and the company was authorized to add a point on the National Transcontinental Ry. in the St. Francis River Valley to the points from which a choice of a possible northerly terminal could be made; and to construct a line from either of these points to the International boundary line, at the 13th tp. in the State of Maine. Power was given in 1909, to build a line in addition to those already noted from Connors to Centreville and Woodstock, and thence by the St. John River Valley to St. John.

Reid Newfoundland Ry.—Eight miles of the Bonavista branch have been completed; the grading has been completed to Goose Bay and work is being proceeded with on to Southern Bay. Track laying is being done at the rate of about 3,000 feet a day, and the ballasting gang is following close behind. It is expected that the branch will be completed by the end of this year. (June, pg. 451.)

St. John and Quebec Ry.—See St. John Valley Ry.

St. John Valley Ry.—The New Brunswick Legislature has authorized the Government to have a survey made for a railway from the National Transcontinental Ry., passing through or near Centreville, Lakeville, Woodstock, Fredericton and Gageton, to St. John, or to the C.P.R. near Westfield, or other points. The line is to run as near as practicable to the western bank of the St. John River. The engineers are to report to the Government as to the route proposed and the estimated cost of construction. The cost of making the survey is to be repaid to the Government by any company undertaking the construction of the line. The Government is authorized to guarantee the bonds of any company undertaking the construction of the line up to $25,000 a mile, at 4 per cent., the principal to be repaid in 50 years, the guaranteed bonds to be issued as each 10 mile section is completed, the Government to be secured by a first mortgage on the railway, rolling stock and other property. The guarantee shall not be given until a contract has been entered into with the Dominion Government under the acts for aiding certain railways, and a further agreement under which the line will be operated for 99 years by the Department of Railways as part of the I.C.R. at a rental of 40 per cent. of the gross receipts, payable to the N.B. Government. The Government is also authorized to guarantee the bonds of any company to the extent of $25,000 a mile to construct a railway from Andover to Westfield. Provision has to be made in either case for running rights to St. John, L'Etang, St. Andrews or other points in Charlotte County. The N.B. Legislature last session incorporated the St. John and Quebec Ry. Co. to build the line mentioned above. The provisional directors are:—A. R. Gould, A. N. McLennan, J. M. Robinson, H. B. Robinson, R. Thompson. (June, pg. 451.)

Southampton Ry.—The New Brunswick Legislature has incorporated a company with this title to construct a railway from near Millville station, on the C.P.R. Gibson branch, crossing the

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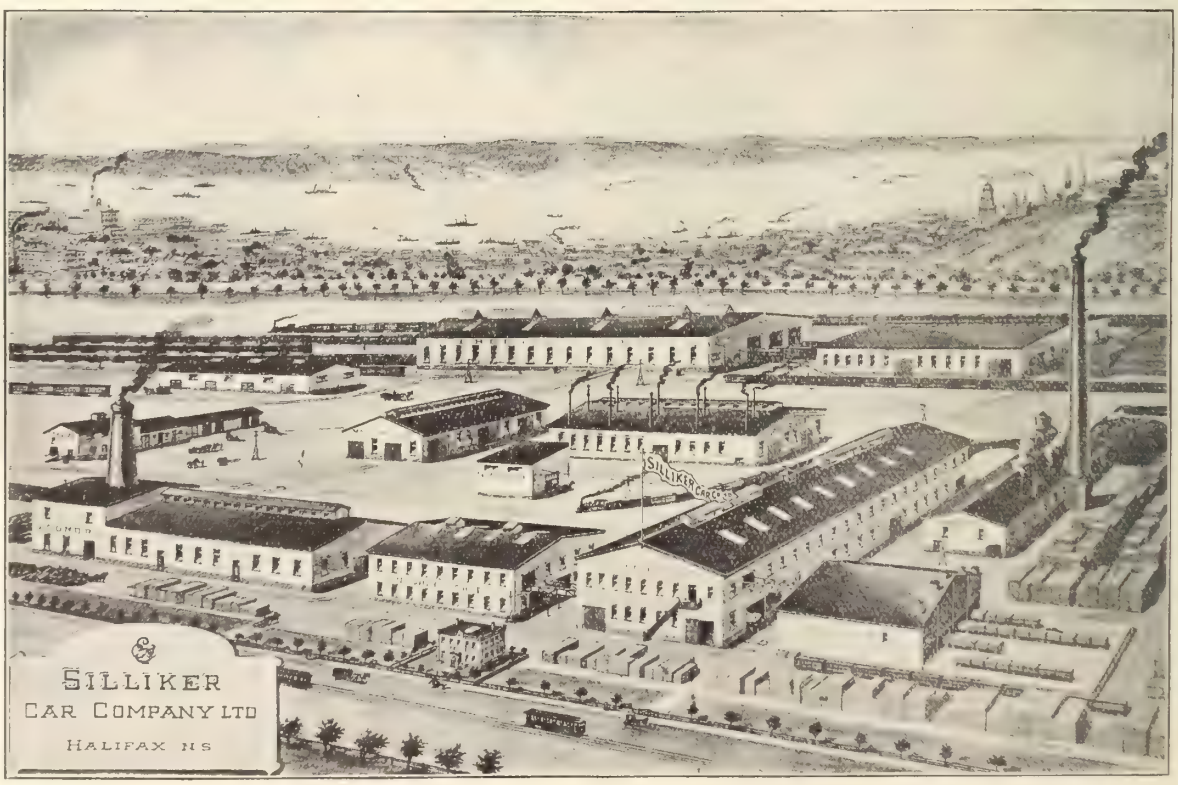

HEAVY FORGINGS AND CASTINGS

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north-east Nackawich stream to Pokrok bridge in York county. The provisional directors are:—J. E. Stewart, J. K. Pinder, H. H. McNally, D. Gilman, P. A. Guthrie, A. C. Hagerty and W. E. Trites. (May, pg. 353.)

Spokane International Ry.—Press reports state that construction has been begun on the Coeur d'Alene and Lead d'Oriche Ry., from the Spokane International Ry., 25 miles east of Spokane, to Cœur d'Alene city, Idaho. The report says it is expected to have the line completed in about three months. The Spokane International Ry. connects with the C.P.R. Crow's Nest branch at Yahk, B.C. The President of the new line is D. C. Corbin, and the Chief Engineer E. G. Taber, who hold similar positions on the S.I. Ry.

Toronto, Hamilton and Buffalo Ry.—Application is being made for permission to lay five additional tracks at the east end yards, Hamilton, and considerable opposition is being given by the city council. The company says it desires the increased accommodation at the belt line junction, and that there is no intention to abandon the west-end yards, and build a roundhouse in the east.

A statement was made by Gen. Superintendent Adams, Jan. 9, that owing to the increase of the company's business the line between Hamilton and Welland, Ont., would be made a double track one, but we were officially advised, June 17, that the work is not now in contemplation. (Apr. 1908, pg. 247.)

Vancouver to New Westminster, B.C.—Application will be made to the British Columbia Legislature to incorporate a company with this title to build a railway from Vancouver, through the municipalities of Point Grey, South Westminster and Burnaley to New Westminster, with branch lines not exceeding 15 miles in length in any single instance. Promoters desire to have power to operate the line by steam, electricity or any other motive power. Harris and Bull, Vancouver, are solicitors for applicants.

Western Canada Power Co.—The railway which this company proposes to build will extend from Ruskin station, adjoining the wagon road by Stave River, on the C.P.R., to the falls at Stave Lake, about 8 miles. The line is to be used for taking in the material for the construction and equipment of the power house which is being built at the falls. A small electrical plant has already been installed in connection with the development of the company's larger plans. It is expected that the line will be completed by Sept., when the power house should be sufficiently far advanced to receive the steel work. Plans have been filed at Victoria, B.C., for the route of the high tension line from the falls to Vancouver. It will follow the Dewdney trunk road and the Como and Johnson roads.

A contract is reported to have been let to Morrisey, Smith and McLean for the grading of the line from Ruskin to Stave Lake. A press report from Ruskin, June 4, says work has been started, and it is expected to have the line completed by Sept. (June, pg. 453.)

E. A. Bent, wholesale and commission lumber, New London, Conn., in renewing his subscription, writes: "I find The Railway & Marine World very complete in its information on Canadian railway and marine doings, and being a Canadian, I am very much interested in it."

The C.P.R. commenced on June 1 a double train service each way every day between Montreal and Vancouver, the Pacific Express leaving Montreal in the morning and Imperial Limited in the evening. The company also runs a daily train from Toronto to Winnipeg.

National Transcontinental Railway.

Upon his return to Ottawa June 13, after having made a visit of inspection over the G. T. Pacific Ry., and attended to some matters in connection with arbitrations between the contractors on the N.T.R., and the Commissioners, C. Schreiber, Chief Consulting Engineer, said he did not look for the completion of the line from Moncton to Prince Rupert before the end of 1913. The work was going ahead nicely, but the great difficulty in the way of an earlier completion was the heavy work in the Mountain section and the scarcity of labor. On the line west of Winnipeg 915 miles of track had been laid and of this, 820 miles were being operated. The Mountain section would be 836 miles long and there were 438 miles under construction, 249 miles from Prince Rupert easterly, and 189 miles westerly from Moose Creek. Track was being laid over the first 100 miles of the Mountain section. The maximum gradient going west is 0.4%, and with the exception of a 1% gradient for about 20 miles, it is the same coming east. Sir Wilfrid Laurier is expected to leave Ottawa July 7, for a tour to the Pacific Coast, during which he will visit a number of the construction camps, and the places reached on the line. The Minister of Railways said that when the party reached Winnipeg special attention would be given to the terminal question.

The annual report of the Commissioners covering the work of the last fiscal year to March 31, was issued June 14. It shows that 63% of the grading on the whole line from Moncton to Winnipeg was finished and 45 % of the bridging. During the year 521 miles of track were laid, the total track mileage on Mar. 31 being 760, with 165 miles of sidings. The line from Winnipeg to Fort William will be opened for regular traffic in August. The total expenditure on the road up to the end of the fiscal year was $71,137,993.

Reports from Moncton, N. B., state that track laying has been completed on the Corbett and Floesch and the McManus Co.'s contracts, and that there is a fill-in to be made on the east side of Salmon River where the contracts meet, in order to enable the two ends of track to be joined. The bridge at Chipman is completed, and that at Salmon River is well forward. Track has been laid from Chipman to McGivney's, 40 miles, and 30 miles of ballasting has been completed. From McGivney's to Plaster Rock, 66 miles, grading has been completed, while 38 miles of track has been laid. The work between Plaster Rock and Grand Falls, 30 miles, is very heavy, but good progress has been made. The tunneling has been completed, with the exception of some of the approach work, and about 10 miles of track has been laid. There are some heavy bridges to be erected on this section, for which the Dominion Bridge Co. has the contract. There is a great scarcity of labor, but it is expected that the 256 miles of line in the province will be completed by the end of the season.

Westerly from Quebec there has been completed, with the exception of about 10 miles west of La Tuque, a stretch of 160 miles, on which about 100 miles of track has been laid. Cochrane, Ont., is the next centre of construction, and from that point track had been laid for 26 miles east to Mistange River, and grading is completed for 52 miles beyond the river. A steel bridge is being erected across the river. Track has been laid westerly from Cochrane to Ground Hog River, 52 miles, where a temporary bridge is being built to carry supplies across pending the erection of a permanent bridge. It is expected to lay an additional 50 miles of track westerly from Cochrane this season. A 24-stall roundhouse is being built at Superior Jct., Ont., the junction with the G.T.P. branch line to Fort William. West of Superior Jct., the finishing touches are being given to the line into Winnipeg, which will be opened for regular traffic in Aug. W. S. Calvert, one of the Commissioners having charge of construction, in a recent interview, said splendid progress was being made with construction all along the line, and especially in Northern Ontario. The commissioners were doing all they possibly could to have the terminals at Winnipeg rushed forward, so as to have everything ready to enable the G.T.P.R. to carry grain through to Fort William this season.

Atlantic Coast Terminals.—C. M. Hays, President G.T.R. and G.T.P.R., paid a visit to St. John, N.B., in June to inspect the site on Courtenay Bay, recently purchased for terminal purposes. It is reported that the G.T.P.R. will be enabled to carry freight to St. John and Halifax by using the Intercolonial Ry. from Moncton. A St. John report of June 11, says: "The G.T.P.R. will probably enter St. John by means of a branch tapping the N.T.R. main line at Chipman. Survey parties are at work locating this branch, which it is proposed shall run from Chipman via the Belleisle and Washademoak, through Kingston and across the Kennebecasis at Reid's Point to St. John."

Quebec Bridge.—The removal of the shore approaches to the bridge is being carried out by the company which put them up—the Phoenix Bridge Co. The steel is being stored by the Dominion Government, and will be utilized for bridges on the Intercolonial Ry. or for highways. The specifications for the new bridge have been completed by the engineers, and are being examined prior to tenders being called for. In a recent interview, the Minister of Railways said from the enquiries made about plans, he expected that tenders would be submitted by bridge builders from Canada, the United States, Great Britain, France, and Germany. The estimated weight of metal in the new bridge is 75,000 tons. The advertisements state that tenders will be received to Sept. 1.

Quebec Terminals.—At a recent meeting of the Quebec city council, S. N. Parent, Chairman N.T.R. Commission, said they were prepared to renew the previous offer of $100,000 for the Champlain market site and guarantee that the commissioners would expend $2,000,000 in the city upon a station, workshops and sheds, and they were ready to commence work immediately if the city accepted the proposition. The Federal Government was willing to spend between $8,000,000 and $10,000,000 within the next few years on the river front, building a revetment wall and wharves between Champlain market and Lampson's Cove. He understood that the city was ready to have the works commenced immediately and that was the reason he was present at the meeting to try and have matters settled. He had had an interview during the day with Sir Wilfrid Laurier and the Minister of Public Works, and as a result the latter had informed him that he would immediately see that the dredging of the River St. Charles was carried out. After some discussion, it was decided to give the question further consideration in committee. The finance committee has since recommended the acceptance of the offer.

GRAND TRUNK PACIFIC RY.

The bridge across the McLeod River, westerly from Edmonton, Alta., is expected to be completed Aug. 1, after which track laying will be resumed and carried on as far as the grading has been completed. The first divisional point [illegible] Edmonton, will be [illegible] eight

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miles west of the McLeod River, and the erection of the roundhouse and other buildings will be gone on with as soon as construction materials can be taken in.

Working from the Pacific Coast the right of way has been cleared as far as Hazleton, and it is expected that the clearing gang will have got as far as Morricetown on the Bulkeley River, 30 miles from Hazleton, early in July. The contractors have completed the approaches to the tunel near Hazleton, and have started work on the boring. About two-thirds of the length of the Duncan Ross tunnel at Bulkeley River has been bored, and good progress is being made on the remaining 100 ft.

C. M. Hays, President G.T.P.R., passed through Winnipeg on a trip of inspection over the line June 19. In an interview he stated that the company had 12,000 freight cars ready for the handling of the crop along its lines from Edmonton to Fort William. It was the company's intention to build a large hotel in Winnipeg.

The Board of Railway Commissioners has approved the location of the line easterly from mileage 408.69 to 434.5, in the vicinity of Fort George, B.C.

GRAND TRUNK PACIFIC BRANCH LINES.

The question of the location of the line from Regina, Sask., to the International boundary, was recently discussed between the Premier of Saskatchewan and E. J. Chamberlin, Vice President and General Manager. The question at issue was whether the line should be diverted from the route located by the company so as to pass through Weyburn, as the people of that town desired. The company said it would have to abandon its extension in Southern Saskatchewan if this were insisted upon, but offered as an alternative to build a branch from the Regina line north of Weyburn into the town and on to the International boundary, where a connection would be made with a branch of the Great Northern Ry., now terminating at Scobey, N.D. (June, pg 483.)

The International Aviation Association, Ltd., has been incorporated under the Dominion Companies Act, with a capital of $100,000, and office at Montreal, for the purpose, among other things, of manufacturing and dealing in aeroplanes, balloons and all devices and machines for traveling in the air.

The Pere Marquette Rd., beginning June 27, abandoned Walkerville, Ont., as the terminus of its Canadian line, and now runs its trains from London and St. Thomas through to Detroit, Mich. The trains leave Detroit station, are carried across the river by car ferries, and are run from the C.P.R. dock around the Essex Terminal Ry. to Walkerville Jct.

The apprentices in the various G.T.R. shops were recently examined in mechanical drawing and practical mechanics. The standing of the different shops is as follows:—Drawing—1st, Stratford; 2nd, Montreal; 3rd, Deering; 4th, Allandale; 5th, Ottawa; 6th, Battle Creek; 7th, Toronto. Practical Mechanics—1st, Stratford; 2nd, Montreal; 3rd, Toronto; 4th, Battle Creek; 5th, Deering; 6th, Ottawa; 7th, Allandale.

J. P. Mullarkey, Ltd., has been incorporated under the Dominion Companies Act, with a capital of $500,000, and office at Montreal, to carry on a general contracting business, to construct railways, canals, wharves, elevators, steam and other vessels, and public and private buildings, and in connection therewith to take over the business now carried on by J. P. Mullarkey, with existing contracts, assets and liabilities.

Canadian Northern Ry. Construction, Etc.

Canadian Northern Quebec Ry.—A contract has been entered into between the company and the Dominion Government under the act granting aid to certain railways for the building of a line from near L'Epiphanie on the main line north of Montreal, by way of St. Jacques L'Achigan to Rawdon, a distance of 16 miles. This line was completed in 1909, and a regular train service is being operated over it.

With a view to making Joliette a division point a round house, and shops for the making of running repairs to rolling stock are being erected. As soon as these are completed the employes at the present shops at Shawinigan Jct., will be moved there. The dispatching of trains on the line has already been centered at Joliette, it having been found to be a more convenient point than Montreal. The Assistant Superintendent has also been transferred there from Montreal.

The C.N.R. has secured options on a considerable area of property in Montreal, in the vicinity of St. Catharine St., and press reports state that it is being acquired for terminal purposes. Some papers credit the company with having in view the boring of a tunnel unaer Mount Royal.

The Board of Railway Commissioners has approved the location plans of a line from Hawksbury to Montreal. The line will cross the Ottawa River and run through Carillon, St. Andrews and St. Eustache to Hochelaga and Montreal. The company now obtains an entrance into Montreal by the line built as the Chateauguay and Northery Ry., joining the Ottawa-Quebec line at Joliette, but the route now located will give a very direct line. Tenders have been asked for the building of the line.

Quebec and Lake St. John Ry.—The first three of the lines for which the Dominion Parliament voted subsidies last season, particulars of which were given in our June issue, page 485, have been built, and trains are being operated over them. We are advised in regard to the other three lines, for which subsidies were voted, that it has not yet been decided whether any construction work will be done on them this year.

Canadian Northern Ontario Ry.—Plans have been filed with the Board of Railway Commissioners showing the route of entrance of the Toronto-Ottawa line into Ottawa. Starting from the point to which the route had previously been approved—at the crossing of the Rideau River, near Nepean and Gloucester streets—it crosses almost at right angles the Bank St. extension, or Metcalf road, some distance south of Billing's Bridge, by an overhead crossing; parallels the St. Lawrence and Ottawa line of the C.P.R. to Rideau Jct.; crosses the G.T.R. and the C.P.R. near the second diamond, and effects a junction east of the Rideau River with the company's Montreal line, terminating for the present on Gladstone Ave.

We are advised that the sub-contractors engaged on the Don Valley-Trenton section of the line from Toronto to Ottawa, with their headquarters, are as follows:—Henderson & Kroft, mileage 237-241¼, Malvern; A. Piro & Co., mileage 233-234¼, Cedar Grove; John Baskin, mileage 229¾-233, Greenwood; C.A. Cook, mileage 226-229¾; Pickering, J. L. Boyd, mileage 219-222¼, Brooklin; J. A. Livingston, mileage 216¼-219, Brooklin; Ross & McComb, mileage 213-216¼, Oshawa; E. Mackenzie, mileage, 192-213, Toronto; W.M. Murray, mileage, — 192, Osaca; Allan & McPherson, mileage 171-177, Cobourg; Stewart & McInnis, mileage 165-171, Grafton; J. O. Giroux, mileage 155-165, Colborne; Delvin and Verlando, mileage 145-155, Trenton. The contractors for the concrete work on this contract are, Henderson Bros., Brooklin; and —. Campbell, Oshawa.

The Toronto board of control has passed a resolution providing that strip of the railway reservation on the east side of the Don River, be leased to the C.N.R. as soon as the Board of Railway Commissioners approve the terminal plans, showing the use to which the particular strip will be devoted.

The survey parties under H. K. Wicksteed, have completed the survey of the route for its line from north of Sudbury, to Port Arthur, Ont., and the work now in hand consists of reducing the survey notes into plans, and the making of special surveys, of points where improvements may be desirable or necessary, in order to get a perfect line. The route secured is said to be a most favorable one, obviating all the heavy gradients on the routes previously surveyed, and passing through country rich in minerals and timber, and having large areas of land suitable for agriculture. The new route will enter Port Arthur from the east, at Bare Point, while former routes provided an entry from the north.

Irondale, Bancroft and Ottawa Ry.—We are advised that a piece of line to connect the Irondale, Bancroft and Ottawa Ry. with the Central Ottawa Ry. at Bird's Creek, Ont., is being made and is expected to be completed early in July. The C.O. Ry. is doing the work. The I.B. and O. Ry is being operated under a lease by the C.O. Ry., for the Mackenzie-Mann interests which control it.

Duluth, Virginia and Winnipeg Ry.—Tenders have been received for building of a line from Duluth to Virginia, Minn., 142 miles. This will connect with the existing Duluth, Rainy Lake and Winnipeg Ry., now in operation from Virginia to the Rainy River, opposite Fort Francis, Ont., and so give the Canadian Northern Ry. a through connection from Duluth to Winnipeg and Port Arthur over its own lines.

We are further advised that it is not the company's intention to begin the construction of ore docks at Duluth at present. The plans for the docks are not yet complete.

Canadian Northern Ry.—The construction of the new coal sheds on the docks at Port Arthur, Ont., is well under way, and the filling of the new storage yard is about completed. The Vice President of the Pittsburg Coal Co., has been in Port Arthur on a trip of inspection, during which he discussed the question of the construction of another unit. The Thunder Bay Harbor Improvement Co. has been given a contract to extend no. 3 dock 250 ft. in length, with a width of 74 ft., pile foundation with heavy timber deck. When the dock extension is completed a freight shed 400 by 50 ft. will be built of mill construction, steel clad.

A contract has been let to Foley, Welsh and Stewart, for the permanent roadbed across Rainy Lake, Ont. The dump is to be sufficiently wide to permit of a double track line. The new work will diverge from the present track for about two miles between Nickel Lake and Rocky Inlet, about four miles east of Fort Frances, Ont. The channels between the islands will have to be filled except in two places, where there will be bridges, with draw spans. This is a heavy piece of work, as it incudes the building of a rock bank across the lake. The contract calls for completion by 1912. The length of the present trestle is about 6,700 ft., base of rail 20 ft. above high water. The material required for filling is estimated at about [illegible] cubic yards. The contract has been let for the superstructure of a double track steel bridge over the Assiniboine River at Winnipeg. In the course of an interview in Winnipeg, June 16, D. D. Mann, said the company would build an hotel probably on the site of the old Manitoba Hotel adjoining the present station, in

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Surveys have been completed for a branch from the Oak Point line near Cross Isle, and it is expected that construction will be started at an early date. We are advised that it is not the intention to go on with the extension of the Ochre River line this season.

The excavation for the station and hotel building at Brandon, Man., was begun June 6. The building, which is estimated to cost $150,000, is expected to be completed by April 1, 1911. The Brandon city council June 9 approved the route for the projected transfer railway. It was decided to adopt the First Avenue route as being in every respect the most favorable for the city.

The Greenway-Wakopa branch, we are advised is being extended for a few miles, but it is not likely that the extension will be pushed as far as Deloraine this year.

A press report states that plans have been prepared for a line to run from North Portal to Melville, and on to Hudson Bay Jct., Sask.

The extension from Maryfield, is the line which is ultimately to be extended to Lethbridge, Alta., and we are advised that it is expected to complete the grading of about 50 miles this season.

A line is to be built from Melfort on the Prince Albert line to Humboldt on the Edmonton line, and we are advised that it is expected to grade about 20 miles at the Melfort end this season.

In a recent interview at Calgary, Alta., M. H. McLeod, referring to the Vegreville-Calgary line, said it would be known during July the route which the company would follow into Calgary, and he expected that the grading would be completed in the spring of 1911. There was a good deal of heavy work to be done for about 30 miles from Red Deer, and the work in hand involved the building of the line to the Bow River. From that point into Calgary the company had no routes under consideration. The town sites on the line had been located to 30 miles east of the Red Deer River; the grading would be completed to a point 12 miles east of the Red Deer River by Aug. 1, and track laid to the same point by the end of the season. The C.P.R. secured an interim injunction June 16, restraining the C.N.R. from proceeding with the building of its line south of Stettler, Alta., on the ground of non-compliance with some of the requirements of the Railway Act. A large area of land through which the line runs, belongs to the C.P.R.

M. H. McLeod, General Manager, stated at Strathcona, Alta., June 3, that construction on the line from that place to Camrose on the Vegreville-Calgary line was to be started by the end of the month, and that 25 miles would be completed this season. The right of way for the entire line had been purchased, and 60 acres 12 miles from Strathcona, had been secured for a townsite.

The contractors are reported to be preparing to start work on the construction of the first 50 miles westerly from St. Albert, Alta. The only thing that is delaying a start is that the route has not been finally approved by the Dominion Government engineers.

W. Mackenzie, President, C.N.R., returned to Toronto from England June 3, where it is stated that he has secured altogether about $40,000,000 to aid in carrying out the various enterprizes in which he and his associates are interested. In an interview, he said during the present year the western end of the line should be well under way, and the distance between Edmonton and the Rocky Mountains pretty well covered. A start would also be made on the section round Lake Superior, but the question of a line to the Maritime provinces would be taken up later. The 70-mile line to give connection to Duluth, he hoped would be completed in the spring of 1911. The Brazeau coal districts were to be opened up, and a branch line of 140 miles run there from the Edmonton-Calgary line, which was now under construction. The purchase of the Dunsmuir mines, etc., on Vancouver Island, was not a C.N.R. matter, although C.N.R. people were interested in it.

Canadian Northern Alberta Ry.—In connection with the development of the Brazeau River Valley coal areas by the Mackenzie, Mann and Co. interests, several parties of engineers are in the field preparing plans, etc. The C.N.R. branch now terminating at Stony Plains, will be extended into the territory. Surveys of the line are being made, and it is expected that construction will be started early in 1911. This is the section of the line of the Yellowhead Pass for which the Dominion Parliament passed an act guaranteeing the company's bonds for $13,000 a mile for 50 miles; and $25,000 a mile for the next 100 miles. The main line from Stony Plains will pass north of the coal fields, but will be connected with them by a branch from near Wolfe Creek. It is proposed to build a direct line to the coal fields from near Stettler on the Vegreville-Calgary line.

Canadian Northern Pacific Ry.—We are advised recently that the trial surveys in British Columbia, with the exception of about 20 miles either side of Spences Bridge, had been completed, and that the plans were nearly ready for filing. Two parties are at work completing the surveys, for the line from the Yellow Head Pass to New Westminster, one working from the Pass and the other from Chilliwack, 60 miles above New Westminster. The route surveyed from the Pass follows the Fraser River to opposite Tete Juane Cache, where it crosses over the Cranberry Summit to the head water of the North Thompson River, and proceeds down the North Thompson River to its position with the South Thompson River opposite Kamloop, crossing it four miles above Lytton to the Fraser River, and down the left bank of that river to New Westminster. The surveys now being made may bring about some deviations in detail from the route above outlined. The surveys show that a gradient of 0.5% is feasible for the whole route. The route from New Westminster to Chilliwack, 60 miles, along the river front has been finally located and tenders for grading, etc., were received to June 15.

H. Sutherland, Executive Agent, stated in a recent interview that the funds required for the completion of the first unit of 150 miles of this line had been made and that arrangements had been made for the financing of the remaining sections as required. D. D. Mann, Vice President, in a subsequent interview, added the further statement that work on the Pacific section would be commenced at tide water about July 1, and that the 150 miles would be built this season. Tenders for grading, bridging, masonry, tracklaying, ballasting, and the erection of the telegraph line on 60 miles of line from New Westminster, were received to June 15 and are under consideration. The work has to be completed by June 1, 1911. This section will start from the south end of the Fraser River bridge, and will follow the river to Fort Langley, thence across country to Whonnock, then along the river to Matsqui, and again across country to Sumas mountain and around the north side to Chilliwack. Reports from Kamloops, B.C., state that preparations are being made to start construction at that point also, and that tenders will be asked for grading at an early date.

Interviewed at Vancouver June 8, D. D. Mann said the company was prepared to take its tracks into the city and to own its own terminals. A union station was all right, but union terminals were not. He would recommend, on his return to Toronto, the location of the repair shops at Port Mann, to which point the line would be built at once. The construction would be started as soon as the rails arrived.

In an interview at Winnipeg, June 16, D. D. Mann stated that with the exception of some changes from the original route in order to obtain better gradients the route from the present end of steel, westerly from Edmonton, to Vancouver, had been located. The company had also practically completed all its arrangements for building 120 miles on Vancouver Island, from Victoria to Barclay Sound. While Mr. Mann was in Victoria, he was quoted as saying that the building of this line would be placed under separate and independent officials reporting direct to Toronto, and that the local offices would be in Victoria, —. Hughes being Resident Chief Engineer. Alternative routes are being surveyed, and construction will be started as soon as possible. (June, pg 485.)

Dual Language in Quebec.

The Quebec Legislature at its last session passed an act making the following addition to the Civil Code to go into effect January 1, 1911:

"1682c. The following shall be printed in French and English: passenger tickets, baggage-checks, waybills, bills of lading, printed telegraph forms, contract forms, made, furnished or delivered by a railway, navigation, telegraph, telephone, transportation, express or electric power company, as well as all notices or regulations posted up in its stations, carriages, boats, offices, factories or workshops.

"1682d. Every contravention, by a railway navigation, telegraph, telephone, transportation, express or electric power company, doing business in this Province, or any of the provisions of the foregoing article shall be punished by a fine not exceeding $20, without prejudice to recourse to damages."

The British North America Act, in section 92, provides that in each province the Legislature may exclusively make laws in such matters coming within the classes of subjects next hereafter enumerated. Sub-sec. 10 reads:—

"Local works and undertakings other than such as are of the following classes,

"a. Lines of steam or other ships, railways, canals, telegraph and other works and undertakings connecting the province with any other or others of the provinces or extending beyond the limits of the province.

"b. Lines of steamships between the province and any British or foreign country.

"c. Such works as, although wholly situate within the province, are, before or after their execution declared by the Parliament of Canada to be to the general advantage of two or more of the provinces."

It would therefore appear that the additions to the Civil Code which Mr. [illegible] provincial railways, etc., and not to the C.N.R. and C.P.R., and other Dominion companies.

The Pere Marquette Rd., put on a Sunday train service between London and Port Stanley, Ont., June 26.

In future the charge for movement of each special passenger car from points in Canada east of the Detroit River to points in the territories of the Central Passenger, New England Passenger and [illegible] than the amount of 25 adult fares, computed on the basis of 2c. per mile per capita.

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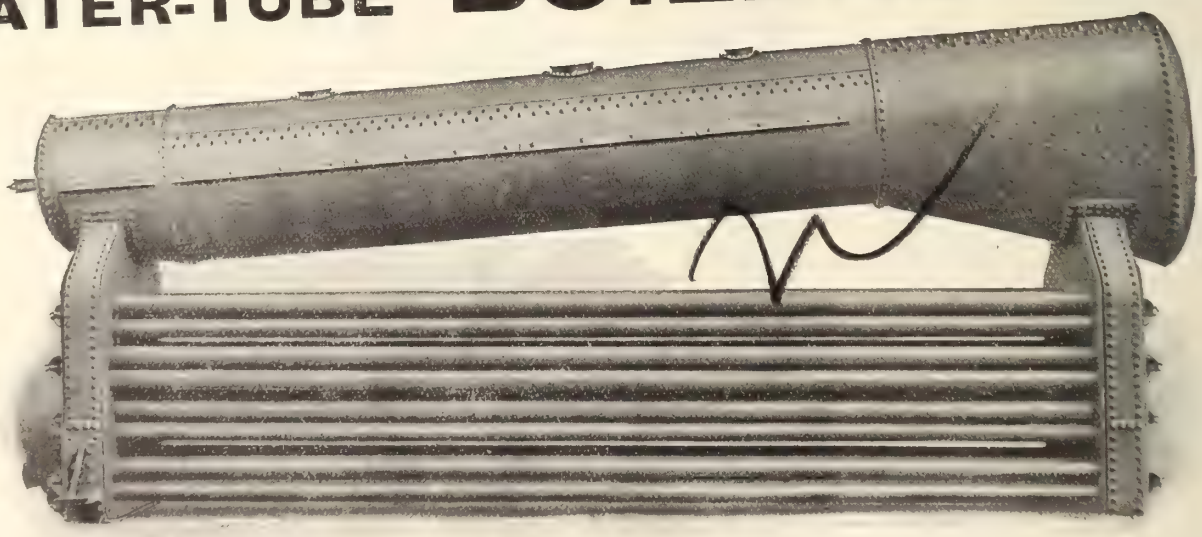

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Mackenzie, Mann & Co. Flotations in Europe.

W. Mackenzie, President Canadian Northern Ry., returned to Toronto early in June after spending nearly three months in England, during which and subsequently he made the following flotations and sales:

Canadian Northern Ry. Co., 4% perpetual consolidated debenture stock, £1,000,000.

Canadian Northern Ry. Co., 5% income charge convertible debenture stock $5,000,000.

Canadian Northern Steamships, Ltd., debenture stock, £600,000.

Duluth Winnipeg and Pacific Ry. Co., 4% 1st mortgage debenture stock £950,000.

Winnipeg Electric Ry Co.. 4½% perpetual debenture stock, £280,000.

Canadian Collieries (Dunsmuir) Ltd., 5% 1st mortgage bonds, £2,054,800.

Brazeau Collieries, Ltd., 1st mortgage bonds, $2,000,000.

Canadian Western Lumber Co., Ltd., 5% 1st mortgage debenture stock, £1,500,000.

THE CANADIAN NORTHERN RAILWAY CO. made an issue of £1,000,000 4 per cent. perpetual consolidated debenture stock at 95. It is perpetual and irredeemable and ranks pari passu in all respect with the similar stock officially quoted on the London Stock Exchange. The prospectus states that the trust deed provides that the total amount of debenture stock shall not exceed £2,500 per mile of line for the time being open and operated, and an amount not exceeding the cost price of securities of independent corporations from time to time deposited with the trustees, but the company cannot issue any debenture stock against such securities without the trustees' consent. The debenture stock is secured by a general charge upon the undertaking, property and assets (other than land and money subsidies) of the company, subject to the £1,180,600 of bonds primarily charged on the Ontario Division, 287 miles, and to charges created, or to be created, not exceeding $10,000 per mile of line, other than the above-mentioned 287 miles of line in Ontario, or $15,000 per mile if guaranteed by the Dominion, or any of the Canadian provinces, and is a specific first mortgage upon certain securities deposited with the trustees. The company is operating 3,180 miles, which includes 665 miles of leased lines. In addition, 371 miles of new branch lines have been completed and will shortly be opened for traffic, and over 500 miles more are under construction, a large proportion of which will be completed during the coming season.

For the first time in its history the Canadian Northern Ry. has issued a speculative security in the form of 5% income charge convertible debenture stock. The prospectus speaks of an issue of $15,000,000, or £3,086,419, of which $5,000,000 has now been disposed of. The prospectus states that it is repayable at par, May 6, 1930, or at any time after May 6, 1920, on six months' notice. The interest, which will be contingent on the railway's annual profits will be paid half yearly. Holders will have the option, on Jan. 1, 1916, and on each subsequent Jan. 1 and July 1, until Jan. 1, 1919, on 60 days' notice, to convert the stock into fully paid common shares at a fixed rate of $500 for $500 of shares in the company's common stock. The company has not at present the power to issue sufficient shares to exchange for this income charge stock, but application will be made for such powers and in the meantime the convertibility of the issue of $15,000,000 will be secured by the deposit with the trustees of fully paid common stock to meet any claims for conversion arising out of the present issue until the necessary additional powers have been obtained. The stock will be secured by a general charge on the company's railway and assets other than land and money subsidies, ranking behind the charge created thereon to secure the 4% perpetual consolidated debenture stock and all securities having priority over the 4% perpetual consolidated debenture stock and also ranking behind all charges for securing any of the company's securities guaranteed by the Dominion or provincial governments. The stock will be constituted by a trust deed to the British Empire Trust Co. and the National Trust Company, whereby the total amount of income charge convertible stock will be limited to $10,000 per mile of railway. The interest on the stock each year will only be payable to the extent that the net earnings arising from the operations of the railway in such year are sufficient to pay the same after providing for all operating expenses and other payments not chargeable to capital and the company's fixed charges. It is the intention in the future to amalgamate the railways of the Canadian Northern System by lease, purchase or otherwise, into one great corporation, which will unify and increase the earning power and at the present time increase its capital stock. When this is done and the further lines now projected have been constructed the C.N.R. will be one great transcontinental railway and navigation system, similar to the C.P.R. It is probable that another $5,000,000 of this stock will be disposed of in the autumn and the remaining $5,000,000 of the $15,000,000 early in 1911. The stock has been listed on the Toronto Stock Exchange where there have been some sales at 95½ to 96½ and application has been made for its listing on the London Stock Exchange.

THE CANADIAN NORTHERN STEAMSHIPS, Limited, recently issued £600,000 of debenture stock to pay for the three steamships which have been bought. This stock was acquired by the Canadian Northern Ry. Co., which company pays for the vessels partly in cash and partly of its 4 per cent. consolidated debenture stock.

THE DULUTH WINNIPEG AND PACIFIC RY. Co. made an issue through Lazard Bros. and Company, of London, Eng., of £929,000 four per cent. first mortgage debenture stock, part of a total issue of £10,500,000 of similar stock and bonds, principal and interest guaranteed by Canadian Northern Ry. Co., repayable at par on June 1, 1939, interest payable half yearly. The issue price was 92½. The stock is secured by a first mortgage on railway to be built from near the present terminus of the Duluth Rainy Lake and Winnipeg Ry., at Virginia, to Duluth, all in Minnesota and 40 acres of terminal accommodation in Duluth. The trust deed provides that on repayment of the $2,000,000 bonds of the Duluth, Rainy Lake and Winnipeg Ry. Co., which mature Jan. 1, 1916, and to retire which $2,000,000 of the Duluth, Winnipeg and Pacific Ry. Co.'s first mortgage debenture stock is reserved, the D.R.L. & W.R. Co.'s property will be transferred to the D.W. & P.R. Co. so that the debenture stock will be a first charge upon about 173 miles of railway and equipment between Duluth and the International boundary. In the meantime the control of the D.R.L. & W.R. Co. will be vested in the trustees to which the company's entire capital stock will be transferred.

The prospectus states that the present issue is made for the purpose of enabling the company to construct and equip a line from Virginia to Duluth, thus completing to the important railway and shipping centre of Duluth the line of the Canadian Northern system now in operation between Fort Frances and Virginia, and giving that system a second and shorter access to the Great Lakes. It is also proposed by means of the present issue to provide adequate terminal accommodation in Duluth to enable the company to handle the large traffic with which it will have to deal. The section will form an important part of the Canadian Northern system. Fort Frances, the point nearest to Duluth on the main line of the C.N.R., is about 175 miles distant. The section between the International boundary (two miles south of Fort Frances) and Virginia, about 100 miles, has already been built and is owned by the Duluth, Rainy Lake and Winnipeg Ry. Co., and its net earnings already largely exceed the interest on its $2,000,000 5% bonds. The new line will complete the remaining section into Duluth. It is expected that the line will be completed and ready for traffic at the opening of navigation on the Great Lakes in the spring of 1911. Duluth is a large railway centre and is entered by a number of the great American railway systems; it is therefore important to the C.N.R. to reach that city over its own lines, since it will then be in a position to exchange traffic with them. Duluth harbor (which embraces the ports of Duluth and Superior,) situated at the head of the Great Lakes is a most important shipping and distributing centre, is the largest ore-shipping port in the world. The increase in freight at Duluth harbor is shown by the figures given in the latest available report of the U.S. engineer in charge of the river and harbor work on Lake Superior:—1897, 8,475,000 tons; 1909, 32,529,000 tons. The rapid development of the Canadian West has resulted in a heavy and constantly growing traffic between Winnipeg and the Western and Middle States. As the new line will complete the shortest route from Winnipeg to Duluth and the Great Lakes, a large traffic is assured from the outset. Adjoining the railway between Virginia and Rainier are the timber limits of the Virginia and Rainy Lake Lumber Company, which claims to have the largest virgin forests of white pine timber in the Northern United States east of the Rocky Mountains. The lumber company has large mills at Virginia and Duluth, and expects to cut this year 250,000,000 ft. of lumber. The D.W. & P.R. Co. has a contract with the lumber company to carry all its logs and lumber so long as there is any timber to cut on the present limits. In the vicinity of Virginia are situated the great Mesaba iron ore mines. A very large proportion of all the iron ore used in the U.S. is mined from this range, and this ore has to be carried by rail to the Great Lakes for shipment. The new line will secure a share of this traffic, which is exceptionally profitable, and which in 1909 amounted to over 29,000,000 tons. The heavy traffic, which the road is expected to carry, will necessitate its being built to a high standard. A large equipment of iron-ore trucks and heavy engines will be necessary. It is estimated that as the result of its first year's operations from the date of its opening, the net earnings of the new line should amount to $487,200, whilst the interest on the $6,118,333 stock now issued will only amount to $245,935 a year.

WINNIPEG ELECTRIC RAILWAY CO. The position of this company is so thoroughly assured that it was not necessary to issue any prospectus, £200,000 of the perpetual debenture stock being placed, largely with people who were already investors in the company's securities, through the British Empire Trust Co.

THE CANADIAN COLLIERIES (DUNSMUIR) LIMITED has a share capital of $15,000,000, of which $5,000,000 are 7 per cent. cumulative pre-

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Thur., July 7	"Royal Edward"	Thur., July 21	Thur., Aug. 18	"Royal George"	Thur., Sept. 1
Thur., July 21	"Royal George"	Thur., Aug. 4	Thur., Sept. 1	"Royal Edward"	Thur., Sept. 15
Thur., Aug. 4	"Royal Edward"	Thur., Aug. 18	Thur. Sept. 15	"Royal George"	Thur., Sept. 29

and fortnightly thereafter.

For full particulars, Rate, Booklets, etc., apply local agent, or Wm. Phillips, Acting Traffic Manager, Canadian Northern Steamships, Limited, Toronto, Canada.

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Have the stations on your line name signs placed conspicuously? They should have, for the comfort of your passengers alone, if for no other reason. You know how aggravating it is, when the train pulls up at the platform, to have to crane your neck or leave your seat, endeavoring to see what station you are at. Besides it is good advertising for the line.

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ference shares, all of which have been subscribed for and $10,000,000 are common shares issued as fully paid. The directors are: President, W Mackenzie, President C.N. Ry.; Sir E. E. Walker, President Canadian Bank of Commerce; D. D. Mann, Vice President C.N. Ry.; A. D. McRae, Vice President Canadian Western Lumber Co.; E. R. Wood, Director G.T. Pacific Ry.

The recent issue is £2,054,800 5% first mortgage gold bonds at 95, repayable Sept. 1, 1950, at par, or at the option of the company before then on six months' notice at 105. The prospectus states that the company has been formed to purchase as a going concern, all the properties in British Columbiba and in California of Jas. Dunsmuir, in anywise relating to coal, coal mines and fire-clay. These properties include the whole of the share capital of the Wellington Colliery Co., Ltd., operating collieries on Vancouver Island, a 51% interest in the share capital of Robert Dunsmuir Sons Co., of San Francisco, and the mortgage existing on the property of the latter company. The properties of the Wellington Colliery Co. will be conveyed to this company and will be included in the mortgage and trust deed securing these bonds. The Wellington Colliery Co.'s holdings comprise all the coal in and underlying some 1.850,000 acres of the Esquimalt and Naniamo Ry. Co.'s land grant, estimated to contain not less than 600,000,000 tons of bituminous coal, together with the operating mines, railroads, shipping docks, etc., also several smaller tracts not included in the above grant. In addition the Wellington Colliery Co. owns about 20,000 acres of timber lands on Vancouver Island, 104 houses and an hotel, all of which are well rented. It further owns and operates 17½ miles standard gauge railway, including locomotives and cars, by which the coal is delivered to that company's docks. The company also acquires about 1,250 acres of land on Vancouver Island on which iron ore has been found, and about 5,000 acres of land on Denman Island. The property of R. Dunsmuir Sons Co., of San Francisco, consists of a town lot in Stuarts st., San Francisco, together with a wharf and bunkers on the water front; the value of which is estimated to be $1,000,000 These are leased to the Western Fuel Co. at a monthly rental. Amongst the contracts made by the Wellington Colliery Co. is one, having about three years to run, with the C.P.R. to supply coal to its ships and locomotives; there are others with important companies and firms. During 1908-9 the company delivered to the C.P.R. about 250,000 tons of coal. Both the Canadian Northern and the G.T. Pacific Railways are building to the Pacific Coast and will be large consumers of coal both for their railways and steamships.

The net proceeds of sale of these bonds will be applied towards the price payable to J. Dunsmuir for the properties, which is $11,000,000, the balance of the purchase price, together with the $3,000,000 required for improvements, having been raised by the issue of $5,000,000 of the preference shares above mentioned. Over $3,000,000 has in the past been spent in development of the properties.

Chartered accountants have examined the Wellington Colliery Co.'s accounts for the last three years, and the profits, according to their report, after allowing for all expenses, other than depreciation and exhaustion of minerals, and allowing for the addition for 1909 of £4,155, interest on the mortgage on the San Francisco properties averaged £154,751 a year, the average profit per ton of coal being about $1. During the year ended June 30, 1909, no profits were received from the sale of coal at the San Francisco wharf of R. Dunsmuir Sons Co., the wharf having been leased to the Western Fuel Co. instead of being worked on joint account with that company. The directors intend as soon as possible to alter these arangements, which are not, in their opinion, satisfactory

The properties have been examined by Mr. Coulson, mining engineer and coal expert of Pittsburg, and by Foster, Brown and Rees, mining and civil engineers of London and Cardiff. It is the Board's intention to commence immediately to open up additional mines and to improve handling facilities in accordance with Mr. Coulson's recommendations, and $3,000,000 wil be provided for this purpose. Mr. Coulson estimates that when these improvements are completed, the output will be 2,000,000 tons a year and the profits $1.53 per ton, making a total net profit, per year of $3,060,000, or £628,767. The interest on the bonds now issued requires per year £102,740.

THE BRAZEAU COLLIERIES, LTD., has a share capital of $4,000,000, all common stock, half of which is owned by Mackenzie, Mann & Co., Ltd., and half by the German Development Co., Ltd., Toronto. Its coal fields, which are situated in Alberta, on the eastern slope of the Rocky Mountains, between parlallels 52 and 54, north latitude, comprise a total area of about 28 square miles. The directors are: President, W. Mackenzie; Vice President, D. D. Mann; Managing Director, Secretary and Treasurer, M. Nordegg; A. J. Mitchell, Comptroler Mackenzie, Mann & Co., Toronto; E. Baerwald, New York, and G. Duxenstein, Berlin, Germany.

Its recent issue was $2,000,000 of 5% first mortgage bonds, which were disposed of to a syndicate of Bankers, the principal members of the syndicate being in Belgium. The proceeds will be utilized in mine development, equipment, etc. The Canadian Northern will build a line to the mines, probably from Stettler, Alta., which is likely to be ultimately extended to the C.N.R. main transcontinent line east of Yellow Head Pass.

THE CANADIAN WESTERN LUMBER CO., LTD., has a share capital of $10,000,000, of which $2,500,000 is 6% cumulative preferred stock and $7,500,000 common stock issued and fully paid up. The directors are: President, A. D Davidson, Land Commissioner and General Industrial Agent Canadian Northern Ry.; Vice President, A. D. McRae, late President Fraser River Lumber Co.; W. Mackenzie, President C.N. Ry.; D. D. Mann, Vice President C.N. Ry.; R. M. Horne-Payne, Chairman B. C. Electric Ry.; D. B. Hanna, Third Vice President C.N. Ry.; P. Jansen, President Saskatchewan Elevator and Grain Co.; A. R. Davidson, Director Saskatchewan Valley and Manitoba Land Co. The offices are at Fraser Mills, B.C.

The recent issue is £1,500,000 5% first mortgage debenture stock at 88, repayable in 35 years at par, or sooner, by means of sinking fund.

The prospectus states that this company has been formed to acquire certain blocks of freehold land, aggregating approximately 75,000 acres, bearing an immensely valuable body of timber, and also certain valuable timber leases and licenses, extending over about 60,460 acres, granted partly by the Dominion and partly by the Province of British Columbia, to manufacture lumber and sell the same, and more especially to retail the same in Alberta, Saskatchewan and Manitoba, where the building of homes by thousands of immigrants has produced an enormous demand for lumber.

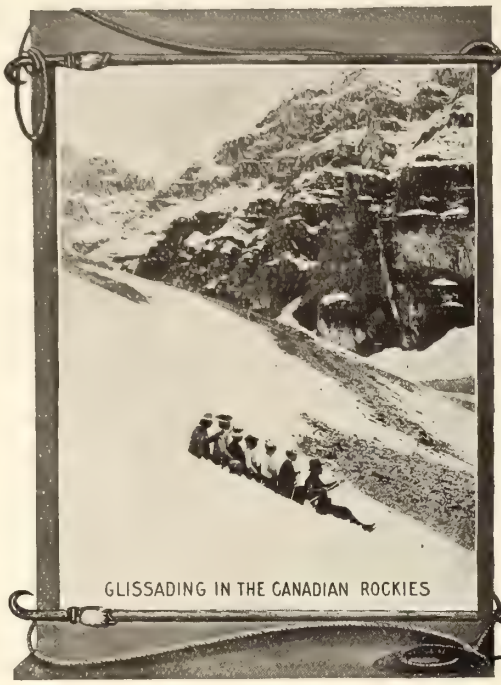
The company's land and timber is in carefully selected and easily accessible blocks mostly scattered through Comox district. The larger portion lies in the valley of the Tsolum and Oyster rivers and their tributaries. The total cut has been carefully estimated to produce 5,500,000,000 ft. of good merchantable timber, and of this about 75% is situated on the company's own freehold land, and, consequently, has the exceptional advantage of being free from all timber dues to the Government and from all taxes, except the ordinary land taxes of the province. This gives the company an advantage of about 50c. per 1,000 ft. over nearly every other lumber company in Canada. The land is heavily timbered, the principal growth being fir, the trees scaling from 3,000 to 15,000 ft. of lumber per tree, and these trees run to a good percentage of no. 1 logs. The situation of the land affords the great advantage for economical operation that it is all practically level. When the timber is cut, the greater part of the land will be saleable for agricultural purposes.

The company has acquired the largest and most modern of any saw milling plant in Canada, which is capable of producing more lumber at a less cost per thousand than any mill on the Pacific Coast. It is situated on the Fraser River adjacent to New Westminster, and has a water frontage of 4,000 ft. Large ocean-going vessels can load at the company's docks, and the company can thus export under the most economical conditions to the principal markets for B.C. timber, namely, the United Kingdom, Australia, New Zealand, South America, China and Japan, but the greatest and most profitable trade, and one that is constantly increasing, is that with the Canadian interior. The mills are already served by the C.P.R., the C.N.R. should reach the mill within a month, and the B.C. Electric Ry. shortly afterwards. The Canadian Northern Ry. will also build a line to the mill as soon as its main line reaches Vancouver The company owns some 425 acres of land at the mills, on which is situated a small town of some 2,000 inhabitants, and it also owns a number of dwelling houses, from which a good rental is received. The company will immediately acquire land at the principal distributing centres in Alberta, Saskatchewan and Manitoba for the establishment of retail yards, and thus be in touch with and supply direct the enormous requirements of these provinces.

In valuing the resources, Col. Davidson, the President, states that he confidently estimates that, without taking into account the profits to be derived at the retail yards, the timber will realize at the mill a profit of at least $7.50 per 1,000 ft., after allowing for all expenses, and that the land will realize an average price of $15.00 per acre.

5,500,000,000 feet of timber at $750 per 1000 ft.	$11 [illegible]
75,000 acres of land at $15. an acre	1 [illegible]
Estimated value of timber, logs and merchantable on hand	[illegible]
Saw mill, planing mill, dry kilns, tramway, docks, railway, railway equipment, stores, warehouses, dwelling houses and townsite of 425 acres	2,500,000.00
	[illegible]

The directors are of the opinion that owing to the increasing scarcity of accessible timber land in the United States, and the enormous demand for timber caused by the rapid settlement on the Canadian prairies, there will, from now on, be a constant increase in the price of timber in Canada, and that large timber holdings in B.C. will become extremely [illegible], and that the [illegible] above estimated will [illegible] greatly exceed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The following letter was received under date of May 8, 1908, from Mr. J. W. Cleary, Travelling Engineer Pyle-National Electric Headlight Co.:

"I learn from_____the Master Mechanic here, that an engineer running between_____ and_____discovered a broken rail with the Pyle-National Electric Headlight and made the stop without ditching his train. One or two pairs of wheels got off, but that was a small affair to what it would have been where a foot of the rail was broken off. Also an engineer running east of here found some cars shoved out on the main line. He saw them with the 'Electric' and made the stop without hitting them."

PYLE-NATIONAL ELECTRIC HEADLIGHT CO.

MONADNOCK, CHICAGO

Highway Crossings Regulations.

Following are the Board of Railway Commissioners' Standard Regulations for highway crossings as amended May 4:

Unless otherwise ordered by the Board the regulations for future construction of highway crossings are and shall be as follows:—

1. With each application, the railway company shall send to the Secretary of the Board three sets of plans and profiles of the crossing or crossings in question:

Plan .....Scale 400 ft. to 1 inch.
Profile of railway—
Horizontal .....Scale 400 ft. to 1 inch.
Vertical .....Scale 20 ft. to 1 inch.
Profile of highway—
Horizontal .....Scale 100 ft. to 1 inch.
Vertical .....Scale 20 ft. to 1 inch.

1st set, for approval by and filing with the Board.

2nd and 3rd sets, to be furnished to the respective parties concerned, with a certified copy of the order approving of the same.

2. The plan and profile shall show at least one-half mile of the railway each way and 300 ft. of the highway on each side of the crossing.

3. The plan shall show all obstructions to the view from any point on the highway within 100 ft. of the crossing to any point on the railway within one-half mile of the said crossing.

4. The company shall give the municipality in which the proposed crossing lies, 10 days' notice of the application and copies of the plan, and furnish the Board with proof of service.

5. The road surface of level or elevated approaches, and of cuts made for approaches, to rural railway crossings over highways shall be 20 ft. wide.

(a..) A strong, substantial fence, or railing, 4½ ft., with a good post-cap 4 by 4 ins., a middle piece of timber 1½ by 6 ins, and a 10-in. board firmly nailed to the bottom of the posts to prevent snow from blowing off the elevated roadway, shall be constructed on each side of every approach to a rural railway crossing over a highway where the height is 5 ft. or more above the level of the adjacent ground,—leaving always a clear road-surface of 20 ft. in width.

6. Unless otherwise ordered by the Board, the planking, or paving blocks, or broken stone topped with crushed-rock screenings, on rural railway crossings over highways (between the rails and for a width of at least 8 ins. on the outer sides thereof), shall be 16 ft. wide.

7. In cities, towns and villages, the width of all kinds of approaches to a railway crossing over a highway(street or avenue), and of the planking between the rails and on the outer sides thereof, must be regulated by the position of the street and the traffic or the anticipated traffic thereon, but shall not be less than 20 ft. wide.

8. Wherever a cut on the line of railway exceeds 9 ft. or a filling thereon exceeds ft. at a highway or street crossing, the railway company, before proceeding with the work of construction, shall refer the matter to the Board, with a full statement of the facts and circumstances, that the Board may decide as to the advisability of ordering a separation of grades at the said crossing.

9. In special cases, it may, upon application, be ordered that any existing highway crossing be constructed so as to conform to the foregoing standards and requirements.

The arbitration proceedings in connection with the claims of the Canadian Northern Ry, carmen and steamfitters for an advance of wages closed at Winnipeg, June 11. The award is expected to be made early in July.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers to distinctly understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

The American Well Works, Aurora, Ill., has issued bulletin 115, devoted to American air compressors.

S.F. Bowser and Co., Ltd., has been authorized to increase the amount of capital which it may use in Ontario, from $40,000 to $100,000.

The Northern Engineering Works, Detroit, Mich., has installed two 10 ton hand power northern cranes, 30 to 34 ft. span, in the Detroit United Ry.'s substations.

Flannery Bolt Co., Pittsburg, Pa., has issued its 1910 catalogue, showing the various standards and assemblages of the Tate flexible staybolt, which it manufactures.

Taylor & Arnold, Limited, has been incorporated under the Dominion Companies Act, with an authorized capital of $50,000, and head office at Montreal, and with power to acquire and carry on the business of Taylor & Arnold, dealers in railway, mining and contractors' supplies, etc. The incorporators include Jno. Taylor, T. Arnold, and L. S. Hough.

L. M. Booth and Co., New York and Chicago, have completed the installation of a 40,000 gallons per hour water softener at the Vandalia Rd. Co.'s new roundhouse and shops at Terre Haute, Ind. This softener is claimed to be the largest plant of its kind ever installed. Power is furnished by an overshot water wheel at the top of the softener and all of the working parts, including feeding apparatus as well as regulating equipment, are located in a substantial brick structure at the ground level.

The Canadian Fairbanks Co. has its general catalogue ready for distribution. It contains about 1,200 pages, is profusely illustrated and shows the many and varied lines handled by the company. It is divided into the following sections:—1, scales; 2, electrical apparatus and supplies; 3, pumps, steam, belt and gasoline; 4, valves and steam goods; 5, railway and contractors' supplies; 6, small tools and supplies; 7, power transmission appliances; 8, safes, vaults and metal office furniture. In addition to the general catalogue, small sectional catalogues as listed above are being issued. A copy will be mailed free to those who are interested in receiving it.

The Canadian Freight Association will hold its summer meeting at Penetanguishene, Ont. The members will leave Toronto by special G.T.R. train July 6, at 9 a.m., arriving at Penetanguishene about noon. Meetings of the freight, classification and executive committees will be held that afternoon, and the general meeting on July 7 at 10 a.m. As usual at the annual meetings there will be a number of social features, including a trip through the islands on July 7, as the guests of the town council, and a base ball match in the afternoon. On July 8, through the courtesy of Messrs. Playfair of Woodland, and Paton of Collingwood, there will be a yachting trip on the Georgian Bay.

A motion by the Pullman Co and the Great Northern Rd, for a preliminary injunction to prevent the lowering of sleeping car rates by the Interstate Commerce Commission, was denied in the U.S. Circuit Court at Chicago, June 11.

Apportionment of Crossings Construction and Maintenance.

An order served by the Board of Railway Commissioners, no. 10,457, dated April 28, respecting protection to be provided at the crossing of the Lachine road, at Rockfield, near Montreal, by the G.T.R., is of considerable interest, on account of the apportionment of the expense of construction and maintenance. The order follows:—

It is ordered that the G.T.R. Co. construct an overhead bridge at the said crossing, the cost of the work to be borne as follows:

G.T.R. Co. 50%
Montreal Park and Island Ry. Co. 14%
City of Lachine 10%
Parish of St. Pierre 2%
Parish of Lachine 2%
Turnpike Trust 2%

The Railway Grade Crossing Fund, 20%, provided that 20% of the cost does not exceed $5,000. If it does exceed $5,000, then the G.T.R. Co. is to pay the difference between $5,000 and 20% of the cost, in addition to the 50% above mentioned.

The G.T.R. Co. to file within 30 days, detail plans of the work for the approval of the Chief Engineer of the Board; the said work to be commenced as soon as the plans have been approved, and to be completed within six months from this date; the maintenance of said overhead crossing and the approaches to be borne as follows:

G.T.R. Co. 62½%
Montreal Park and Island Ry. Co. 17½%
City of Lachine 12½%
Parish of St. Pierre 2½%
Parish of Lachine 2½%
Turnpike Trust 2½%

Any of the parties to be at liberty to apply to the Board should any dispute arise as to carrying out the terms of this order.

Ottawa, Rideau Valley and Brockville Ry.—A meeting for the organization of this company was held at Ottawa June 18, when directors were elected as follows: W. E. MacLaren, J. N. Gilmour, Prockville; F. A. Heney, E. W. Clarke, D. H. MacLean, G. H. Kidd, K.C., Ottawa; A. McDermott, R. E. Elliott, Montreal. A decision was arrived at to complete the surveys without delay and to arrange for the immediate construction of the line. According to press reports it will leave Ottawa by the G.T.R., branching off near Graham's Bay and passing through Manitick, North Gower, Burritt's Rapids, Merrickville, North Augusta and Algonquin to Brockville. The company also has power to cross the Interprovincial bridge and build a line to the iron mines at Ironsides, Que. The reports also add that the line will probably be operated by the G.T.R. (May, pg. 353.)

Quebec Central Ry. Gross earnings for April, $88,354.86; expenses, $59,290.45; net earnings, $29,064.41, against $82,082,78 gross earnings; $56, 248.80 expenses; $25,833.98 net earnings for Apr. 1909. Aggregate gross earnings for 10 months ended Apr. 30, $886,074.38; expenses, $612,535.64; net earnings, $273,538.74, against $843,942.71 aggregate gross earnings; $599,898.21 expenses, $244,111.50 net earnings for same period 1908-09.

Temiskaming and Northern Ontario Ry.—Operating revenue for Mar., $161,022.04; operating expenses, $89,579.52; net operating earnings $71,442.52; less hire of equipment, $4,474.77; balance, $66,967.75; percentage 55.5; operating revenue for Apr., $133,825.36; operating expenses, $88,910.21; net operating earnings, $44,915.15; less hire of equipment, $4,408.33; balance, $40,506.82; percentage, 66.4.

An order-in-council has been passed, dated May 11, rescinding a previous order of Aug. 2, 1899, relating to the importation of petroleum in bulk in tank ships and enacting new regulations.

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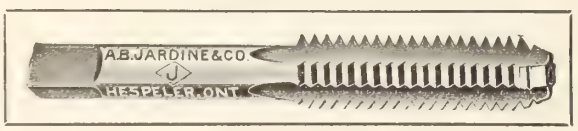

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ADVERTISING RATES furnished on application.

ADVERTISING COPY must reach the publishers by the 10th of the month preceding the date of publication, if proof is required, or by the 15th if proof is not required.

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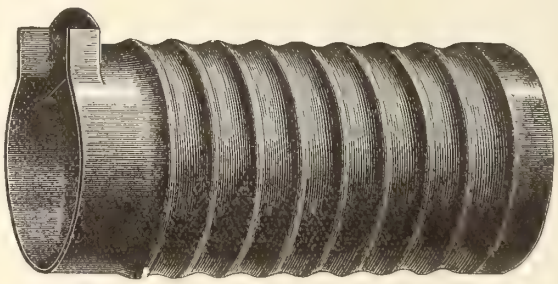

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MAINLY ABOUT PEOPLE.

D. Galvin, G.T.R. roadmaster, district 3, Eastern Division, died at Richmond, Que., recently.

Rear-Admiral C. E. Kingsmill, R.N., has been appointed Director of the Naval Service of Canada.

N. Tessier, Secretary of the Department of Public Works, died of typhoid fever at Ottawa, June 3.

A. H. Myles, at one time Treasurer Hamilton, Grimsby and Beamsville Ry., died in Hamilton, Ont., June 20.

R. W. Bruce, fuel inspector for the C.P.R. at Cleveland, Ohio, was married to Miss L. Herod, in Toronto, June 8.

Miss Clara Hays, youngest daughter of C. M. Hays, President G.T.R., was married at Montreal, June 9, to H. C. Scott.

The engagement is announced of Miss L. M. Hays, third daughter of C. M. Hays, President G.T.R. and G.T.P.R., to H. Grier.

Hon. F. Oliver, Minister of the Interior, is reported as likely to be appointed a member of the Board of Railway Commissioners.

C. M. Hays, President G.T.R. and G. T. Pacific Ry., reached Winnipeg June 22, on a trip of inspection, and went on to Vancouver.

A. W. Smithers, Chairman of the G.T.R. Board in England, has been elected a director of the South-Eastern and Chatham Ry. of England.

Miss Aileen Sinclair, daughter of Angus Sinclair, C.E., railway contractor, Toronto, was married there June 23 to H. K. Mackenzie, barrister.

Miss I. F. Barber, daughter of the late A. W. Barber, Superintendent C.P.R. Telegraphs, Toronto, was married June 6, to H. P. Meeking, Toronto.

G. W. F. Evans, a member of the National Transcontinental Ry. engineering staff at Quebec, has resigned and left for Red Deer, Alta., June 4.

Lord Strathcona, it is stated, is the holder of 2,030 shares of Hudson's Bay Co.'s stock, and his daughter, the Hon. Mrs. Howard holds 2,025 shares.

Miss Clara M. Foy, second daughter of the late John Foy, President of the Niagara Navigation Co., was married in Toronto, June 9, to R. O. Petman.

Frank Plummer, President Dominion Marine Association, and his family, will leave Toronto about the middle of July, to spend a few weeks at Aylmer, Que.

Mrs. J. W. Canatsy, wife of J. W. Canatsy, trainmaster, Wabash Rd., St. Thomas, Ont., who died there recently, was buried at Memphis, Miss., June 7.

J. A. Mackenzie, at one time in the C.P.R. pay office, Montreal, and latterly in the dining and sleeping car office at Calgary, Alta., died there recently.

H. H. Vaughan, Assistant to the Vice President C.P.R., visited Winnipeg early in June, for a consultation with the motive power officials of the Western lines.

T. Cowley, a former G.T.R. locomotive driver, who died recently at St. Thomas, Ont., was father of F. W. Cowley, Trainmaster, Michigan Central Rd., St. Thomas.

F. H. Phippen, K.C., General Counsel, Canadian Northern Ry., Toronto, has been elected a director of the National Trust Co., in place of Cawthra Mulock, resigned.

L. Mulkern was presented with a gold chain and locket by the General Freight Agent staff at Toronto, June 1, on his promotion to be District Freight Agent at London, Ont.

D. C. Coleman, Superintendnt C. P. R. Car Service, Winnipeg, was one of the principal speakers at the first annual meeting of the Railway Men's Y.M.C.A. at Kenora, Ont., recently.

K. M. Fitzpatrick, ticket agent Lehigh Valley Rd., Toronto, was presented recently with a leather chair and an address by his business associates on the occasion of his marriage.

Jas. Cross, foreman blacksmith in the C.P.R. Winnipeg shops, who died in Winnipeg, June 15, aged 58, was a brother of W. Cross, formerly assistant to the Second Vice President, C.P.R.

Sir Thos. G. Shaughnessy has been elected President of the general committee appointed to provide for the erection of a monument to King Edward VII. in Montreal.

Miss Ina Spencer, daughter of G. Spencer, Superintendent C.P.R., North Bay, Ont., was married there recently to J. O. Carlisle, M.A., of the Riverdale Collegiate Institute, Toronto.

Hon. G. P. Graham, Minister of Railways and Canals, has been elected President of the Travelers' Life Assurance Co., Montreal. J. W. Pyke, Montreal, has been elected Vice-President.

Sir Wm. C. Van Horne returned to Montreal, June 9, from a trip of inspection over the Cuba Co. railway, of which

T208 **W. R. Tiffin,**

Superintendent Northern Division G.T.R., Allandale, Ont., who died there, May 29, after 50 years' service.

he is President. He was accompanied home by his son, R. B. Van Horne.

C. A. Magrath, M.P., formerly Land Commissioner for the Alberta Ry. and Irrigation Co., is the author of a recently published book, "Canada's growth and some problems affecting it."

A. Pretty, train dispatcher Reid Newfoundland Ry., died recently on an I.C.R. train at Amherst, N.S., on his way home from New York, where he had been for medical treatment.

T. H. Skinner, of London, Eng., a C.P.R. director, has been elected Deputy Governor of the Hudson's Bay Co., and Wm. Mackenzie, President Canadian Northern Ry., has been elected a director.

The Shielah, the steam yacht in which J. S. Ross, of Montreal, and a party has been cruising recently in the Mediterranean, arrived at Sydney, N.S., from Southampton, Eng., after a run of 11½ days.

Alex. Johnston, ex-M.P., Sydney, N.S., has been appointed Deputy Minister of Marine and Fisheries in place of G. J. Desbarats, who has been appointed Deputy Minister Canadian Naval Service.

J. Irwin was presented recently with an address and a purse of gold by G.T.R. employes and other friends, on resigning the office of Trainmaster at Lindsay, Ont., to enter the Canadian Northern Ry. service.

L. Black, an assistant resident enginer of the National Transcontinental Ry., at Barrington, N.S., was seriously injured, June 12, by falling from a train. His recovery was considered improbable, as his back was broken.

H. G. Beemer, who was associated with his brother, H. J. Beemer, in the construction of the lines now known as the Ottawa Northern and Western Ry., and other projects, died at Mishawaka, Ind., recently.

W. R. Sutton, chief clerk in the G.T.R. audit department, died June 8, at Montreal. He started life as a fellow apprentice to the wholesale dry goods business in London, Eng., with Lord Mount Stephen.

When King George visited Newfoundland as a midshipman on H.M.S. Canada in 1883, he took part in the spike driving near Cort Hills, 43 miles from St. John's, on a section of what is now the Reid Newfoundland Ry.

H. B. Moore, Secretary-Treasurer G. T. R. Insurance Society, was presented with a gold watch and an illuminated address by the committee of management June 16, on his completing 25 years in the G.T.R. service.

W. E. Bagnall, the Ottawa stockbroker, whose business affairs are being wound up with an estimated loss of $100,000 to his clients, up to five years ago was a train dispatcher on the C.P.R. Chalk River-North Bay section.

Major J. E. Hutcheson, Superintendent and Purchasing Agent, Ottawa Electric Ry., sailed from Montreal June 17, for England, where he is acting as Adjutant to return to Canada in about seven weeks.

J. W. Fortune, who died in Detroit, Mich., June 5, was a native of Stratford, Ont., and had been for many years in the G.T.R. service. When he retired from active work 15 years ago, he was chief clerk in the General Superintendent's office.

J. W. Stoughton, construction superintendent Canadian Bridge Co., Walkerville, Ont., died at Detroit, Mich., May 31, aged 67. He was in charge of the erection of the Victoria Jubilee bridge over the St. Lawrence, at Montreal, on the G.T.R.

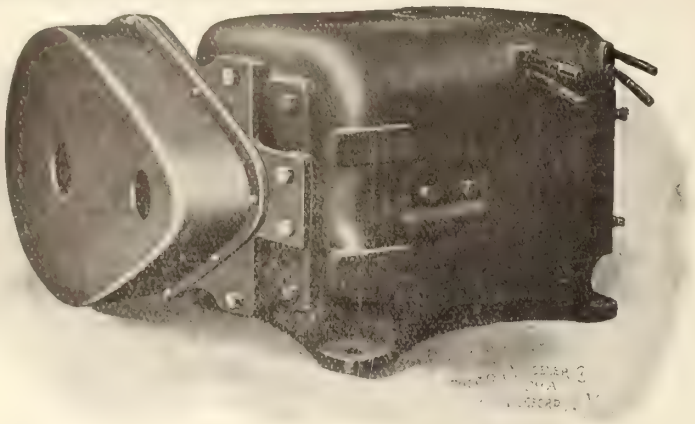
J. C. Earls, Travelling Freight Agent, Pennsylvania Rd., of New York State, with headquarters at Rochester, and son of Jno. Earls, ex-Secretary-Treasurer Canadian Freight Association, was married at Buffalo, N.Y., June 21, to Miss E. F. Kaake.

G. Attwood, Chief Engineer of the Hudson Bay and Pacific Ry., spoke on the Panama Canal and other trade routes connecting the Pacific and the Atlantic oceans, at the annual meeting of the Athenian Club, Prince Albert, Sask., June 3.

E. Dunlop, Roadmaster District 30 Ottawa Division, G.T.R., was presented with a case of silver recently by the employes of the road department of the district, on his resignation to accept a similar appointment on the G.T.P.R. at Edmonton, Alta.

C. E. Cartwright, who recently resigned his position as Division Engineer, Pacific Division, C.P.R., Vancouver, will practise there as consulting civil engineer, making a specialty of railway location and construction [illegible] road improvement.

W. E. Duperow, Travelling Passenger Agent G.T.R., Toronto, was presented



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with $200 by the passenger staffs of the various railways represented in Toronto, May 31, on his leaving for Victoria, B.C., to take up his new duties as General Agent G.T.R. and G.T. Pacific Ry.

C. E. Goad, C.E., who died in Toronto June 10, was on the engineering staff of the old Toronto, Grey and Bruce Ry., or what is now the C.P.R., between Montreal and Ottawa, and on what is now a portion of the Intercolonial Ry. between Halifax and Cape Breton Island.

R. Witherspoon, who came to Canada as a locomotive driver for the G.T.R. contractors, in 1855, and who afterwards entered the G.T.R. service, died at Cornwall, Ont., May 30, aged 77. He drove the first locomotive on the first passenger train between Montreal and Toronto, Oct. 6, 1856.

G. H. Brass, a third year student in civil engineering, Toronto University, who died in Toronto, June 18, aged 24, was a son of P. Brass, for a number of years foreman, and at the time of his retirement from service, acting Master of Bridges and Buildings, G.T.R., Middle Division, Toronto.

Lady Reid, widow of Sir Robt. G. Reid, and mother of W. D. Reid, H. D. Reid and R. G. Reid, President, Vice President and General Superintendent, respectively, of the Reid Newfoundland Co., died at Montreal, June 7, aged 67. Her illness was of short duration, she having recently returned from Great Britain, accompanied by Miss Reid.

C. G. Orttenburger, whose appointment as city passenger and ticket agent G.T.R., Chicago, Ill., was announced in our last issue, was born at Port Huron, Mich., Jan. 21, 1869, and entered G.T.R. service Dec. 1886, as messenger. He was transferred June 1890 to the Audit Department at Detroit, Mich., and to the Chicago city office May 1896.

Guy Boyer, Superintendent of Construction Montreal St. Ry., underwent an operation on his nose and throat in the Royal Victoria Hospital, Montreal, June 9. The representatives of the member companies of the Canadian Street Railway Association which was then in session in Montreal sent him some flowers with an expression of sympathy.

A. McCowan, who was recently appointed General Car Foreman Canadian Ry., Winipeg, was born at Perth, Scotland, Dec. 5, 1868, and entered railway service, May 1888, since when he has been to Mar., 1890, carpenter, C.P.R.; Mar. 1890 to 1897, change hand, C.P.R., 1897 to 1903, foreman C.P.R., Farnham, Que.; 1903 to Apr. 1910, foreman C.P.R. Cranbrook, B.C.

L. V. Druce, who has been appointed Commercial Agent G.T.R., G.T.P.R., and G.T.P. Steamship Co., at Vancouver, B.C., was born in London, Eng., Oct. 20, 1873, entered G.T.R. service in Aug. 1896, at Los Angeles, Cal., and was, from Mar. 1897 to Aug. 1904, Agent at Seattle, Wash.; Aug. 1904 to May 23, 1910, Commercial Agent at Seattle, Wash.

P. J. Lynch, who has been appointed Superintendent Northern Division, G.T.R., was, in 1908, engaged as conductor, G.T.R., between Toronto and North Bay, and from Oct. 1, 1898 to 1899, was Trainmaster at Stratford, Ont.; from 1899 to 1900, Trainmaster at Belleville, Ont.; 1900 to 1904, Trainmaster at Stratford, Ont.; 1904 to June 1, 1910, Assistant Superintendent Northern Division, Allandale, Ont.

W. J. Piggott, who has been appointed Trainmaster G.T.R., Allandale, Ont., was born at Point Edward, Ont., Nov. 24, 1872, and entered G.T.R. service Aug. 1889, since when he has been, to Apr., 1892, night operator at Lorneville Jct., Ont.; Apr. 1892 to Aug. 1896, dispatcher and relieving agent, Midland Division; Aug. 1896 to Nov. 1904, dispatcher at Allandale, Ont.; Nov. 1904 to June 1, 1910, Chief Dispatcher at Allandale, Ont.

J. F. Sweeting, whose appointment as Industrial Agent, C.P.R. Western Lines, was announced in our last issue, was born at Worthing, Eng., Aug. 20, 1872, and entered C.P.R. service June 19, 1906 since when he has been, to Aug. 1906, stenographer General Freight Department, Winnipeg; Aug. 1906 to Mar. 1, 1908, stenographer, clerk in tariff bureau and claims clerk, in Assistant Freight Traffic Manager's office, Winnipeg; Mar. 1, 1908 to May 1910, chief clerk to the Assistant to Second Vice President, Winnipeg.

R. A. Gamble, who was recently appointed Fuel Agent, Western Division, C. P. R., Calgary, Alta., was born at Dublin, Ireland, Mar. 1, 1876, and entered C.P.R. service Oct. 1, 1901, since when he has been, to May 15, 1903, yard clerk at Winnipeg; May 15, 1903 to Oct. 15, 1905, chief yard clerk; Oct. 15, 1905, to Sept. 11, 1907, assistant yardmaster; Sept. 11, to Nov. 25, 1907, night yardmaster; Nov. 25, 1907, to June 7, 1909, chief clerk Car Service Department, Western Lines; June 7, 1909 to May 1, 1910, Inspector Refrigerator Service, Western Lines, Winnipeg.

L. Mulkern, who has been appointed District Freight Agent, C. P. R., London, Ont., was born there, June 18, 1871, and entered C. P. R. service, Mar. 1890, since when he has been, to 1897, operator Toronto freight office; 1897 to 1901, inward freight clerk, London freight office; June 1, 1901 to June 1903, clerk in General Freight Agent's office, Toronto; June 1903 to Apr. 1908, canvassing freight agent, Toronto, chief clerk to General Freight Agent Local Traffic, Toronto, and Travelling Freight Agent, Toronto, consecutively; Apr. 1908 to June 1910, chief clerk to General Freight Agent Through Traffic, Toronto.

S. P. Howard, who has been on the C.P.R. staff over 28 years, acting for some years past as General Freight Agent at Montreal, retired from the company's service May 31. He was made the recipient of several gifts on the occasion, viz.: A cut glass punch bowl, silver ladle, and glasses, and a silver mounted cut glass fern dish for Mrs. Howard from the freight staff generally; a loving cup from the General Freight Agent's staff at Montreal, and a cut glass decanter from representatives of other companies with whom he had been associated in the Canadian Freight Association.

R. S. Gosset, whose appointment as Auditor Canadian Northern Steamships, Ltd., was announced in our last issue, was born at Toronto, Sept. 28, 1879. He entered transportation service Mar. 1894, since when he has been, to July 1899, stenographer to President Toronto Ry., July 1899 to June 1901, secretary to R. J. Mackenzie, Mackenzie, Mann & Co.; June 1901 to Dec. 1902, secretary to General Superintendent Canadian Northern Ry.; Dec. 1902 to June 1904, secretary to Third Vice President Canadian Northern Ry.; June 1904 to Apr. 1907, in Accounting Department C.N.R., in charge of disbursements, and from Apr. 1907, chief clerk Accountant's Department, C. N. R., which position he retains.

M. H. Brown, whose portrait appears on the first page of this issue, was born at Richmond Hill, Ont., Sept. 2, 1866, and entered C. P. R. service, Oct. 1, 1877, since when he has been, to Apr. 1890, clerk General Freight Department, Toronto; Apr. 1890 to Aug. 1893, chief clerk to District Freight Agent, Detroit, Mich.; Aug. 1893 to Mar. 1896, chief clerk to Freight Traffic Manager, Toronto; Mar. 1896 to July 1899, chief clerk to Freight Traffic Manager, Montreal; July 1899 to June 1901, District Freight Agent, Detroit, Mich.; June 1901 to Oct. 1902, Assistant General Freight Agent Ontario Division, Toronto; Oct. 1902 to Nov. 1907, General Freight Agent Ontario Division, Toronto, and from Nov. 1907, General Freight Agent Local Traffic, Ontario Division, Toronto. He is president Canadian Freight Association for the current year.

Arthur White, formerly Division Freight Agent G.T.R., at Toronto, who died there June 16, of cancer of the throat, was born at Hadleigh, Suffolk, Eng., Nov., 17, 1840, and entered railway service in 1859, since when he had been, to 1866 on the Great Eastern Ry., England; 1866 to 1873, freight checker, clerk and agent, consecutively, G.T.R.; 1873 to 1876, Assistant General Freight Agent same road; 1876 to 1878, General Freight Agent Great Western Ry.; 1878 to 1880, General Freight and Passenger Agent Midland Ry.; 1880 to 1884, Traffic Manager same road; 1884 to May 1885, District Traffic Manager Midland Division G.T.R.: May to Aug., 1885, Division Freight Agent Midland Division G.T.R.; Aug. 1885, to June 1892, District Freight Agent same road; June 1892 to July 1902, Division Freight Agent same road at Toronto.

W. R. Tiffin, Superintendent Northern Division G.T.R., died at Allandale, Ont., May 29, after the last forms of our June issue had gone to press, so that it was impossible to mention it in that issue. He was born at Hamilton, Ont., in 1844, and entered railway service in 1860, since when he was, to 1875, clerk Great Western Ry. of Canada at Hamilton; 1875 to 1880, Assistant Superintendent same road, Palmerston, Ont.; in 1890 on the amalgamation of the G.W.R. with the G.T.R., he was appointed Assistant Superintendent Northern Division, Stratford, Ont., which position he held until July 15, 1896, when he was assigned to other duties, and from Jan. 1, 1897, he was Superintendent Northern Division at Allandale. He had completed his 50th year in the service of the G.T.R. and its predecessors, and had been Superintendent at Allandale since 1897. He had not been in robust health for some years, but was active in his duties until the beginning of May. The funeral took place at London, Ont., June 2, a special train conveying the funeral party from Barrie. At Toronto the train was joined by a large gathering of railway men from all parts of the G.T.R., as well as by representatives of other companies. Amongst those present were:—E. Tiffin, Traffic Manager, Intercolonial Ry., Moncton, N.B., a brother; F. H. McGuigan, Toronto, formerly Fourth Vice President G.T.R.; J. Oborne, General Superintendent Ontario Division C.P.R., and the following G.T.R. officials:—W. G. Brownlee, Transportation Manager; W. W. Ashald, Superintendent of Telegraphs; J. E. Quick, General Baggage Agent; H. E. Whittenberger, Superintendent Montreal Terminals; L. G. Coleman, Superintendent, Belleville, Ont.; L. Macdonald, Division Freight Agent, Toronto; T. E. Gibbon, Superintendent, Toronto; J. D. McDonald, District Passenger Agent, Toronto; W. H. Farrell, Superintendent, Toronto; J. J. Beck, Superintendent Union Station, Toronto; G. A. Mitchell, Master of Bridges and Buildings, Toronto; H. Ferguson, General Roadmaster; E. L. Cousins, Resident Engineer, Toronto; J. Markey, Master Mechanic, Toronto; E. W. Smith, Superintendent of Dining Cars; J. A. McLardy, Trainmaster, Stratford; —. Forester, Chief Dispatcher; D. Crombie, Assistant to General Traffic Manager.

The C.P.R. has let the contract for the erection of the Y.M.C.A. building for its employes at Cranbrook, B.C., to J. G. McCallum, of that place, who has started work.

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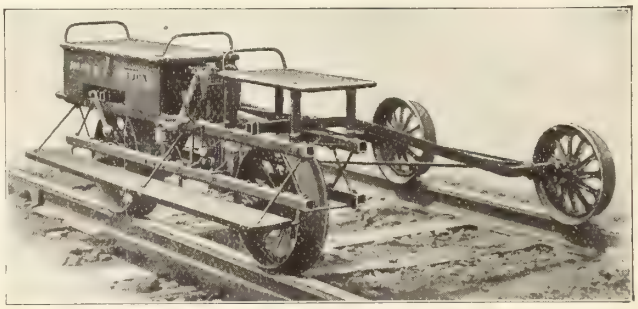

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Railway Rolling Stock Notes.

The G.T.R. has received three mogul locomotives from the Canadian Locomotive Co., Kingston, Ont.

The Temiskaming and Northern Ontario Ry., has ordered four Pacific type locomotives from the Canadian Locomotive Co., Kingston, Ont.

The Winnipeg city council has purchased a standard flat car from the C.P.R., to be utilized as an oil tank car in connection with the city's portable asphalt plant.

M. P. and J. T. Davis, contractors on the National Transcontinental Ry., have purchased a Rodger double plow ballast distributing car from the Hart-Otis Car Co., Montreal.

The G.T. Pacific Ry. has received 221 box cars, nos. 311617 to 311838; one official car, no. 4103; and six first class coaches, nos. 2036 to 2041, from the Canadian Car and Foundry Co., Montreal.

The Essex Terminal Ry., which, at present is only moving other companies cars to and from the various industries on its line, has no cars of its own, but has one switching locomotive in service.

The Ha Ha Bay Ry., is reported to have ordered one double ended locomotive, with cylinders 14 by 22 ins., 44 ins. driving wheels and a total weight of 80,000 lbs., from the American Locomotive Co.

The Canadian Northern Ry., between May 15 and June 15, received the following additions to rolling stock: two first class cars, 40 ore cars, and 380 box cars from the Canadian Car and Foundry Co., Montreal; 15 box cars, 15 stock cars, and 115 flat cars, from the Crossen Car Mfg. Co., Cobourg, Ont.

The Dominion Coal Co. has ordered 12 all steel Otis type coal cars from the Hart-Otis Car Co., Montreal, of which the following are the chief particulars:

Length over end sills	38' 10"
Length inside	36' 5"
Width inside	9' 7"
Height inside	5' 0"
Height from rail to top	9' 4 13-16"
Height from rail to floor	4' 4 13-16"

The G. T. Pacific Ry. has ordered from the Canadian Car and Foundry Co., Montreal, for delivery in 1911, four mail and express cars, nos. 106 to 109; three second class coaches, nos. 1018 to 1020; 12 first class coaches, nos. 2042 to 2053; 23 colonist cars, nos. 3015 to 3037; five tourist cars, nos. 3405 to 3409; three dining cars, nos. 4003 to 4005; 200 box cars, nos. 312325 to 312524; and 300 flat cars, nos. 361300 to 361599.

Following are the chief details of the seven suburban cars, which the C.P.R. is building at its Angus shops, Montreal:—

Length over frame	65' 0"
Width over frame	9' 10½"
Accommodation	72
Body and under frame	Wood
Axles and brasses	5" by 9"
Springs	Quadruple elliptic, 38"
Wheels	Steel tires, 36¼"
Trucks	Four wheel passenger
Brake Beams	Simplex
Air Brakes	Westinghouse
Heating	Gold System
Seats	Rattan

Following are the chief dimensions of the 1,000 steel underframe box cars, which the G.T.R. is having built in the U.S., as mentioned in our last issue:—

Length over end sills	40' 9"
Width over side sills	9' 0¾"
Height, top of sills to under side of plate	7' 10¾"
Length inside	36' 0"
Width inside	8' 6"
Height inside, top of floor to under side of carlin	8' 0"
Outside end sill to centre of body bolster	5' 0"
Height, top of rail to centre of drawbar	2' 10½"
Wheel base of truck	5' 2"
Door opening	6' 0"
Height from rail to top of running board	13' 5½"
Height from rail to top of brake mast	14' 0"
Height from rail to top of eaves	12' 7½"
Width over eaves	9' 6⅛"
Height from rail to top of floor	4' 1¼"
Framing	G. T. R. Standard
Truck bolster	Simplex
Air brakes	Westinghouse

The 500 steel underframe automobile cars which the G.T.R. is having built in the U.S., as mentioned in our last issue, will, with the exception of the door opening, be similar to the standard box car. Following are the chief dimensions:—

Length over end sills	40' 9"
Width over side sills	9' 0¾"
Height, top of sill to under side of plate	8' 1¼"
Length inside	40' 0"
Width inside	8' 6"
Height inside, top of floor to under side of carlin	8' 6"
Outside end sill to centre of body bolster	5' 2"
Height top of rail to centre of drawbar	2' 10½"
Wheel base of truck	5' 2"
Side door opening	8' 2" by 10' 0"
Height from rail to top of running board	13' 6"
Height from rail to top of brake mast	14' 0"
Height from rail to top of eaves	12' 7½"
Width over eaves	9' 6⅛"
Height from rail to top of floor	3' 8"
Air brakes	Westinghouse
Framing	G. T. R. Standard
Roof, inside	Metal
Truck bolsters	Simplex

Following are the chief details of the 10 ten-wheel locomotives, class D. 10, making 26 of this class now under construction, which the C.P.R. is building at its Angus shops, Montreal, as mentioned in our last issue:—

Weight on drivers	141,000 lbs.
Weight total	190,000 lbs.
Cylinders, diar. and stroke	22½" by 28"
Drivers, diar.	63"
Boiler type	Radial stayed, wagon top
Boiler pressure	180 lbs.
Heating surface, tubes	2,263 sq. ft.
Heating surface, superheater	408 sq. ft.
Heating surface, firebox	190 sq. ft.
Tubes, no. and diar.	24 5", 244 2"
Tubes, length	14' 6"
Firebox	100 ⅞" by 69¾"
Grate area	49 sq. ft.
Capacity, water	5,000 galls.
Capacity, coal	10 tons
Air brakes	Westinghouse E.T. 6
Brake shoes	C. P. R. Standard
Brake beams	Simplex, diamond, inside hung
Couplers	Tower
Headlight	Pyle National Electric
Journal bearings	C. P. R. Standard
Lubricators	Detroit 5-feed
Springs	C. P. R. crucible
Wheel tires	Crucible steel
Wheel centres	Cast Steel
Tractive effort	34,400 lbs.

The G.T.R. has placed orders for rolling stock as follows:—Five first class cars, length over end sills 67½ ft., width over side sills 9 ft. 8 in., seating capacity 60 in body, nine in smoking room; one steam motor car for the International Bridge Co., length over end sills 60 ft., width over side sills, 9 ft. 8 in., seating capacity 24 in body, 16 in smoking room; three dining cars, length over end sills 70½ ft., width over side sills 9 ft. 8 ins., capacity of dining room 30; three parlor cars, length over end sills 73 ft., capacity 30 in body, six in smoking room; three parlor-buffet cars, length over end sills 73 ft., width over side sills 9 ft. 8 in., capacity 27 in body, six in smoking room, to be built at its Point St. Charles shops, Montreal; two double track flangers, to be built at its Port Huron shops, Mich.; 20 baggage cars, length over end sills 60 ft. 10 ins., width over side sills 9 ft. 8 ins., length inside 60 ft. 1 in.; five of these will be fitted with movable stalls and other equipment for the conveyance of 16 horses each; 1,000 twin hopper steel coal cars; 1,500 box cars, to be built by the Canadian Car and Foundry Co., Montreal; 500 box cars from the Silliker Car Co., Halifax, N.S., and 1,000 box cars and 500 automobile cars to be built in the U.S., as mentioned in our last issue.

Patrick Dubee, Secretary Montreal St. Ry. Co., was married at Montreal June 28 to Miss Dineen.

Sleeping Car Reservations.

The Chief Railway Commissioner having suggested that the railway companies abolish the system of reserving sleeping and parlor car accommodation without prepayment, the following rules have been adopted in the Eastern Canadian Passenger Agents' territory:

(a) Commencing June 19, sleeping and parlor car accommodation will not be held unless paid for at the time of making reservation, except as per paragraph (b).

(b) Accommodation reserved on telephone or telegraph request from points outside a radius of five miles from the cities where sleeping or parlor car space is on sale, may be held until departure of car from place at which space is reserved.

(c) Sleeping or parlor car tickets will be redeemed if presented to agent from whom purchased or to agent at station prior to departure of train for which they are sold.

Portland Canal Short Line Ry.—Detail plans for the first five miles of this railway have been filed with the British Columbia Government. The line will be approximately 16 miles long, and will extend from Stewart, at the head of Portland Canal, back into the hills serving all the proven mines of the district. The construction of the docks at Stewart is being proceeded with, so that they will be ready about the same time as the line is completed, about the end of August. Local reports state that as soon as this 16 miles of line is completed an extension will be carried through about five miles of Alaskan territory, to and through the Salmon River district. A favorable pass exists by which the line might ultimately be extended to the Naas Valley, which opens up the Cassiar and Omineca districts, and to the Canadian Northern Ry. (June, pg. 473.)

Quebec Railway Acts, etc.—J. A. Lefebvre, Secretary of the Railway Branch Public Works and Labor Department, Quebec, is issuing a volume of about 200 pages in English and French, containing the acts of the province relating to railways, to taxes payable by railway companies, and to the repayment of railway subsidies, taken from the Revised Statutes of Quebec, 1909, with a table showing the subsidies of all kinds which have been granted and paid on account of provincial railways. Its price is $2.

The sale of the Dunsmuir collieries etc., in British Columbia, was completed June 16, and the property transferred to the Canadian Collieries (Dunsmuir) Ltd., a company of which W. Mackenzie, President Canadian Northern Ry., is the head. W. L. Coulson has been appointed manager.

A circular has been issued by J. W. Leonard, General Manager C.P.R. Eastern Lines, directing the crews of passenger trains to attend the St. John's Ambulance "first aid" lectures, and announcing that emergency medical outfits will in future form part of conductors' kits.

The Railway Association of Special Agents and Police of the U.S. and Canada, which held its annual meetings at Los Angeles, Cal., recently, has changed its name to the International Association of Railway Special Agents and Police. The association has 318 members, representing 79 railways, covering 162,000 miles.

The C.P.R. and the C.N.R. in conjunction with the Manitoba Agricultural College are sending dairy instruction cars over their Manitoba lines. The railways supply the car and transport them from place to place, and the college supplies the lecturers, demonstrators and instruction equipment.

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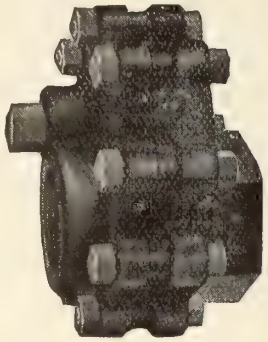

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Orders by the Railway Commissioners.

Beginning with June, 1904, we have published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed our paper have a continuous record of the Board's proceedings. No other paper has done this.

The dates given of orders, immediately following the numbers, are those on which the hearing took place and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the date assigned to them.

10629. May 17.—Authorizing Town of Paris, Ont., to lay pipe under G. T. R.

10630. May 16.—Authorizing Manitoba Government Telephones to place wires across C. N. R., near Swan Lake Station, Man.

10631. May 17.—Authorizing Alberta Government to place wires across C. N. R. between secs. 25 and 26, twp. 55, r. 20, w. 4 m.

10632 to 10633. May 17—Authorizing city of St. Thomas, Ont., to place wires across telegraph wires and London & Port Stanley Ry. at two points.

10634 to 10636. May 17.—Authorizing city of St. Thomas, Ont., to place wires across G. N. W. Telegraph Co.'s wires at three points.

10637. May 17.—Adopting Standard Conditions and Specifications for Wire Crossings, approved by order 8392, Oct. 7, 1909, pursuant to amendment to sec. 246 of the Railway Act, which reads: "5. An order of the Board shall not be required in the cases in which telephone, telegraph or electric light wires are erected across the railway with the consent of the company in accordance with any general regulations, plans, or specifications adopted or approved by the Board for such purposes."

10638. May 18.—Authorizing C. P. R. to appeal to the Supreme Court of Canada from order 10340, which directed the arrival and departure of trains of the Maniwaki Branch to and from Sappers' Bridge, Ottawa.

10639. Mar. 22.—Approving revised location of N. St. C. and T. Ry. between mileage 11.53 and 13, Welland County, Ont., authorizing crossings on north and south sides of canal feeder, at stations 307.83, and 314.22; at mile 11.97 on north side of the Government raceway, and the town line between lot 27, Humberstone tp., and lot 27, Crowland tp., and authorizing it to cross the Canada Southern Ry. and T., H. & B. Ry.

10640. May 17.—Recommending to Governor-in-Council for sanction lease of Georgian Bay and Seabord Ry. to C. P. R. by indenture dated Jan. 1.

10641. May 17.—Recommending to Governor-in-Council for sanction by-law 96, imposing a penalty upon C. P. R. officers and employes for failure to fulfill and keep the company's general train and interlocking rules and rescinding by-law 87.

10642. May 17.—Dismissing application for order directing C.P.R. and G.T.R. to honor each other's tickets between Toronto and Hamilton.

10643. May 17.—Temporarily approving, final determination of tariffs of tolls which Bell Telephone Co. shall charge, and form of agreement with other companies, agreement between Bell Telephone Co. and Euphemia Rural Telephone Association, of July 12, 1907.

10644. May 18.—Approving location and detail plans of C. P. R. station at Walsh, Alta.

10645. May 18.—Extending, until July 15, time within which C. P. R. was required by order 10130, to make connection with G. T. R. at Galt, Ont.

10646. May 12.—Ordering that C. P. R. within 50 days raise the barrel conveyor over its tracks at Keewatin, Ont., to not less than 22½ feet above base of rail.

10647. May 18.—Extending, for 60 days from date, time within which interlocking plant at Mt. McKay & Kakabeka Falls Ry.'s crossing of C.P.R. at Fort William, Ont., was to be installed.

10648. May 18.—Extending, for 60 days from date, time within which protective appliances shall be installed at Mt. McKay & Kakabeka Falls Ry.'s crossing of the C.P.R. at Yonge St., Fort William, Ont.

10649. May 17.—Ordering C. P. R. to put into effect, not later than June 6, a rate not exceeding 14c. per 100 lbs., upon shipments of live stock, in carloads, from Toronto to Smith's Falls, Ont.

10650. May 17.—Approving supplement 2, to C. P. R. Standard Freight Tariff, C. R. C. E.—1244, applying between stations on Orford branch.

10651. May 18.—Authorizing C. P. R. to build a bridge over Rogers Creek at mileage 132.5, E. & N. Ry., Alberni extension, B. C.

10652. May 18.—Authorizing Alberta Government to lay watermain under C. P. R. at L[illegible] rate.

10653. May 19.—Re rates on G. T. R. and C. P. R. on ex-lake western grain from Lake or river ports to points in Ontario and Quebec. This order is given fully in another page.

10654 to 10655. May 17.—Reinstating C. N. O. R. applications for authority to build across certain highways in Smith's Falls, and for approval of location through Lanark County, mileage 29, to 41; and rescinding orders 10493 and 10492, May 3, which dismissed the applications.

10656. May 17.—Dismissing C. N. O. R. application for authority to build across and divert public road on lot 20, con. 1, Cramahe tp.

10657. May 17.—Reinstating C. N. O. R. application for approval of its revised location through Smith's Falls, from mile 38.2 to 42.1, and for authority to build across certain highways there, and rescinding order 10494, May 3, which dismissed the application.

10658. May 19.—Authorizing C. N. O. R. to build between lots 30 and 31, con B, Brighton tp.

10659. May 19.—Ordering G. T. R. within 90 days to install electric bell at first highway east of Ernestown Station, Ont.

10660. May 17.—Ordering that C. P. R. do not permit any engine, tender, or car to stand on siding east of east end of freight house at Ingersoll Ave. crossing, Woodstock, Ont.

10661. May 25.—Ordering that Pullman Co. be added as party to proceedings in matter of sleeping car tolls under consideration.

10662. May 21.—Approving location of G. T. P. Branch Lines' Tyfield-Calgary branch from mileage 150 to 197.8, near Calgary, Alta.

10663. May 25.—Approving location of C. N. O. R. station grounds at Malvern, Scarboro tp.

10664. May 23.—Ordering that C. N. R. build highway crossing where Wiegand Ave, produced in a straight line would intersect its line in Fort William, Ont.

10665. May 23.—Authorizing C. N. O. R. to operate trains across Division St., Hamilton tp., Northumberland Co., temporarily, and for construction purposes only, pending completion of subway.

10666. May 25.—Approving location of C. N. O. R. station grounds at Orono.

10667. May 26.—Authorizing M.C.R. to reconstruct drawbridge east of Welland station, Ont.

10668. May 26.—Authorizing C.N.O.R. to cross private road between lots 20 and 21, con. B, Murray tp.

10669. May 26.—Authorizing C. P. R. to build bridge 58.93, White River section, Lake Superior Division.

10670. May 26.—Dispensing with publication of Atlantic and Lake Superior Ry.'s notice of application for sanction of agreement of sale entered into by Royal Trust C. and Quebec Oriental Ry. Co., dated May 19.

10671. May 21.—Authorizing town of Weyburn, Sask., to lay sewer and watermain under C. P. R.

10672. May 25.—Authorizing Alberta Government to lay a watermain under A. Ry. and I. Co., track at junction with C.P.R. n.e. ¼ sec. 32-8-21, w. 4 m.

10673. May 25.—Authorizing Canadian Niagara Power Co., to place wires across Bell Telephone Co's wires at Bridgeburg, Ont.

10674. May 23.—Authorizing Camden Rural Telephone Co. to place wires across Bay of Quinte Ry., near Moscow, Ont.

10675. May 21.—Authorizing Bell Telephone Co. to place wires across London & Port Stanley Ry, near St. Thomas, Ont.

10676-10679. May 26.—Authorizing city of Winnipeg to build conduit under C.P.R. at four points.

10680. May 27.—Authorizing Montreal and Southern Counties Ry to open for traffic for one month portion of its line, from St. Denis St., St. Lambert, to Longueuill, Que.

10681. May 26.—Relieving G. T. R. from providing further protection at crossing of second highway west of Nelles Corners Station, Ont.

10682. May 26.—Ordering C. P. R., within 60 days to install an electric bell at Foundry St. crossing, Woodstock, Ont.

10683. May 26.—Relieving G. T. R. from providing further protection at crossing of four miles south of Elora, Ont.

10684. May 26.—Approving location of C. P. R. station at Cache Bay, Ont.

10685. May 26.—Approving location of C. P. R. Regina and North Saskatchewan branch from mileage 132 to mileage 148, and from mileage 168 to 199.6.

10686. May 26.—Approving Montreal and Southern Counties Ry.'s Standard Passenger Tariff C. R. C. subject to reconsideration on receipt of copy of the first annual report furnished to Minister of Railways.

10687. May 26. Amending order 10237, April 19, approving location of M. C. R. station at Tecumseh Rd., Ont.

10688. May 27.—Approving C. N. O. R. revised location through Cobourg, mileage 170.66 to 172.58 from Ottawa.

10689. May 26.—Approving diversion of G. T. P. R. crossing in south half of sec. 18, tp. 12, r. 20, w. 1, m., Man.

10690. May 26.—Authorizing Consolidated Mining and Smelting Co., of Canada, Ltd., to lay pipe under C. P. R. at Smelter Jct., B. C.

10691. May 25.—Authorizing Superior Portland, Cement Co. to lay pipe under C. P. R. at Orangeville, Ont.

10692. May 26.—Authorizing Bell Telephone Co., to place wires across C. N. O. R. near Beaverton station.

10693. May 26.—Authorizing Manitoba Government Telephones to place wires across C. P. R. near Strathclair station.

10694. May 26.—Relieving C. P. R. from providing further protection at crossing 2½ miles west of MacGregor, Man.

10695. May 27.—Approving location of C. P. R. station at Mile End, Que.

10696. May 27.—Authorizing city of London, Ont., to lay drain under C. P. R. at George St.

10697 to 10699. May 27.—Authorizing C. N. O. R. to build between lots 6 and 7, con. A., Murray tp., and between lots 18 and 19, con. 1, Cramahe, tp.; and to cross and divert private roads across lots 3, 4 and 5, con. 5, Darlington tp.

10700. May 27.—Authorizing C. P. R. to move its station at Shawville, Que., to new location.

10701, to 10702. May 30.—Authorizing Norfolk Gas Co. to lay pipe under G. T. R. at St. Patrick and Nelson Sts. Port Dover, Ont.

10703 to 10705. May 30.—Authorizing St. Francis Hydraulic Co. to place wires across Bell Telephone wires at three points in Thetford Mines, Que.

10706. May 30.—Authorizing Kaministiquia Power Co. to place wires across C. P. R. on Yonge St. Fort William, Ont.

10707. May 21.—Ordering C. P. R., within 60 days to install electric bell at Maple St. crossing, Hartland, N. B.

10708 to 10709. May 23.—Temporarily approving, pending final determination of tolls which the Bell Telephone Co. shall be authorized to charge, and form of agreement with other companies, agreements between the Bell Telephone Co. and Chingucousy, tp., April 18; and Monk Rural Telephone Co., Mar. 29; providing it be not taken to authorize higher tolls than were authorized previous to May 13, 1906.

10710. May 27.—Authorizing G. T. R. to build across road between lots 85, con. 2, and Lot 9, con. 3, Tiny, tp. Ont.

10711 to 10713. May 25—Authorizing C.P.R. to build spurs to premises of Pigeon River Lumber Co. in Port Arthur, Ont.; Eastern Canada Steel & Iron Works, St. Sauveur parish, Que.; and G. F. & J. Galt, Ltd, Camrose, Alta.

10714. May 19.—Refusing application of Woolwich tp., for authority to open road across the G. T. R. between lots 85 and 86.

10715. May 26.—Ordering that time within which electric bell was required by order 10,000, Mar. 23, to be installed at C. P. R. crossing, Zorra St., Beachville, Ont., be extended for one month from date.

10716. May 19.—Ordering that in all switching movements over Grey St., London, Ont., the M. C. R. and P. M. R. shall have a watchman on street, and that no cars be left standing within 50 fet. of either side of Grey St.

10717. May 23.—Approving standard specifications for bridges and viaducts which railways are authorized to construct under sec. 257 of Railway Act., and declaring them to be standard specifications of the Board for steel bridges and viaducts, and rescinding order 921, Feb. 9, 1906, approving standard specifications for bridges and viaducts authorized to be constructed under sec. 203 of the Railway Act, 1903.

10718. May 26.—Approving plans and specifications of [illegible] Maxwell Creek drain, Dover, tp., where C.W. & L.E. Ry. will cross on Baldoon St.

10719. May 19. Authorizing C. N. O. R. to build spur to connect with G.T.R. siding in Brighton across road between lots 4 and 5, con. 1.

10720. May 25. Authorizing C.N.O.R. to connect with Central Ontario Ry., at Trenton.

10721 to 10722. May 27. Temporarily approving agreements between North American Telegraph Co. and Ernestown Telephone Co., Dec. 1, 1909; and Hecksston Rural Telephone Co., April 16, 1909; provided it shall not be taken to authorize higher tolls than were authorized previous to May 13, 1906.

10723. May 30. Approving location of C.N.O.R. through Trenton, mileage 145.43 to 145.76.

10724. May 30 Ordering C.P.R. to build crossing over its Stobie branch in lane between Durham and Elgin Sts., Sudbury, [illegible]

10725 to 10730. May 30. Authorizing On-

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AND ITS LESSON

The following cities are using Pay-As-You-Enter Cars: Chicago City Railway, 839 cars; Chicago Railways, 1,328; Public Service Corporation of New Jersey, 466; New York City Railway, 555; Third Avenue Railroad, New York, 550; International Railway, Buffalo, 200; Buffalo & Lake Erie Traction Co., 10; Washington Ry. & Elec. Co., Washington, D.C., 100; Capital Traction Co., Washington, D.C., 51; Municipal Traction Co., Cleveland, Ohio, 180; United Rys. Co. of St. Louis, Missouri, 310; Portland Ry., Lt. & Pwr. Co., Portland, Ore., 25; Columbus Ry. & Lt. Co., Columbus, Ohio, 10; Wichita R.R. & Lt. Co., Wichita, Kan., 14; Jacksonville Elec. Co., Jacksonville, Fla., 5; Dallas Elec. Co., Dallas, Texas, 20; Houston Elec. Co., Houston, Tex., 41; Northern Texas Trac. Co., Ft. Worth, Texas, 25; Ithaca Street Ry., Ithaca, N.Y., 2; Peoria Street Ry., Peoria, Ill., 13; Urbana & Champaign Ry., Champaign, Ill., 3; Mutual Lt. & Water Co., Brunswick, Ga., 4; Rochester Ry. Co., Rochester, N.Y., 25; Ft. Dodge, Des Moines & So. R.R. Co., 2; Muskogee Elec. Trac., Muskogee, Okla., 6; Union Traction Co., Dubuque, Ia., 4; Topeka Ry. Co., Topeka, Kas., 12; United Rys. & Elec. Co., Baltimore, Md., 32; Detroit United Ry., Detroit, Mich., 225; Cincinnati Traction Co., Ohio, 50; Montreal Street Railway, 400; British Columbia Elec. Ry., 30; Calgary Street Railway, 18; Metropolitan Street Ry., Kansas City, Mo., 50; Edmonton Radial Ry., 4; San Antonio Traction Co., San Antonio, Tex., 6; Rockford & Int. Ry., Rockford, Ill.; Cairo Street Ry. & Lt. System, 6; Des Moines City Railway, Iowa, 12; Macon Ry. & Lt. Co., Macon, Ga.; Virginia Ry. & Power Co.; Columbia Elec. St. Ry. & Lt. & Power Co., Columbia, S.C.; Aurora, Elgin & Chicago Ry., Chicago, Ill.; Wichita Falls Traction Co., Wichita Falls, Tex.; Ottawa Electric Ry. Co., Ottawa; Bloomington & Normal Ry. & Lt. Co., Bloomington, Ill.; Corsicana Transit Co., Corsicana, Tex.; Compania Electrica y de Ferrocarriles, Mexico; The Milwaukee Elec. Ry. & Lt. Co., Milwaukee, Wis.; Springfield Street Ry. Co., Springfield, Mass.; Lynchburg Traction Co., Lynchburg, Va.; Chicago & Southern Traction Co., Chicago, Ill.; Calumet & South Chicago Ry. Co., Chicago, Ill.

THE LESSON

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tario Hydro-Electric Power Commission, to place wires across Bell Telephone Co.'s wires at six points.

10731. May 31.—Approving G.T.P.R. location, Prince Rupert easterly mileage 408.69 to 434.5, Fort George District, B. C.

10732. June 1.—Authorizing C. P. R. to construct bridges 131.7, Kitsukus, Creek, Alberni Extension, Esquimalt & Nanaimo Ry.; 8.2 Michael Creek, Cranbrook Section; 100.4, Portal Section, Western Division; 114. 01. Cartier Section; Lake Superior Division; 113.5 Scott Creek, Cascade Section, Pacific Division.

10733. May 30.—Ordering Brandon, Saskatchewan and Hudson's Bay Ry., within 60 days to install electric bell at crossing between secs. 24 and 13 tp. 3, r. 20, Boissevain, Man.

10734. May 31.—Approving C.N.O.R. Sudbury-Port Arthur Division, location through unsurveyed territory in Algoma District, mileage 160 to 180.

10735 to 10739. May 31.—Authorizing C.P.R. to lay extra track across Seventh St., High River, Alta, between secs. 32 and 33, tp. 11, r. 10, w.p.m., MacGregor, Man., between secs. 12, tp. 8. r. 9, w.p.m. and secs. 7, tp. 8, r. 8, w.p.m., Rathwell, Man.; between secs. 28 and 29, tp. 11, r. 11, w.p.m., Austin, Man.; and between secs. 5 and 6, tp. 11, 3. 12, w.p.m., Sidney, Man.

10740. June 1.—Approving location of Bay of Quinte Ry. station at Napanee, Ont.

10741. June 1.—Authorizing Bell Telephone Co. to place conduit under Montreal Terminal Ry., at Elmwood Farm road crossing, Longue Pointe, Que.

10742. June 1.—Approving C. N. R. standard 20 ft. arch culvert.

10743. June 1.—Approving clearance diagram for bridges on C.P.R. lines in Canada.

10744. June 2.—Authorizing C. P. R. to construct bridge 21.7, Moose Jaw section, Western Division.

10745-10746. Apr. 26.—Authorizing C.N.O.R. to build across Meade Ave., and Prince Edward St., Brighton.

10747 to 10748. Apr. 30.—Authorizing C.N.O.R. to build across Division and Railway St., Brighton.

10749. May 19.—Ordering G.T.R. within 10 days to employ watchman at Hurontario St., Port Credit, Ont., crossing, from 7 a.m. to 7 p.m. daily.

10750. May 19.—Ordering G.T.R. within 30 days to file plans for the erection of gates at crossing of 7th line, near Oakville, Ont., such gates to be erected within 60 days after approval of plans by the Board's Engineer, and to be operated from 7 a.m. to 7 p.m. daily.

10751. May 19.—Ordering G.T.R. to file plan of road to be constructed for diversion of highway in Dorchester, tp., Ont.; work to be completed within 90 days after approval.

10752. May 19.—Ordering G.T.R. to divert highway southward between cons. 1 and 2, Kings tp., Ont., construct overhead bridge at crossing, and acquire necessary land for fencing; plans to be filed for approval within 30 days, and work to be completed within 60 days after approval.

10753. May 31.—Extending to Aug. 15, time within which C.P.R. shall build spur to Standard White Lime Co., Beachville, Ont.,

10754. June 1.—Extending to July 15, time within which C.P.R. was required by order 9980 to erect crossing signs, cattle guards, and fencing on its Lacombe branch from Stettler to Castor, Alta.

10755. May 31.—Authorizing C. P. R. to build across 32 highways on its Langdon North branch from mileage 0 to 39.45, Alta.

10756 to 10759. May 30-June 2.—Authorizing C.N.O.R. to build between lots 2 and 3, con. 1, Brighton, tp.; across Centre and Napier Sts., Brighton, and between lots 32 and 33, con. B, Brighton, tp.

10760. June 2.—Relieving G.T.R. from providing protection at crossing of concession road D, near Scarboro Jct., Ont.

10761. May 17.—Approving uniform bill of lading in use in the United States and approved by Interstate Commerce Commission as regards all traffic which may be carried from any port in U. S. into Canada, or from the U. S. through Canada to the U. S.

10762 to 10766. May 23.—Authorizing Toronto, Niagara and Western Ry to build across St. Clair Ave.; to cross G. T. R. and C. P. R. at St. Clair Ave.; and G. T. R. at Davenport Road; and to cross Davenport Road, Toronto

10767. May 23.—Directing that order of Railway Committee of the Privy Council, Dec. 16, 1893, with reference to protection of certain level crossings at Dufferin and Bathurst Sts., Toronto, be varied by relieving York tp. from its liability to contribute to cost of maintenance.

10768. May 23.—Ordering G. T. R., until otherwise ordered, in addition to watchman already provided at Cherry St. crossing, by city of Toronto, to maintain watchman on south side of crossing, from 7 a.m. to 7 p.m.

10769. June 1.—Ordering that no G.T.R. train shall cross Oxford, Richmond, Metcalfe, Caradoc and Victoria Sts., Strathroy, Ont., at more than 10 miles an hour, nor remain within 50 ft. of either of the boundaries of them.

10770. June 6.—Approving Kootenany Central Ry. revised location from B.C., Southern Ry., south of Wardner, mileage 0 to north of Fort Steel, mileage 24.9, Kootenay District, B.C.

10771 to 10772. June 4..—Ordering C.P.R. within 60 days to install electric bells at Maria St. and Mark St. crossings, Peterboro, Ont.

10773. June 4.—Extending for two months time for completion of P.M.R. and M.C.R. interchange track and that the Leamington Canning Co. convey certain lands under authority of order 9753, half to M.C.R. and half to P.M.R., division line being drawn from junction of each right of way to halt distance on 370.48 limit.

10774. June 6.—Relieving C.P.R. from providing protection at highway crossing in N.W. ¼ sec. 16, tp. 12, r. 1, w.p.m., near Meadows, Man.

10775. May 19.—Authorizing G.T.R. to use jointly with C.P.R. spurs to premises of Spietz Furniture Co., Hanover Portland Cement Co., and Knechtel Furniture Co., Hanover, Ont.

10776. June 2.—Authorizing C.P.R. to build branch across Strickland Place and Earnbridge St., Toronto.

10777. June 2.—Ordering that C.N.R. be subject to penalty of $25 a day for every day after July 1, that requirements of par. 1, of order of Oct. 16, 1909, re diversion of Thebault St., St. Boniface, Man., have not been complied with.

10798. June 7.—Approving location of proposed C.P.R. station at Chalk River, Ont.

10799. June 6.—Authorizing G.T.R. to construct branch lines south of Don River, Toronto, to premises of the Toronto Iron Works, and British American Oil Co., and along roadway on north side of Keating"s Channel.

10800. June 6.—Authorizing Government to build subway across C.P.R., 300 ft. northerly from junction of its Kimberly and Crow's Nest branches.

10801. June 9.—Authorizing G.T.R. to build along and across Hibernia, Albert, Nunn and Third Sts., and certain lands in Cobourg, Ont., to provide roadway 16 ft. wide from east end of Nunn St. along southeast side of its right of way to ferry dock.

10802.—June 4.—Authorizing C.N.R. to open for traffic the portion of its line from Rosetown to Kindersley, 54 miles.

10803. June 8.—Authorizing C.P.R. to build additional track across Alberni St., Moosomin, Sask.

10804. June 7.—Authorizing Ontario Hydro-Electric Power Commission to place its wires across Bell Telephone Co."s wires at lot 108, Thorould tp., Ont.

10805. June 6.—Authorizing Tillsonburg, Lake Erie and Pacific Ry. to construct spur to Ingersoll Packing Co.'s' premises, Sts.; to take certain lands and give compenport by Chief Engineer and Chief Operating ing west of Blenheim, Ont.

10806. June 8.—Relieving P.M.R. from furnishing further protection at first crossing west of Blenheim, Ont.

10807. June 7.—Relieving Wndsor, Essex and Lake Shore apd Ry from providing further protecting at crossing at Gosfield South, Ont.

10808. June 7.—Approving location of proposed C.P.R. station at Cartier, Ont.

10809. June 7.—Ordering diversion of highway four miles east of Tilbury station by M.C.R..

10810. June 7.—Authorizing G.T.R. to construct spur from its line east of Milton, Ont., to P. L. Robertson Mfg. Co.'s premises, Trafalgar tp., Ont.

10811. June 8. Approving location of proposed G.T.R. station at Malton, Ont.

10812. June 8.—Approving location of piers in International bridge, M.C.R., Front St., Niagara Falls, Ont.

10813. June 8. -Ordering C.N.R. to build cattle pen and loading chute at Ashville, Man.

10814. June 9.- Authorizing C.P.R. to alter bridge by which Notre Dame St., East, is carried over its tracks at Place Viger station yard, Montreal.

10815. June 9.—Approvng C.N.O.R. line from east end of proposed viaduct near Wright St. station 330, to west side of the river; and authorizing t to buld brdge over Port Hope Creek, Hope tp.

10816. June 9.—Authorzing C.N.O.R. to build across road between lots 2, and 3, con. A, Trenton.

10817. June 7.—Making Toronto Ry. and Toronto and York Radial Ry. parties to application re separation of grades at C.P.R. crossings over Yonge St. and Avenue Rd. Toronto.

10818. June 7.—Dismissing application of town of Ferris, Ont., to order G.T.R. to construct crossng where it intersects proposed deviation of road allowance between cons. 3, 4 and 5, lot, 29.

10819. June 6.—Dismissing application of Morningtown village for a subway, and orderng C.P.R. to widen approaches to 22 ft.; raise hollow on north approach at least 5 ft. and clay approaches on both sides with 6 inches of gravel.

10820. June 13.—Authorizing G.T.R. to build spur from its line west of Brock St., Toronto, to Gall Lumber Co.'s premises.

10821 to 10839. June 9.—Authorizing Atlantic, Quebec and Western Ry. to build across highways at 19 points in Quebec province.

10840. June 9.—Authorizing C.N.O.R. to build between lots 13 and 14, con. 1, of Cramahe tp.

10841. June 7.—Authorizing Chatham, Wallaceburg and Lake Erie Ry to build a branch 3½ miles from its main line, con. 4, to road between cons. 3 and 4., Dover east tp., Ont.

10842 to 10844. June 9.—Dismissing application of Ontario Public Works Department, for authorty to build crossing over C.P.R. at lot 8, con. 11,, at lot 7, con. 11, Dennison tp., and at New Algoma Mills station, or mill location, Long, tp.

10845. June 1.—Ordering Canadian and Dominion Express Cos. to file before Aug. 1, a rate of $1.50 per 100 lbs. on oysters from Providence, R. I., to Toronto.

10846. June 10.—Approving location and plans of proposed C.P.R. station at Erskine, Alta.

1084 to 10848. June 9.—Authorizing the C.P.R. to build bridges 90.09 over Magpie River, White River section, Lake Superior dvson and 61.64 Lac du Bonnet secton, Central division.

10849. June 10.—Approving plan of canopy to be built along the west side of Quaker Oats Co.'s warehouse, Peterboro, Ont.

10850. June 10.—Relieving Boston and Maine Rd. from further protection at crossing at Tyler St., Ayers Cliff, Que.

10851 to 10865. June 9-10.—Authorizing Atlantic, Quebec and Western Ry to build across road at 15 points in Quebec province.

10866. June 10.—Approving C.N.O.R. revised location through Cobourg, from mileage 172.58 to 173.9.

19867. June 10.—Amending order 10330, Apr. 22, relieving C.P.R. from providing further protection at crossing 466 and 504, St. Felix de Valois parish.

10868 to 10869. June 10.—Authorizing C. N.O.R. to build between lots 30 and 31, con. A., Haldimand tp., and to build spur line to ballast pit across Kingston road between cons. A and B, of Brighton, tp.

10870. June 10.—Authorizing C.P.R. to build bridge 20.64 over North River on Georgian Bay and Seaboard Ry.

10871. June 9.—Authorizing Bell Telephone Co., to place wires across G.T.R. near Jeannett's Creek station, Ont.

10872. June 10.—Authorizing Ontario Hydro-Electric Power Commission to place wires across C.P.R. telegraph wires in West Flamboro tp.

10873. June 10.—Authorizing J. Aitkens, to lay gas pipe under G.T.R. 1¼ miles west of Onondaga, Ont.

10874. June 10.—Authorizing city of Fort William, Ont., to lay sever pipe under C.N.R. at Francis St.

10875. June 10.—Authorizing W. J. Aikens to lay gas pipe under G.T.R. near Cainsville, Ont.

10876, to 10877. June 10.—Authorizing C. P.R. to build spur to J.D. Clerk and Co.'s Winnipeg premises, and to Yale Columbia Lumber Co.'s premises, Nelson, B.C.

10878. June 13.—Authorizing Nipissing Power Co. to place wires across G.T.R. at Callander, Ont.

10879. June 13.—Authorizing city of Toronto to lay water pipe under C.P.R. at St. Clarens Ave.

10880. June 13.—Ordering C.N.R. to carry out provisions of order 8445, Oct. 13, 1909, within 60 days, and in the event of failure to do so, it be liable to a penalty of $25 a day for each day that the work remains uncompleted.

10881. June 13.—Authorizing M.C.R. to reconstruct bridge over Bear Creek on its St. Clair Division.

10882. June 14.—Authorizing Water Commissioners London, Ont. to lay water main under G.T.R. at Wellington St.

10883 to 10886. June 14.—Extending time within which C.P.R. was required to install electric bells at crossings at mileage 81.28, Markham tp., Ont., Queen St., and Thomas St., Streetsville, and at Manvers Road, Pontypool, Ont.

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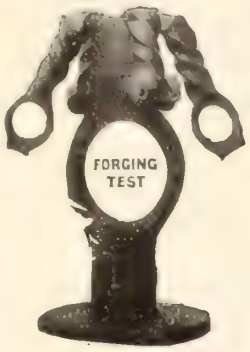

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10887. June 14.—Authorizing C.P.R. to construct bridge 62.4 over Nipigon River, Lake Superior Division.

10888. June 13.—Authorizing C.P.R. to open for traffic the diversion of the Arcola section, of its Pipestone extension, from mileage 0 to 2.8, Man.

10889 to 10890. June 13.—Approving location of G.T.P.R. branch from sec. 23, tp. 36, r, 23, w. 4, m. to sec. 4, tp. 35, r. 23, w. 4, m, North Alberta district, and from sec. 4, tp. 35, r. 23 to sec. 21, tp. 29, r. 24, w. 4, m. South Alberta district.

10891. June 13.—Approving C.P.R. revision of grades from mileage 19 to 42 in Vaudreuil and Soulanges counties, Que., from mileage 42 to 60 in Glengarry county and from mileage 60 to 4 Stormont, and of crossings of highways.

10892. June 13.—Authorizing G.T.R. to change location of branch to Wagstaff and Co.'s premises, Toronto.

10893. June 13.—Authorizing G..T.R. to build a branch to Elmira Furniture Co.'s premises, Elmira, Ont.

10894. June 13.—Authorizing C.P.R. to operate trains temporarily on National Transcontinental Ry., near Theriault, N.B., pending completion to C.P.R. division.

10895. June 13.—Extending time within which C.P.R. was requred by order 9497, Feb. 8, to build spur between Mary and Christine Sts., Westfort, Ont., until Aug. 31.

10896 to 10897. June 13.—Authorizing C.P.R. to cross under Bell Telephone Co. and Toronto Electric Light Co.'s wires at two points in Toronto.

10898. June 15.—Approving C.N.R. location through tps. 29-26, r, 19-23, w. 4, n. Alta. mileage 171.66 to 212.83.

10899 June 14.—Ordering C.P.R. within 90 days to install electric bell at crossing of John St., Almonte, Ont.

10900. June 13.—Ordering C.N.R. within 30 days to extend its platform at Harris station, making it 225 ft. long; the C.N.R. to be liable to a penalty of $25 for every day after 30 days that the work remains uncompleted.

10901. June 13.—Authorizing C.P.R. to build spur, to Calgary Gas Co.'s premises, Calgary, Alta.

10902. June 14.—Authorizing G.T.R. to build spur to Lever Bros.' premises, Toronto.

10903. June 13.—Approving location of portion of Fort William Terminal Ry. and Bridge Co.'s line from between Rebecca and Vickers Sts., on its main line, mileage 0 to lot 5, con. 7, Island no. 1, Fort William, Ont., at mileage 1.08.

10904. June 13.—Authorizing C.N.R. to divert and cross overhead Cavan St., Port Hope, Ont.

10905. June 13.—Authorizing G.T.R. to build across road between lot 93, con. and lot 93, con 2, Tay tp.; the highway to be carried over the railway by a bridge.

10906, to 10907. June 14-15.—Authorizing Hamilton Gas Light Co. to lay pipe across Mary St. bridge over G.T.R.; and under G.T.R. at Ferguson Ave., Hamilton, Ont.

10908. June 15.—Authorizing Calgary Power Co. to place wires across C.P.R. at mileage 49. Laggan section, Alta.

10909. June 15.—Extending time within whch C.P.R. was required by order 10507, May 3, to erect gates at crossing near Matthew's Pork Factory, Hull, Que., until Sept. 2.

10910 to 10911. June 15.—Relieving P. M.R. from providing further protection at crossings of second highway west of Kingsville, and 2 miles north of Watson, Ont.

10912. June 15.—Relieving W.E. and L. S.R. Ry. from providing further protection at crossing of cut-off road near Essex, Ont.

10913 to 10914. June 15.—Extending until Aug. 27, time within which electric bells were to be installed at crossing of first public road west of Brittania station, as required by order 10376, Apr. 28, and at crossing of first public road west of Stittsville station, Ont., as required by order 10377, Apr. 28.

10915. June 14.—Approving C.P.R. plans of changes at bridge 73.93, Nipigon section, Lake Superior division.

10916. June 15.—Authorizing C.P.R. to build spur to City Planing Mills, Calgary, Alta.

10917. June 16.—Approving M.C.R. bylaw authorizing C. F. Daly, Vice President, in respect of passenger and freight traffic; O. W. Ruggles, Central Passenger Agent, in respect of passenger traffic, and W. C. Rowley, General Freight Agent, in respect of freight traffic, to prepare and issue tariff of tolls.

10918. June 15.—Relieving P.M.R. from providing further protection at first crossing east of Merlin station, Ont.

10919. June 16.—Authorizing Kaministikwia Power Co. to carry wires across C.P.R. on Yonge st., Fort William, Ont.

10920. June 16.—Authorizing V.V. and E. Ry. and Nav. Co. to build bridge over Park Drive, Vancouver, B.C.

10921. June 16.—Authorizing C.N.O.R. to build under Ontario St., Port Hope.

10922 to 10923. June 16.—Declaring that errors in C.P.R. books of reference, respecting lines approving orders 10805, June 6, and 10323, Apr. 23, have been corrected.

10924. June 16.—Ordering M.C.R. to divert and construct road surface along north of second highway crossing east of Yarmouth, Ont., so as to cross at right angles.

10924. June 17.—Extending for 30 days from date time within which C.P.R. was requred by order 10614, May 12-13, to file plans of subway at Main St. crossing, Kenora, Ont.

10926. June 13.—Approving G.N.W. Telegraph Co.'s tolls east of and including Windsor, North Bay, Ont., and the T. and N.O. Ry., included in its tariff of tolls, C.R.C. 9, July, 1909, and extending until Nov. 1, time for approval of its tolls west of North Bay and between points west of North Bay and east of North Bay and Windsor, also included in tariff.

10927. June 13.—Approving C.P.R. telegraph tolls east of and including Sudbury., and Windsor, Ont., included in its tariff of tolls C.R.C. 5, Jan. 1, and extending until Nov. 1., time for approval of tolls between points west of and including Sudbury, and points east of Sudbury, and east of, and including Windsor, also included in tariff.

10928. June 13.—Extending until Nov. 1, time for approval of Canadian Northern Telegraph Co.'s tolls.

10929. June 13.—Approving North American Telegraph Co.'s tariff of tolls, C.R.C. 1.

10930. June 13.—Extending until Nov. 1, time for approval of White Pass and Yukon Route, and G.T.P.R. telegraph tolls.

10932. June 10.—Ordering G.T.R. within 30 days to install electric bell at crossing 1½ miles west of Melbourne parish, Ont.

10933. June 1.—Ordering C.P.R. to build farm crossing for Z. Sabourin, Cadaret, Que.

10934. June 18.—Dismissing complaint of E. B. Neely, Humboldt, Sask., that lands in secs. 20-37-22 are injuriously affected by C.N.R. off-take water pipe along its right of way from its roundhouse and yards east of sec. 20.

10935. June 18.—Approving amended location of V.V. and E. Ry. and Nav. Co.'s line from west line of tp. 26 to east line of New Westminster District, B.C.

10936. June 17.—Authorizing Vancouver-Naniamo Coal Co., to cross Esquimalt and Nanaimo Ry. with line from its coal mine, sec. 11, Mountain District to Exit Passage, Vancouver Island, B.C.

10937 to 10938. June 18.—Approving location and plans of G.T.R. stations at Ste. Martine, and Lacadie, Que.

10939. June 20.—Approving location of G.T.R. station and remodelling of siding at St. Agapit, Que.

10940 to 10941. June 20.—Authorizing C.P.R. to build additional track across road allowance between sec. 9, and sec. 4, and between sec. 4, and sec. 3, tp. 13, r. 30, w. p. m., on its main line at Fleming, Sask.

10942 to 10943. June 18.—Approving location of C.P.R. stations at Barnet, B.C., and Franktown, Ont.

10944. June 18. Authorizing C.P.R. to divert highway from north to south side of its Waltham Branch in lot. 28, r. 9, Clarendon tp., Que.

10945. June 18. Authorizing C.P.R. to build bridge 27.3, over Sheep Creek, McLeod Section. Western Division.

10946. June 17.—Authorizing C.N.R. to open for traffic the portion of its line from Russell to Calder, Man., 41 miles.

10947 to 10954. June 18.—Approving location of the C.N.R. station grounds at Bowmanville, Kendall, Colborne, Cherrywood, Oshawa, Grafton, Brooklin, and Osaka, Ont.

10955. June 18. Authorizing G. Heggie, of Enderby, B.C., to lay pipe under C.P.R. Shuswap and Okanagan branch at mileage 28.

10956. June 18.—Authorizing city of Fort William Ont., to lay a sewer under C.N.R. at Amelia St.

10957. June 18. Authorizing St. Lawrence Pressed Brick and Terra Cotta Co. to lay a drain under G.T.R. at Laprairie, Que.

10958. June 17.—Authorizing C.P.R. to build a branch across Norman Ave., Toronto.

10959. June 20.—Authorizing C.P.R. to build spur to John Deere Plow Co.'s premises, Saskatoon, Sask.

10960. June 16.—Ordering C.P.R. to revise and reissue its special tariff rates on coal and coke from shipping points on ts Lethbridge, Crow's Nest, and Cranbrook sections, to points west thereof, so as to place rates on a reasonable basis relatively to special rates on coal and coke in force, or as they may be reduced from Lethbridge; the special tariffs of revised rates to be published and filed within 90 days.

10961. June 20.—Authorizing rural municipality of Assiniboia, to construct Aldboro and Westcana Sts., West Winnipeg, across G.T.P.R.; and rescinding order 10543, May 12.

Dominion Atlantic Railway.

Sir Thos. G. Shaughnessy was given a reception in the Board of Trade Building Halifax, June 19, after having completed his trip of inspection. He stated that legislation was necessary before the C.P.R. could take over the D.A.R. The purchase was perhaps sentimental, but he believed it to be the fulfilment of the destiny of the C.P.R. to link up Nova Scotia with the rest of Canada by another railway. This would connect Halifax with a system of 11,000 miles of railway in Canada and with 5,000 miles in the U.S. At almost every eight miles along that mileage is a man soliciting freight and passenger business for that line, and this is particularly important to ports like Halifax and St. John, where the transit of through goods from the rail to the ship is made. Up to the present it was unfortunate that Halifax could not be considered as a point on that line, but it will now, or when the D.A.R. becomes part of the C.P.R. system. With larger steamers the C.P.R. wants to land passengers at its own ports. He would say for the Dominion Government that he thought there was no disinclination to give running rights over the Intercolonial Ry., at a rate per mile or rental, but for carrying through traffic from Halifax to St. John, that arrangement would not be a commercial proposition. "But there is always some settlement possible," said Sir Thomas, "where two parties desire a settlement. We hope the future relations between Halifax and Nova Scotia and the C.P.R. will become stronger and closer."

Georgian Bay and Seaboard Ry.—Work has been started on the Coldwater-Orillia section of the C.P.R. line, which it is expected to have completed within a year. The Toronto Construction Co. has the contract.

The engagement is announced of R. A. R. Sinclair, son of Angus Sinclair, C.E., railway contractor, to Miss Muriel Jarvis, of Toronto.

D. McNicoll, Vice President C.P.R., has written to the Montreal Board of Control on the question of the re-assessment of the Windsor and Place Viger stations, stating that the alterations and extensions to each, will materially improve the appearance of the city, and suggesting that the combined valuation for taxation be placed at $3,000,000.

At a meeting of the shareholders of the Dominion Iron and Steel Co., and the Dominion Coal Co., June 17, directors of the company to take over and unite the two companies, were elected as follows: Sir H. Montagu Allan, G. Caverhill, Hon. G. A. Cox, H. F. Dimock, Hon L. J. Forget, J. Mason, Hon. R. Mackay, Hon. D. McKeen, W. MacMaster, F. Nichols, Sir Henry M. Pellatt, J. H. Plummer, W. G. Ross, Sir Wm. VanHorne, and J. R. Wilson. It was announced that 18,624,000 shares of Dominion Iron and Steel Co., and 12,500,000 shares of Dominion Coal Co., had been exchanged. The meeting was adjourned to later in the month, when the question of the name of the company will be taken up. The name which it was intended to assume, has been adopted by another company which, it was stated, it had agreed to take the necessary legal steps to relinquish.

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Award re C.P.R. and G.T.R. Train and Yard Men's Pay.

The award of the board of conciliation which had had under consideration the claims of the C.P.R. and G.T.R. train men for an increase of wages amounting irrespective of new rules as to overtime, detention, etc., to 23% on the C.P.R. and about 45% on the G.T.R. was given out June 22. In Oct. 1909 a movement known as the Eastern Association was formed among the brotherhoods, the object of which was the standardization of the wages of trainmen on all lines within the territory east of Chicago and north of the Chesapeake and Ohio Rivers. The rates paid on the Baltimore and Ohio Rd. were taken as the standard, and after certain negotiations had been carried on the rates were agreed to by about 30% of the U.S. lines, the new rates to take effect at various dates. The demand was put forward on behalf of the men in the employ of the C.P.R., the G.T.R., and the Toronto, Hamilton and Buffalo Ry., in the spring, and a board of conciliation was appointed, consisting of W. Nesbitt, K.C., for the railways; J. G. O'Donoghue, representing the trainmen, and J. E. Atkinson, of Toronto, as chairman. The board began its sittings April 25, so far as the G.T.R. and the C.P.R. were concerned, an understanding being arrived at that the decisions of the board in reference to the claims of the men, would apply to the T.H. and B.R. After a very full hearing of all the parties the arbitrators presented a majority report, and two minority reports—W. Nesbitt dissenting from the findings of the majority so far as it applies to the G.T.R., and J. G. O'Donoghue also dissented from his colleagues in regard to part of the report.

The award, so far as it refers to the G.T.R. says:—

"The majority of the board are of the opinion that the men are justified in asking that the roads in the same territory should standardize their rates of pay and their rules also so far as they may deal with like general conditions of service.

"To enable the standardization of rates of pay on the G.T.R. to be carried out the majority of the board recommend that the company should extend its adoption of the mileage basis of pay to cover not only its through freight service as in the past, but also (1) its passenger services (except for such a list of specified runs as may be agreed upon between the company and its employes); (2) its way freight service, and (3) its mixed and all other train services. Also that whatever rates of pay may be adopted should be applied to all divisions of the railway in the eastern territory.

"The majority of the board believe that the rates of pay upon the G.T.R. should be brought up to the standard paid on roads in the same territory. But inasmuch as to do this at once would place upon the company a heavy increase of its wage list, the majority of the board recommended that standardization should be reached by two increases. It is the opinion of the majority of the board that the first increase should be made to take effect May 1, 1910. Regarding the date of the second increase, the chairman and Mr. O'Donoghue do not agree. Mr. O'Donoghue's opinion is that the men and the company should meet together to arrange a date when the completion of the standardization of rates should take effect. The chairman, however, would give to the company a longer time in which to complete the standardization than Mr. O'Donoghue thinks would be either fair to the men or necessary for the company.

"The majority of the board, from the information presented, believe that the adoption of the rates of pay will give to the employes of the road a substantial part of the difference between present rates and the standard, and by so doing will constitute a measure of justice to the men."

J. G. O'Donoghue, in dissenting from the majority report, so far as it effects the C.P.R., says in part:—"I regret that we have not been able to bring the parties together in this matter, and that I have not been able to agree with the majority of the board as to the rates, etc., that should obtain as between the C.P.R. and the men concerned. I see no reason for differentiating between the C.P.R. and other first-class roads in the eastern part of this continent."

In all freight and mixed train service, he held 100 miles or less, in 10 hours or less, should constitute a day's work. On runs of 100 miles or less overtime should be paid when the run occupied, is in excess of ten hours. And he reported that overtime should be paid on runs over 100 miles in length for excess of time necessary to complete the trip at a speed of ten miles an hour. This overtime should be paid at the rate of 10 miles per hour for the class of service performed. Ten hours or less should constitute a day's work. Trainmen, he contended, should not be compelled to handle express, and if required to handle mail it should be sorted and placed in the car.

W. Nesbitt, in his minority report, recommended for the G.T.R. an all-round increase of 15 per cent., the rules to remain unaltered.

The table on this page gives in concise form the Board's finding. The old difference in rates on the C.P.R. east and west of Cartier is wiped out, a change to which both parties were agreed. The old differences also on the G.T.R. between the divisions east and west of the Detroit and St. Clair Rivers, is removed in so far as trainmen are concerned, but as for yard rates, there is still a difference in favor of the Western division of 1 c. an hour. Chicago yard is not dealt with. Detroit is 1 c. an hour more than first-class yards east of the rivers. Port Huron, Durand, Battle Creek, and Nichols rank as second-class, but receive the same pay as first-class yards east of the rivers. All other yards west get 1 c. an hour more than the third-class rate east of the rivers. In the past, except in through freight service, G.T.R. rates have been on a monthly basis. It is not therefore possible to make a comparison with the new rates in their passenger or local freight services.

On behalf of the C.P.R. men's committee J. Murdock, Vice President of the Brotherhood of Railroad Trainmen, and S. N. Berry, Vice President of the Order of Railway Conductors, addressed the following communication to the Minister of Labor:—"The general committee representing the men employed in the train and yard service on the C.P.R. unanimously request us to advise you that they have received and thoroughly considered the award handed out by the Board of Arbitration in the recent investigation. While thanking the board for its earnest efforts, honest consideration and intent in preparing the award referred to, the committee is compelled to advise you that it is unsatisfactory, being impracticable of adoption, and that it cannot be accepted. For reasons best known to the gentlemen composing the board, standards and comparative differentials existing in the territory and on the C.P.R. have been entirely ignored, or, worse still, reversed, thereby making the award, as handed down, impossible of acceptance. We are this date writing Mr. McNicoll, quoting this telegram, and asking if his company are still indisposed to recognize past and recently revised standards in the territory."

The above position was endorsed by the G.T.R. committee on the following night, June 23, their resolution being specially directed against W. Nesbitt's minority report.

J. W. Leonard, General Manager Eastern lines C.P.R., on June 24 wrote stating that the company had accepted the Board's finding, and were prepared to stand by it, although they regarded it as excessive.

N. J. Holden, of the Holden Co., Ltd., left Montreal in June, with Mrs. Holden, for an automobile trip in Europe.

Angus McMurchy, K.C., local solicitor, C.P.R., Toronto, left June 22 for England to take part in the hearing of the company's appeal against the Board of Railway Commissioners order respecting a viaduct at Toronto.

	Men asked rate per 100 miles	Old C.P.R. rate per 100 miles	New C.P.R. rate per 100 miles	New G.T.R. rate per 100 miles	Old G.T.R. rate per 100 miles
Passenger Service.					
Conductor	$2.68	$2.44	$2.60	$2.45	xM.R.
Baggageman	1.55	1.41½	1.50	1.40	xM.R.
Brakeman	1.50	1.29 1-3	1.45	1.36	xM.R.
Local Freight Service.					
Conductor	3.63	*3.10	3.55	3.35	**2.90
Brakeman	2.42	*2.07	2.37	2.22	**1.90
		z3.25			zz3.00
		z2.17			zz2.00
Through Freight.					
Conductor	3.97½	3.50	3.90	3.68	xM.R.
Brakeman	2.70	2.45	2.65	2.48	xM.R.
Yard Service.	Men asked rate per hour	Old C.P.R. rate per hour	New C.P.R. rate per hour	New G.T.R. rate per hour	Old G.T.R. rate per hour
Conductors	.37	.30	.35	.34	.29
Brakemen	.34	.26	.31	.30	.24
Second-class.					
Conductors	.36	..	.33	.33	.26
Brakemen	.33	..	.29	.29	.22
All Others.					
Conductors	.35	..	.31	.31	.24
Brakemen	.32	..	.27	.27	.20

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**East of Detroit and St. Clair Rivers.
zzWest of Detroit and St. Clair Rivers.
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We have overcome the greatest objection to the use of a scale reducing treatment direct in the boiler by making preparations that are applied at terminals only, where the people who get the benefit from the use of the treatment can be made responsible for its application. This treatment removes and prevents scale and overcomes all leaking trouble.

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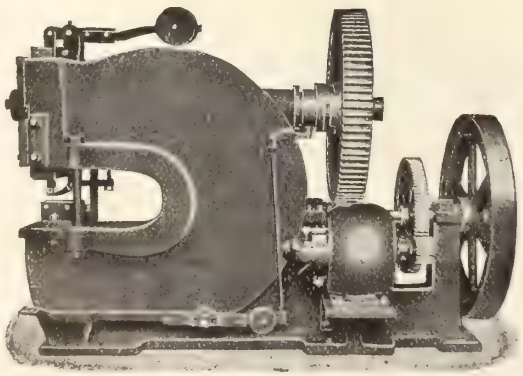
ROBERT F. CARR, President

McCormick Building - - - Chicago

Improved Power Metal Working Machinery

Special Tools
for
Railroad Shops
Boiler Plants
Iron Works
Bridge Shops
Implement Works
Etc.



Belt, Engine or Motor Drive

Single or Double Punches
Multiple Punches
Structural Punches
Gate or Plate Shears
Universal Shears
Boiler Rolls
Slip Rolls
Levelling Rolls

The Cincinnati Punch & Shear Co., = Cincinnati, O., U.S.A.

TRANSPORTATION APPOINTMENTS.

The information under this head, which is almost entirely gathered from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Algoma Central and Hudson Bay Ry. Manitoulin and North Shore Ry.—R. S. McCormick has been appointed Chief Engineer, vice C. N. Coburn, transferred to the Lake Superior Corporation's Mines Department. Office, Sault Ste. Marie, Ont.

Canadian Northern Ry.—A. H. Eager, heretofore Locomotive Foreman, C.P.R., Calgary, Alta., has been appointed Superintendent of Shops and Repair Yards, Winnipeg. This is a new position.

A. McCowan, heretofore Foreman C.P.R., Cranbrook, B.C., has been appointed General Car Foreman, Winnipeg, vice J. H. Morgan, retired.

T. A. Musgrove, heretofore car foreman, C.P.R., Ottawa, has been appointed freight repair foreman, C.N.R., Winnipeg, vice C. A. Wheaton, transferred.

J. Irwin, heretofore Trainmaster, Districts 8, 9 and 10, G.T.R., Lindsay, Ont., has been appointed Superintendent District 5, C.N.R. Office, Saskatoon, Sask.

J. Munro has been appointed car foreman at Saskatoon, Sask.

C. A. Wheaton, heretofore freight Repair foreman, Winnipeg, has been appointed Car Foreman at Edmonton, Alta.

Canadian Pacific Ry.—Pursuant to the bylaws, the offices of Second, Third and Fourth Vice Presidents have been abolished, and the directors have sanctioned the following appointments: Wm. Whyte, heretofore second Vice President, to be Vice President, with the same duties as heretofore. Office, Winnipeg. I. G. Ogden, heretofore Third Vice President, to be Vice President in charge of financial and accounting departments. Office, Montreal. G. M. Bosworth, heretofore Fourth Vice President, to be Vice President in charge of the company's traffic and the ocean steamship lines Office, Montreal.

W. B. Bamford, heretofore District Freight Agent, London, Ont., has been appointed General Freight Agent Atlantic Division, vice H. E. Macdonnell transferred. Office, St. John, N.B.

R. K. Harris, heretofore Chief Engineer Orford Mountain Ry., has been appointed Resident Engineer C.P.R. Orford Mountain Branch. Office, Kingsbury, Que.

H. E. Macdonnell, heretofore General Freight Agent, Atlantic Division, St. John, N.B., has been appointed General Freight Agent Eastern Division, Chalk River and east, also Smith's Falls to Newport, Megantic and Quebec, including branch lines. Office, Montreal.

A. Rutledge, heretofore agent Sleeping, Dining and Parlor Cars and News Service, Montreal, has been appointed assistant Superintendent same service, with office at Glen Yard.

A. M. Jones, Resident Engineer, Ottawa, Ont., is reported to have entered the Government service in connection with the Quebec Bridge construction.

Dr. H. A. Beatty has been appointed Chief Surgeon and Medical Officer Eastern Lines. Office, Toronto.

L. Mulkern, heretofore chief clerk to General Freight Agent, through traffic, Ontario Division, Toronto, has been appointed District Freight Agent, London, Ont., vice W. B. Bamford, promoted.

W. S. Elliott, heretofore District Freight Agent, North Bay, Ont., has been appointed General Freight Agent Lake Superior Division, Chalk River and west to Sault Ste. Marie and Port Arthur, but not including line south of Romford Jct. Office North Bay, Ont.

W. G. Rankin, heretofore on the Claims Adjuster's staff, has been appointed Claims Agent at North Bay, Ont., vice T. Hay, deceased.

In our March issue we said: "The daily press has printed a lot of rumors lately, one being to the effect that in future there would be three general managers, instead of two, for Eastern and Western Lines, as at present. We do not think there is any foundation for this report. The great growth of the territory embraced in the Western Lines will, however, probably necessitate an increase of staff there, and it would not surprise us to see the present three grand divisions, Central, Western and Pacific, increased to four, which would necessitate the appointment of another general superintendent."

Our forecast has proved correct. The Western Lines have been divided into four grand divisions, instead of three, as heretofore. The Central, Western and Pacific divisions have been abolished, and the Manitoba, Saskatchewan, Alberta and British Columbia Divisions established as follows:—

MANITOBA DIVISION.

Fort William terminals.		
First district	486.8	miles
Winnipeg terminals.		
Second district	723.0	"
Third district	523.7	"
Fourth district	582.6	"
Under construction—		
Teulon extension	28.2	"
Virden, north-west	37.0	"
Tilston, westerly	24.0	"
	2,405.3	"

J. T. Arundel, heretofore General Superintendent, Central Division, has been appointed General Superintendent. Office Winnipeg.

SASKATCHEWAN DIVISION.

Broadview to Swift Current	245.2	miles
Outlook section	118.7	"
Portal section	160.3	"
Moose Mountain section	113.4	"
Weyburn branch	37.0	"
Forward branch	25.9	"
Neudorf to Lanigan	148.7	"
Yorkton to Hardisty	432.7	"
Under construction—		
Forward, westerly	25.0	"
Macklin to Outlook	147.7	"
Regina to Bulyea	43.0	"
Craven to Colonsay	110.0	"
	1,607.4	"

J. J. Scully, heretofore Superintendent District 1, Western Division, has been appointed General Superintendent. Office, Moose Jaw, Saskatchewan.

ALBERTA DIVISION.

Swift Current to Field	463.8	miles
Calgary to Strathcona	190.6	"
Wetaskiwin to Hardisty	95.0	"
Lacombe branch	84.6	"
Macleod branch	105.2	"
Dunmore to Kootenay Ldg.	391.7	"
Curzon branch	8.3	"
Kimberley branch	20.3	"
Marysville branch	.9	"
Langdon branch	40.0	"
Carmangay branch	28.0	"
Under construction—		
Irricana, easterly	15.0	"
Carmangay, north	30.0	"
	1,473.4	"

A. Price, heretofore General Superintendent Western Division, has been appointed General Superintendent. Office, Calgary, Alta.

BRITISH COLUMBIA DIVISION.

First district	337.8	miles
Second district	315.7	"
Third district	304.2	"
	957.7	"
Water Routes—		
Kootenay, Slocan, Arrow and Okanagan Lakes	342.0	"

F. F. Busteed, heretofore General Superintendent Pacific Division, has been appointed General Superintendent. Office, Vancouver, B.C.

TOTAL MILEAGE OF RAILWAY LINES.

Manitoba Division	2,405.3	miles
Saskatchewan Division	1,607.4	"
Alberta Division	1,473.4	"
British Columbia	957.7	"
	6,443.8	"

A. W. Clarke has been appointed Fuel Inspector Western Lines, vice T. L. Roberts, resigned.

T. Clegg, has been appointed Air Brake Instructor, Western Lines, vice E. D. Walton, resigned.

W. J. Andrews has been appointed shop foreman Winnipeg roundhouse.

H. J. Reed has been appointed Night Locomotive Foreman, Winnipeg roundhouse.

J. M. Cameron, heretofore Trainmaster at Vancouver, B.C., has been appointed Superintendent, vice J. J. Scully, promoted. Office, Moose Jaw, Sask.

T. Martin, heretofore Assistant Engineer at Calgary, Alta., has been appointed Division Engineer. Office, Moose Jaw, Sask.

A. Shortt, heretofore District Master Mechanic at Cranbrook, B.C., has been appointed Master Mechanic. Office, Moose Jaw, Sask.

H. A. Sims, heretofore Resident Engineer at Moose Jaw, Sask., has been appointed Assistant Division Engineer there.

R. R. Smart, heretofore dispatcher at Moose Jaw, Sask., has been appointed Car Service Agent there.

W. K. McLeod has been appointed Locomotive Foreman at Calgary, Alta., vice A. H. Eager, resigned.

A. Hall, heretofore Locomotive Foreman at Crow's Nest, B.C., has been appointed Locomotive Foreman at McLeod, Alta., vice H. McDonald, transferred.

F. McFarlane has been appointed Locomotive Foreman at Crow's Nest, B.C., vice A. Hall, transferred.

J. Jackson has been appointed shop foreman, Revelstoke roundhouse.

H. Rindal, heretofore Assistant Engineer, Winnipeg, has been appointed Division Engineer Pacific Division, vice C. E. Cartwright, resigned. Office, Vancouver, B.C.

S. E. Cruse, Agent at Antwerp, Belgium, has resigned.

Grand Trunk Pacific Ry.—Hon. R. Dandurand has been elected a director vice Sir C. Rivers Wilson, resigned.

T. D. Smith has been appointed Fuel Agent. All fuel reports, requisitions and correspondence pertaining thereto are sent accordingly. Office, Winnipeg.

S. C. Pettitt has been appointed Stationery Agent. All stationery requisitions and correspondence pertaining thereto ore addressed to him. Office, Winnipeg.

M. D. Thomson, heretofore Chief Dispatcher, Districts 4, 5, 6, and 7, and Tofield-Calgary branch, Wainwright, Alta., has been appointed Chief Dispatcher, Districts, 1, 2, and 3 and Regina and Yorkton branches, at Melville, Sask., vice J. C. Ayer, resigned.

W. J. McPhee has been appointed Chief Dispatcher, Districts 4, 5, 6 and 7, and Tofield-Calgary branch, at Wainwright, Alta., vice M. D. Thomson transferred.

E. C. Dunlop, heretofore Roadmaster, District 30, Ottawa Division, G.T.R., has been appointed Roadmaster, G.T.P.R., with jurisdiction from the west end of Edmonton yard to Viking, including the Calgary-Tofield branch. Office, Edmonton, Alta.

The following agents have been appointed: Ingelow, Man., A. E. Hill; Waldron, Sask. A. Fullum; Venn, Sask., R. M. Sutherland; Watrous, Sask., R. J. Martin; Scott, Sask., H. C. Wilkinson; Holden, Alta., J. L. Dodds.

L. V. Druce, heretofore Commercial Agent at Seattle, Wash., has been appointed Commercial Agent, G.T.R., G.T.P.R., and G.T.P. Steamship Co. at Vancouver, B.C.

W. Duperow, heretofore Traveling Passenger Agent, G.T.R., Toronto, has been appointed City Passenger and Tic-

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Grand Trunk Route

"A FRESH WATER SEA VOYAGE"

Between Sarnia, S. S. Marie, Port Arthur, Fort William and Duluth. Through Lake Huron, St. Mary's River and Lake Superior.

"THAT GEORGIAN BAY TRIP"

Between Parry Sound, Collingwood, Owen Sound, S. S. Marie and Mackinac Island. Through the North Channel of the Georgian Bay.

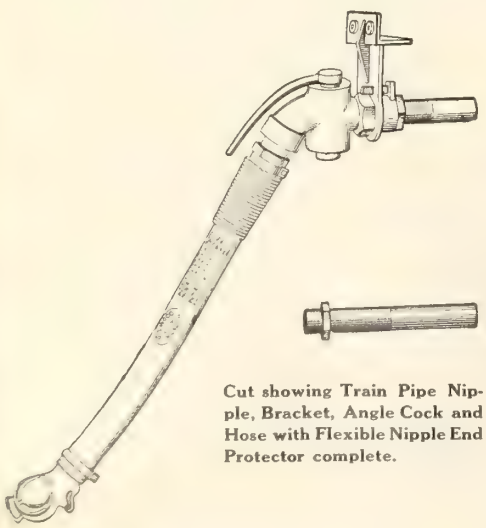
"AMONGST THE 30,000 ISLANDS"

Between Midland, Penetang and Parry Sound, through the finest scenic route in America.

Rates and Full Information from all Railway Agents, or

C. A. Macdonald,
Ass't Manager,
Collingwood, Ont.

E. W. Holton,
Eastern Passenger Agent,
Sarnia, Ont.



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Prevents chafing and abrasion effecting a saving of from 40 to 50% in maintenance of air-brake hose.

THE MONOGRAM BRACKET

will absolutely stop shifting and leaking of air-brake train pipes. All M.C.B. requirements are obtained and maintained.

P. & W. HOSE PRESERVATIVE
FOR AIR-BRAKE AND PNEUMATIC TOOL HOSE

will prevent cracking of rubber cover and deterioration due to climatic changes. Easily applied.

ket Agent, G.T.R., G.T.P.R. and G.T.P. Steamship Co., at Victoria, B.C.

F. L. Norman, heretofore Soliciting Freight Agent Kansas City, Mo., has been appointed Commercial Agent, G.T.R., G.T.P.R., and G.T.P. Steamship Co., at Seattle, Wash., vice L. V. Druce, transferred.

Grand Trunk Ry.—W. S. Cookson, heretofore Assistant General Passenger Agent, Chicago, Ill., has been appointed Assistant General Passenger Agent, Montreal, and H. G. Elliott, First Assistant General Passenger Agent, Montreal, has been transferred to Chicago.

T. W. R. McRae has been appointed Claims Agent, Personal Injuries, Montreal, vice S. Wells, deceased.

M. Quinlan, heretofore Section Foreman at St. Henri, Que., has been appointed Roadmaster District 3, Eastern Division, vice D. Galvin, deceased. Office, Richmond, Que.

T. Graham, Roadmaster District 31, Ottawa Division, has also been appointed, temporarily, in charge of District 30, vice E. C. Dunlop, transferred to G.T.P.R.

M. Donovan, heretofore Section Foreman at St. Henri, Que., has been appointed Roadmaster District 6, Eastern Division. Office, Kingston Jct., Ont. This is a new position, making three roadmasters between Montreal and Toronto.

J. D. McMillan has been appointed Trainmaster Districts 8, 9, and 10, vice J. Irwin, resigned. Headquarters Lindsay, Ont.

C. E. Jenny has been appointed Travelling Passenger Agent, Toronto, vice W. Duperow, promoted to Victoria, B.C.

P. J. Lynch, heretofore Assistant Superintendent, has been appointed Superintendent Northern Division, vice W. R. Tiffin, deceased. Office, Allandale, Ont. The position of Assistant Superintendent has been abolished.

W. J. Piggott, heretofore Chief Dispatcher, Allandale, has been appointed Trainmaster Districts 11, 12, 13 and 14, headquarters, Allandale, Ont.

R. E. Ruse, heretofore station ticket agent, London, Ont., has been appointed city passenger and ticket agent at London, vice E. de la Hooke, who has been placed on the pension list after 46 years' service.

H. M. Hayes, heretofore Chief Clerk, city passenger and ticket agent's office London, Ont., has been appointed station ticket agent at London, vice R. E. Ruse, promoted.

The following agents have been appointed:—Lakeside, Que., W. Bennett; Colborne, Ont., J. Thorne; Anson Jct., Ont., A. L. Burke; Colwell, Ont., F. E. Cook; Winona, Ont., C. R. Anderson; Jeannettes Creek, Ont., A. Webster; Ekfrid, Ont., F. D. Ellis; Sebringville, Ont., H. G. Simmons; Burgessville, Ont., R. M. Patten; Goldstone, Ont., J. M. Fairweather; Newton, Ont., R. Middleton; Moose Creek, Ont., F. O. Parent; Otter Lake, Ont., A. Johnston; Rainy Lake, Ont., H. W. Lora; Toronto, outside agency, W. H. Polley.

See also some appointments under G.T. Pacific Ry.

New York Central and Hudson River Rd.—T. W. Evans, heretofore Superintendent Rochester division, has been appointed Superintendent Buffalo Division, vice I. H. McEwen, transferred. Office, Buffalo, N.Y.

F. E. McCormack, heretofore superintendent Ontario Division, has been appointed Superintendent Rochester Division, vice T. W. Evans, transferred. Office, Rochester, N.Y.

S. J. Kearns has been appointed Superintendent Ontario Division, vice F. E. McCormack, transferred. Office, Oswego, N.Y.

Reid Newfoundland Co. A. Graham, heretofore Roadmaster Division 3, has been appointed General Roadmaster of the main line and branches. Headquarters, Port Blandford.

P. Hannon, has been appointed Roadmaster, Division 3, between Clarenville and Bishop's Falls, vice A. Graham. Headquarters, Gambo.

J. Peddle has been appointed Roadmaster, Division 4, between Bishop's Falls and Bay of Islands, vice J. Campbell, transferred to Bonavista Branch construction. Headquarters, Bay of Islands.

J. Keefe has been appointed Roadmaster Division 5, between Bay of Islands and Port-aux-Basques, vice A. Cobb, transferred to Bonavista Branch construction. Headquarters, Stephenville.

Temiskaming and Northern Ontario Ry.—T. Ross, heretofore Locomotive Foreman, North Bay, has been appointed acting Master Mechanic, vice A. Allan, resigned. Office, North Bay, Ont.

C. Battley has been appointed acting Locomotive Foreman, North Bay, vice T. Ross, Locomotive Foreman, promoted.

Brockville, Westport & Northwestern Ry.

The Mackenzie, Mann & Co. interests are acquiring the Brockville, Westport and North-Western Ry., which runs from Brockville to Westport, Ont., 45 miles. The Canadian Northern Ontario Ry.'s Ottawa-Toronto line, the western portion of which is already under construction, will cross the B.W. & N.W.R., and through the latter the C.N.O.R. will obtain access to Brockville and the St. Lawrence River.

The Brockville, Westport and North-Western Ry. Co., which was incorporated in 1903, succeeded the Brockville, Westport & Sault Ste. Marie Ry. Co., whose property was sold under foreclosure in that year. The officers are E. M. Thomas, President; F. T. Lewis, Vice President and Treasurer; C. Heilshorn, Manager and Secretary, all of New York; W. J. Curle, Superintendent, Brockville. From Brockville it connects by ferry at Morristown, N.Y., with the New York Central and Hudson River Rd., also at Brockville with the C.P.R. and G.T.R.

The Steel Company of Canada, Ltd.

The above is the name which has been finally chosen for the merger which will have its headquarters in Hamilton. The new company will have a capitalization of $25,000,000, and it is said the merged companies will be represented by the following amounts of stock:—

Hamilton Steel & Iron Co.	$9,300,000
Canada Screw Co.	4,000,000
Canada Bolt & Nut Co.	2,100,000
Montreal Rolling Mills Co.	7,500,000

Canadian Northern Pacific Ry. The contract for the construction of the first 60 miles east from New Westminster has been let to the Northern Construction Co.

N. Mooney, General Agent New York Central and Hudson River Rd. and Rutland Rd., has removed his office from 137 to 220 St. James St., Montreal.

V. G. R. Vickers, recently appointed Manager Dominion Ex. Co. foreign department, Montreal, has returned to Canada from Europe, where he has been enquiring into the express situation generally.

J. Lonsdale Coupe, Assistant Land Commissioner, C.P.R., Winnipeg, in renewing his subscription, writes:—"I have moved my residence and would be greatly obliged if you would see that the Railway and Marine World is in future sent to my new address, as I would not like to miss a copy."

Telegraph and Cable Matters.

The Canadian Northern Telegraph Co. has opened offices at Augusville, Hallboro, Shellmouth, Man.; Brock, Fiske, Kindersley, Netherhill and Ridpath, Sask.

The Dominion Government telegraph line through the Peace River country is being pushed. Considerable difficulties have been encountered, due to forest fires. The line has reached the east end of Stave Lake early in June.

The Association of Railway Telegraph Superintendents held its annual meetings at Los Angeles, Cal., June 20 to 24, when papers dealing with wireless telegraphy, education for efficient railway service, protecting telephone lines from lightning and other disturbances, automatic block and highway crossing signalling, telephone train dispatching, testing of telegraph and telephone circuits, telephoning to and from trains and composite telephone blocking were read and discussed.

Telegraph companies have issued a notice to the effect that telegrams destined for a station on the Postal Telegraph Co.'s lines, or other connections, if offered under a frank, or stamp, will not be accepted for free transmission, either in whole or part, unless the frank is countersigned by an official of the connecting company, or a frank of the connecting company also presented as the tariff from the point of connection to destination is never less than from the place of origin.

The Maritime Telegraph and Telephone Co. is planning to include in its system a number of the smaller towns and villages in the Maritime provinces which have no telegraph and telephone facilities. An officer of the company is reported to have stated that it is hoped that the system will be ready for operation in a very short time, arrangements having been made for the use of other companies' wires, where suitable, and preparations have been made for the purchase of a large number of poles and quantity of wire.

Among the Express Companies.

R. H. Jones has been appointed route agent Canadian Ex. Co., Toronto, vice J. P. Hetherman.

L. E. Hertel has been appointed agent Canadian Ex. Co. at Niagara Falls, Ont., vice R. B. Brown.

W. G. Balfour has been appointed route agent Canadian Ex. Co., Montreal, vice G. H. Waterhouse.

W. S. Stout, President and General Manager Dominion Ex. Co., when in Montreal recently, is reported to have said that the work of demolition of the St. Lawrence Hall, was being held over for a short time, waiting for the completion of plans. It is anticipated that work will be proceeded with during July or August.

The Board of Railway Commissioners has ruled, in respect of express charges on millinery and similar light parcels, that parcels, from 70 to 75 ins., external measurement, enclosed in corrugated shipping paper, be charged for as weighing 30 lbs.; from 75 to 80 ins., as 35 lbs.; it being allowed to tie a number of smaller packages together to make one large parcel. Other parcels of less than 70 ins. external measurement, to be securely fastened together, when not crated, be charged at regular merchandise rates on actual weight, but at not less than the following minimum weights based on measurement:—50 to 55 ins., 15 lbs.; 55 to 60 ins., 18 lbs.; 60 to 65 ins., 20 lbs.; 65 to 70 ins., 25 lbs.; parcels measuring less than 50 ins., to be charged on actual weight.

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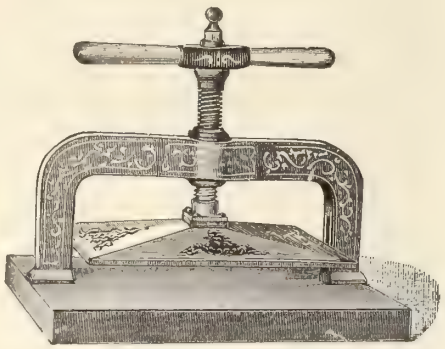

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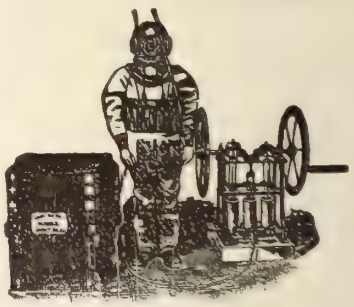
NEW YORK — 708 Night and Day Bank Bldg.



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MANUFACTURER OF
DIVING APPARATUS
FOR SALE OR HIRE
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152 Craig St. West, Montreal

ELECTRIC RAILWAYS.

Canadian Street Railway Association.

PRESIDENT, D. McDonald, Manager, Montreal St. Ry.; VICE-PRESIDENT, J. Anderson, Manager, Sandwich, Windsor and Amherstburg Ry.; SECRETARY-TREASURER, Acton Burrows, Managing Director, Railway and Marine World.

ASSOCIATION'S OFFICE, 157 Bay St., Toronto.

EXECUTIVE COMMITTEE.—P. Dubee, Secretary, Montreal St. Ry.; E. A. Evans, Chief Engineer, Quebec Ry. Light and Power Co.; R. J. Fleming, General Manager, Toronto Ry.; H. M. Hopper, Secretary-Treasurer, St. John Ry.; J. E. Hutcheson, Superintendent and Purchasing Agent, Ottawa Electric Ry.; C. B. King, Manager, London St. Ry.

ASSISTANT SECRETARY, Aubrey Acton Burrows, Secretary and Business Manager, Railway and Marine World.

OFFICIAL ORGAN, THE RAILWAY AND MARINE WORLD.

Canadian Street Railway Association

The annual meeting at Montreal June 9 and 10, was the most successful and largely attended in the Association's history, representatives of member companies being present from Halifax on the east to Vancouver on the west. D. McDonald, Manager Montreal Street Ry and President of the Association, occupied the chair. After routine business the International Transit Co., of Sault Ste. Marie, Ont., was unanimously elected to membership.

The rest of the first morning's session was occupied in the reading and discussion of the report of the Secretary-Treasurer, Acton Burrows, which dealt with the Association's operations during the year in full detail, covering a wide range of subjects and showing that the Association had performed a great deal of important work in the interests of electric railways generally.

Most of the remainder of the two days' meeting was devoted to the reading and discussion of papers on various subjects relating to the construction, maintenance and operation of electric railways, and to a series of topical discussions on matters of vital interest to electric railway officials.

The following officers, etc., were elected unanimously for the current year:

President, D. McDonald, Manager Montreal St. Ry.; Vice President, J. Anderson, Manager, Sandwich, Windsor and Amherstburg Ry.; Secretary-Treasurer, Acton Burrows, Managing Director, Railway and Marine World; Executive Committee, C. E. A. Carr, General Manager, Quebec Railway, Light, Heat and Power Co.; P. Dubee, Secretary, Montreal St. Ry. Co.; H. M. Hopper, General Manager, Secretary and Purchasing Agent, St. John Ry.; C. B. King, Manager London St. Ry.; W. R. McRae, Master Mechanic, Toronto Ry.; J. E. Hutcheson, Superintendent and Purchasing Agent, Ottawa Electric Ry., is ex officio a member of the Executive Committee by virtue of being the immediate past President.

Assistant Secretary, Aubrey Acton Burrows, Secretary and Business Manager Railway and Marine World.

The Montreal St. Ry. management entertained the representatives of member companies attending the meeting in a most hospitable manner. On the first day there was a luncheon at the Windsor Hotel and in the evening the party went on the M.S.R. official car to Dominion Park, where they dined and afterwards enjoyed the attractions. On the second day there was a luncheon at the Forest and Stream Club, Dorval, the party going out to the end of the M.S.R. Lachine line in the official car and then driving to the club. On the following day, after the business had been disposed of, the party visited the Blue Bonnets race course. W. G. Ross, Managing Director, D. McDonald, Manager, P. Dubee, Secretary, and other M.S.R. officials were unremitting in their attentions and kindnesses.

Those who attended the meetings presented P. Dubee, with a handsome sapphire scarf pin surrounded with diamonds, as a wedding present, the presentation being made at the formal opening of the M.S.R. Co.'s St. Denis St. recreation rooms on June 11, D. McDonald expressing the warm feeling of the officials of the various companies towards Mr. Dubee, and W. R. McRae, of the Toronto Ry., making the presentation on behalf of the subscribers.

St. John Railway Report.

The report for the year ended April 30, was submitted to the shareholders at the annual meeting held June 8. After providing for the interest on the bonds and all other charges, the directors reported that there was a net profit of $54,479.85, out of which two half-yearly dividends of 3 per cent., amounting to $48,000, had been paid, leaving a balance of $6,479.85, which had been transferred to profit and loss account. The roadbed, rolling stock, buildings and machinery have been inspected by M. Neilson, the company's Consulting Engineer, who reported that they had been efficiently maintained and were in first class condition. Following is the balance sheet:—

ASSETS.

Cost of property	$1,905,584 14
Accounts receivable	38,091 63
Stores	41,118 82
Cash on hand	1,300 00
Cash in bank	41,562 04
	$2,027,656 63

LIABILITIES.

Capital stock	$ 800,000 00
Bonds	1,000,000 00
Accounts payable	27,724 71
Dividend payable June 8	24,000 00
Outstanding tickets	2,217 73
Contingent and depreciation	60,853 87
Profit and loss	112,860 32
	$2,027,656 63

The officers and directors for the current year are:—President, Jas. Ross; Vice President, H. H. McLean; other directors: R. B. Emerson, J. Manchester, J. J. Tucker, W. Downie, H. B. Robinson, F. E. Sayre.

New Brunswick Public Utilities Board.

Following the lead of Ontario, Quebec and Nova Scotia, the New Brunswick Legislature has passed an act establishing a 'Board of Public Utility Commissioners," and has appointed the first members as follows:—D.M.L. Vince, D.C.L., K.C., Woodstock, Chairman; G. O.D. Otly, K.C., Hampton; O.M. Melanson, Shediat; with F. P. Robinson, Fredericton, as secretary.

The act defines "public utility" as including any person or association of persons now or hereafter owning any telephone line, or plant for the production and distribution of heat, light, power or water, or which may own any street railway, and any municipality which desires to furnish any of these services to or from any other city or town. Such public facilities are required to furnish reasonably adequate service and facilities, and the act declares "unjust or unreasonable charge for such service" to be "prohibited and declared unlawful." Returns on prescribed forms have to be made to the Board; schedules of rates have to be filed with and approved by the Board from time to time before they become operative; and the Board is to have "the general supervision of all public utilities," and shall "keep itself informed as to the compliance by the said public utilities with the provisions of this law." The Board is given power to hear and determine complaints of overcharges, etc.; to take evidence upon both similarly to the Supreme Court; and to appoint any person to investigate and report upon any matter pending before it; and to make rules for the conduct of the business. An appeal from the Board's decisions may be made out by Lieut.-Governor-in-Council, and it is provided that a penalty of not less than $50 or more than $500 may be enforced against those who refuse to abide by the Board's orders.

Militia vs. Street Cars.

Our issue of July, 1909, contained full particulars of the conviction by the Winnipeg police magistrate of a Winnipeg Electric Ry. motorman for the alleged obstruction of the 90th Rifles on June 1, 1909. The magistrate's decision was appealed to County Judge Walker, who took the evidence over again, but at the request of counsel for the prosecution, who evidently anticipated an adverse decision, the Judge stated a case to the Court of Appeal as to the legal point involved, in regard to which had the right of way, the electric railway or the militia, and the matter came before the Court of Appeal in June. The Winnipeg Electric Ry.'s counsel contended that the County Judge had no jurisdiction to state the case and reserve judgment. The Court of Appeal agreed with this and dismissed the matter. It therefore now remains with Judge Walker to decide on the appeal.

Projects, Construction, Betterments, Etc.

The British Columbia Electric Ry. now has two lines between Vancouver and New Westminster. One of 12 miles, was the original line built by the New Westminster and Vancouver Tramway Co., one of the ines acquired by the B.C.E.R. The second route, 17 miles, is over the C.P.R. branch, known as the Vancouver and Lulu Island Ry. now to Eburne, thence along the north arm of the Fraser River.. The company is desirous of securing a 999 year franchise for a short branch line to connect Eburne with New Westminster, the municipality to receive 10% of the gross receipts under the charter of a subsidiary company—the Vancouver, Fraser River and Southern Ry., the company purposes to build another line from New Westminster, through the Burnaby district and Hastings townsite to the headquarters of False Creek at the eastern end of Vancouver city. Track has already been laid from New Westminster towards Burnaby, about five miles, and it is expected that track will be laid between Burnaby and Vancouver so as to have the whole line in operation this fall.

The Chilliwack line has been completed as far as Cloverdale, and construction is well advanced to Abbotsford. A freight service is being operated but the rolling stock for the passenger service is not ready. At Chilliwack the company has secured land for its terminals, and R. H. Sperling recently wrote the Board of Trade there that the company contemplated the erection of a station and freight sheds, and was not favorable to the erection of a union station with the Great Northern Ry.

The company has purchased about 10 lots in the west end of New Westminster near the junction of the Eburne and Vancouver lines, upon which to lay out freight terminals for all its lines running out of New Westminster. The freight terminals for the Fraser Valley branch will be located on the south bank of the Fraser River, near the end of the Fraser River bridge. The surveys of the property recently acquired there have been completed, and the work of grading and laying out the yards is in progress. It is proposed to erect a repair shop at this point, the plans for which are being prepared. Tenders are under considera-

tion for the erection of the passenger station, and office buildings in New Westminster.

The property owners of the Broadway Ave. W., Vancouver district, have offered to contribute $18,000 towards extending the line along Broadway Ave. W., to Alma Road, work to be started by April, 1911. The owners agree to widen the street from 65 to 86 ft., and not to ask for a permanent pavement for four years.

The Lynn Valley extension has been opened for traffic. It extends from North Vancouver to Hoskins Rd., Lynn Valley.

A deputation waited on R. H. Sperling June 9, urging the building of a line from Vancouver to Ladner and the Delta district generally. In order to make the connection with Lulu Island it will be necessary to build a high level bridge, or to establish a car ferry. Mr. Sperling promised to report favorably of the proposition to the directors in London, Eng.

In connection with the proposals made for building a line through the Saanich peninsula, Vancouver Island, the company has suggested that the property owners should grant a moderate land bonus. (June, pg. 495.)

The Chatham, Wallaceburg and Lake Erie Ry. Co. started last year to build a line to Paincourt, but was unable to complete it owing to the opposition of one property owner. The difficulty having been adjusted the extension is being gone on with and is expected to be completed in August.

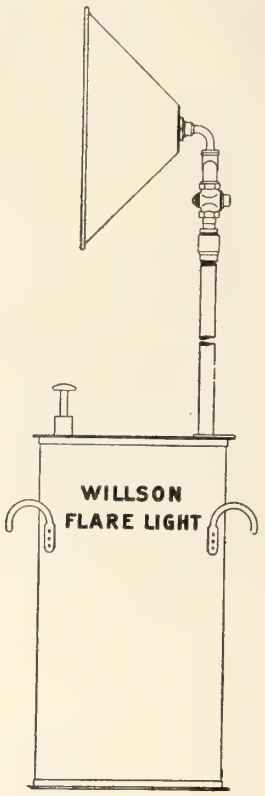
Dominion Power and Transmission Co.—The Hamilton, Ont., city council is considering an application by the company to build a switch on Sanford Ave., between King and Main streets, to serve as a connecting link between the Hamilton Radial Ry. and the Hamilton, Grimsby and Beamsville Electric Ry., with a view to running fruit cars to the canning and preserving company from Oakville and Burlington on the one hand and Beamsville on the other.

Fredericton Street Ry.—The New Brunswick Legislature has incorporated a company with this title to build a single or double track line to be operated by electricity, on the streets of Fredericton, on the streets of other towns in York county, and on highways throughout the county, subject to the consent of the several municipalities and the consent of the Government as to the crossing of bridges. The provisional directors are F. B. Edgecombe, C. F. Seide, J. S. Neill, A. S. Phillips, A. A. Shute, and R. B. Hanson. (April, pg. 310.)

The Halifax Electric Tramway Co. has withdrawn its application to the Halifax, N.S., city council for permission to build a second track on certain streets at an estimated cost of about $70,000. The application was made in March, and the city council has been holding up the matter with a view of getting the company to consent to extend its lines along some other streets. The company pointed out that with the double track proposed, a better service could be given, and that it would then be possible to see where extensions could most profitably be made. The council's railway committee did not see it that way, and as a result the company withdrew its application May 31. (June, pg. 495.)

Hull Electric Co.—Work was started June 1, on the extension of the line along Brewery St., and along Chelsea Road to the tollgate. The grading is well advanced and track laying will be gone on with at once. (Jan. pg. 57.)

Lethbridge, Alta.—Reports have been received and considered by the Lethbridge, Alta., city council in reference to the construction by the city of an



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electric railway as a municipal enterprise. The investigations are to be continued before a final decision is reached. (Mar. pg. 231.)

The Moncton Tramway, Electricity and Gas Co., is the title by which under an act passed last session of the New Brunswick Legislature, the Moncton Electric St. Ry. Heat and Power Co. will be known in future. The original act and its amending act are amended in various details, the powers as to the building of a street railway are repealed and new sections inserted. These provide for building a single or double track line in Moncton, with the approval of the city council, and, single and double track lines in Westmorland, Albert and Kent counties, under agreement with the different municipalities. The company is also given power to acquire water powers, develop the same and to distribute electrical energy. (June, pg. 495.)

The Montreal and Southern Counties Ry. is operating a regular car service from Montreal, over the Victoria Jubilee Bridge to Longueuil, Que. The line from Montreal to Montreal South, was put in operation in the fall of 1909. The extension to Longueuil was opened for traffic May 30. An extension from Longueuil to Bouchierville, 6 miles, and another from St. Lambert southerly towards La Prairie, about 9 miles, will be gone on with at once. The old Central Vermont Ry. branch to Richelieu, about 14 miles, is to be electrified by the M. and S. C. R. Co. this year and about a mile and a half of new line will be built to connect the branch with the M. and S. C. R. line in St. Lambert.

A brick terminal station, including waiting and baggage rooms, ticket office, etc., is to be built at once at the north east corner of Youville and McGill streets, Montreal.

Moose Jaw, Sask.—The parties to the agreement with the city of Moose Jaw, Sask., for the construction of an electric railway there, are: J. B. McRae, P. B. Melon, E. J. Daly, A. H. Dion, A. A. Dion, C. E. McCuaig, Ottawa; and J. T. Cashman, Moose Jaw. The franchise is for 20 years from the final passing of the by-law, at the end of which time, in giving six months' notice the city may either assume the ownership of the line or renew the charter for a further 20 years. In the event of the city deciding to take over the line the agreement provides for the appointment of arbitrators and the principles upon which the valuation of the property is to be made. The first three miles of track is to be put in operation within nine months of the passing of the by-law, and to extend along Main St. from Manitoba St. to the exhibition grounds; on High street, from Main St. to Sixth Ave., thence to South Hill. The routes for other lines are to be as mutually agreed upon. The by-law sets out the fares to be charged, and other terms, and provides that for the first five years the company shall not pay any rental; for the second five years a rental of $250 a mile is to be paid for unpaved streets and $500 a mile for paved streets; and during the last 10 years the rental is to be $1,000 a mile for paved and $500 a mile for unpaved streets. The power house, repair shops, etc., are to be located in Moose Jaw, and the pay-as-you-enter type of car is not to be used without special permission. (June, pg. 495.)

Nelson Electric Street Ry. The extension of 1.25 miles has been completed by the contractor, R.G. Brand. The old tracks and overhead work are being overhauled so that when reopened for traffic the line will be in good condition. (June, pg. 495.)

Niagara, St. Catharines and Toronto Ry.—We are advised that the location surveys for the extension of the line from Port Colborne to Fort Erie, Ont., have been completed, but it is not expected that any construction will be started on it this season. (June, pg. 495.)

Ontario West Shore Ry.—For about two years the company has been trying to reach an understanding with the Colborne Township council as to the location of a portion of the line through Dutton Village, Ont. There is a building on the line of the right of way, and in order to avoid having to remove this at considerable expense the company desires to carry its line for a short distance along the highway, but the council has refused to grant permission to this to be done. The company put on a gang of men and laid the track during the night of June 3, and on the following day the council sent a gang of men and tore it up. The matter will be taken to the courts by the company. The tracks were subsequently replaced by the company, and on June 4 application was made to the Ontario Railway and Municipal Board, which Board advised a settlement as the crossing was in the right place.

The Goderich, Ont., town council has granted the company permission to lay tracks on streets as follows: On Cambria Road from Gloucester Terrace to Toronto street, and along Toronto street to Huron Road, and thence to Goderich tp. 2nd, along Nelson street from Cambria Road to Maitland Road, and along the latter to Oxford street to Huron Road. (June, pg. 495.)

Ottawa Electric Ry.—We are advised that while the directors have under consideration plans for extending the lines north and south, no definite decision has been reached as to what will be done. It is not likely, that any extensions will be made this year. (June, pg. 497.)

The Quebec Ry., Light, Heat and Power Co. has acquired the charter of the Quebec County Ry., which was incorporated by the Legislature in 1904, with power to build electric railways throughout the county of Quebec. The charter was amended in 1909, and the directors in office at the time of the sale were: Hon. J. Sharples, president; Hon. N. Garneau, J. T. Ross, R. Campbell, of Quebec; and Dr. Lavoie, of Sillery. As reorganized, the board consists of Hon. F. L. Pelletier, N. Belleau, L. C. Webster, R. Campbell and Dr. Lavoie. It is under the charter of this company that the extension to Sillery is being built. The road bed is being prepared to carry a double track, but it is only proposed to lay a single track at present. It is expected that the line will be completed in August. (June. pg. 497.)

Toronto and York Radial Ry.—The City Engineer of Toronto has recommended that an agreement be entered into with the company by which it will be allowed to lay a double track on Yonge street, north of the C.P.R. tracks. The company to pay $600 a year mileage rental, and the city to have the right to discontinue the arrangement by paying the cost of returning to the present condition of a single line at the side of the road. (June, pg. 497.)

Toronto, Niagara and Western Ry.—The Board of Railway Commissioners has authorized the company to build its line across St. Clair Ave., to cross the C.P.R. and the G.T.R. at St. Clair Ave.; to cross the G.T.R. at Davenport Road, and to cross Davenport Road, Toronto. (June, pg. 497.)

The Winnipeg Electric Ry. is carrying out a good deal of betterment work on its various lines. The new line across the Redwood bridge to Elmwood was expected to be opened by June 30; the track at River Avenue and Osborne St. has been reconstructed; a second track is being laid on Selkirk Ave., near Main St., and along Portage Ave., west of Maryland St. (June, pg. 497.)

Toronto Railway Extensions.

Following its judgment, as published in our June issue, pg. 499, on the application of the Toronto Ry. Co. for the approval of the routes selected by the company and submitted to the City Engineer, to enable it to carry out the Ontario Railway and Municipal Board's order of Dec. 8, 1908, the Board issued the following order, June 9:—"Upon the application of the Toronto Ry. Co., upon hearing the evidence adduced and counsel for the applicants and respondents, and it appearing that the Board, under and by virtue of an order of May 17, 1907, ordered the applicants to construct from 10 to 15 miles of double track, and 100 new cars, in order to relieve the overcrowding of their railway cars, and it further appearing that the applicants selected Adelaide St. from Jarvis St. to Bathurst St., Bay St. from Front St. to Queen St., University Ave. from Queen to College St., Richmond St. from Victoria St. to Church St., and Wellington St. from Church St. to York St., in pursuance of their rights under the agreement of Dec. 1, 1901, validated by statute, Vic., chap. 99 (Ontario), and that by the Board's order of Dec. 8, 1908, and the subsequent appeals to the Court of Appeal and the Privy Council, the applicants were found entitled to the said streets for the construction of the tracks of the said railway; and it further appearing that the company further required for the construction of the said 10 to 15 miles of double track of the said railway, Terauley St. from Queen St. across University Ave., through Anderson St., and along St. Patrick St. to Bathurst St.; Victoria St. from Adelaide St. to Wilton Ave.; Wilton Ave. from Victoria St. and across the new bridge over the Don River, to a point east of Broadview Ave.; Shuter St. from Yonge St. to Victoria St., Harbord St. from Spadina Ave. to Ossington Ave., and have selected the said streets for such purposes under the said agreement; and it further appearing that the applicants have filed with the respondents a plan for the construction of the said tracks of their car lines on the said last mentioned streets, and have submitted the same to the City Engineer for his approval, such plan being of the same character as that approved for other portions of the company's railway heretofore built; and it further appearing that the applicants through their solicitor have agreed to amend the said plan and furnish such further details as may be reasonably required by the City Engineer; and it further appearing that under and by virtue of sec. 3 of the Ontario Railway Amendment Act, 1910, the applicants cannot begin the construction of their railway or any extensions of it on the said last mentioned streets, without having first obtained the permission and approval of the Board; the Board orders that the said plan for the construction of the said lines of railway, on the said last mentioned streets be taken as approved, and the same is hereby approved, subject to the applicants amending the same, and giving such further details as the City Engineer may reasonably require; and the Board finds and declares that the construction of the applicants' railway upon the said last mentioned streets, and the permission of the Board to construct their railway, or any extension of it, upon the said streets is hereby given; and the Board further orders that the applicants pay $20 for stamps on this order, and makes no further order as to costs, and the Board reserves further order and directions herein."

The company's Solicitor objected to the terms of the order, and intimated the intention of appealing to the Board against the order as settled.

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Notice to Contractors.

SEALED TENDERS, addressed to the undersigned, and endorsed "Tender for Superstructure of La Pas Bridge," will be received at this office until 12 o'clock noon of the 4th day July, 1910, for the construction and erection of the Superstructure of the Bridge over the Saskatchewan River on the line of the Hudson Bay Railway.

The Bridge will be composed of a Swing Span of 262 feet and four fixed spans of 147 feet each.

Plans, specifications and forms of contract to be entered into may be seen, and full information obtained on and after this date, at the office of the Chief Engineer, of the Department of Railways and Canals at Ottawa, Ont., or at the office of the Chief Engineer of the Hudson Bay Railway at Winnipeg, Man.

Tenderers must submit designs of superstructures with steel sheets, all to be in accordance with the general specifications for steel superstructures of Bridges and viaducts of the Department of Railways and Canals of the Dominion Government, 1908. The class of load to be used is that designated "heavy" in the said specifications.

Parties tendering will be required to accept the fair wages schedule prepared or to be prepared by the Department of Labour, which schedule will form part of the contract.

Contractors are asked to bear in mind that tenders will not be considered unless made strictly in accordance with the printed forms, and in the case of firms, unless there are attached the actual signature, the nature of the occupation, and place of residence of each member of the firm.

An accepted bank cheque for the sum of ($10,000.00) made payable to the order of the Minister of Railways and Canals must accompany each tender, which sum will be forfeited if the party tendering declines entering into contract for the work, at the rates stated in the offer submitted.

The cheques thus sent in will be returned to the respective contractors whose tenders are not accepted.

The cheque of the successful tenderer will be held as security, or part security, for the due fulfilment of the contract to be entered into.

The lowest or any tender not necessarily accepted.

By order,
L. K. JONES, Secretary.

Department of Railways and Canals,
Ottawa, 20th June, 1910.

Newspapers inserting this advertisement without authority from the Department will not be paid for it.

Arthur Allen, who has been Master Mechanic Temiskaming and Northern Ontario Ry. for several years, has resigned to take an important position with The Holden Co., Ltd., railway supplies.

2 GRAND PRIZES AND 5 GOLD MEDALS

—more than was given to all other makes of pumps combined—were awarded by the Alaska-Yukon-Pacific Exposition to

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The reason why "American" volute Centrifugal Pumps attain higher mechanical efficiencies than others is they are so designed that there is a shorter passage and less friction of fluid in passing through the pump.

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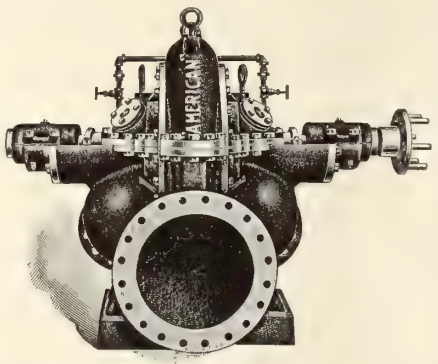
At the entrance of the discharge pipe is a cut-off, preventing fluid passing the discharge pipe and being repumped.



The same care that is employed in designing the principal features of the pump is carried out in every detail of construction; in balancing the impeller, overcoming the end thrust, water-sealing the inner end bearings and oiling the main outer end bearings with rings and chains and oil cellars.

"American" Volute centrifugals are made in both horizontal and vertical types in any number of stages, in any size from 1 inch to the largest installations made and equipped with any power.

Give us the opportunity to prove to you the superiority of "American" centrifugals for any installation adapted for this type of pump.

Complete Catalogue containing much hydraulic information found in no textbook of hydraulics, Free.

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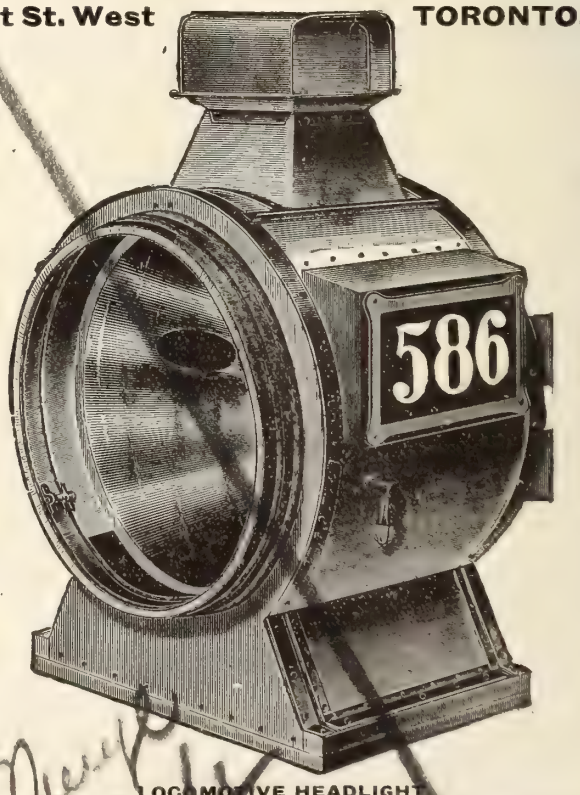

LAMPS AND SIGNALS

retary of the Board, and to have an order issued under the terms of the agreement with the city, and not under the terms of the Ontario Act of last session The chairman of the Board, however, stated that the order as issued, was final and would not be changed.

The following preemptory order, signed by A. B. Ingram, Vice Chairman of the Board, was issued June 17:—It appearing, upon discussion by the parties, relative to the settlement of the order of May 18, that the Toronto Ry. Co. declare they do not intend to proceed with the work, the Board, of its own motion, orders and directs that the Toronto Ry. Co. shall forthwith proceed with the construction of the lines of railway referred to in the said order; and that the Board reserves leave to the Toronto Ry. Co. and to the city of Toronto, respectively, to apply to the Board from time to time for directions relative to the carrying out of this order."

Electric Ry., Finance, Meetings, Etc.

British Columbia Electric Ry.—Gross earnings for April, $247,307; operating expenses $153776; net operating earnings $93,531; renewal funds $17,852; net earnings, $77,679; approximate income from investments $16,500; net income $92,179, against $188,071 gross earnings; $109,267 operating expenses; 378,801 net operating earnings; $13,958 renewal funds; $64,846 net earnings; $13,550 approximate income from investments; $78,396 net income for April 1909. Aggregate gross earnings for 10 months ended Apr. 30, $2,471,631; net earnings, including approximate income from investments, $1,047,717, against $1,900,352 gross and $861,531 net for same period 1908-09.

Halifax Electric Tramway.—Railway receipts for May, $15,673.97, and for two weeks ended June 14, $8,253.58, against $14,620.68 and $7,336.08 for same periods 1909.

Montreal Street Ry.—Passenger earnings for May, $360,480.85; miscellaneous earnings $9,753.28; total earnings $370,234.13; operating expenses $199,-616.79; net earnings $170,617.34; city percentage on earnings $34,900.17; interest on bonds and loans $14,982.37; rent leased lines $552,90; taxes $4,000; total charges $54,435.44; surplus $116,-181.90; expenses per cent of earnings 53.92, against $322,410.83 passenger earnings; $6,928..45 miscellaneous earnings; $329,339.28 total earnings; $181,-147.58 operating expenses: $148,191.70 net earnings; $28,005.30 city percentage on earnings; $14,386.85 interest on bonds and loans; $498.67 rent leased lines; $3,000 taxes; $45,890.82 total charges; $102,300.88 total charges; 55.00 expenses per cent. of earnings for May 1909. Aggregate total earnings for eight months ended May 31, $2,707,235.45; operating expenses $1,607,443.21; net earnings $1,099,792.24; total charges $318,550.03; surplus $781,242.21, expenses per cent. of earnings 59.38, against $2,437.055.68 aggregate total earnings, $1,501,232.92 operating expenses; $935,772.76 net earnings; $284,-556.86 total charges; $651,215.20 surplus; 61.60 expenses per cent. of earnings for same period 1908-09.

Toronto Ry.—Gross earnings for Apr. $328,785; expenses $170,129; net earnings $158,655, against $298,359 gross earnings; $153,595 expenses; $144,664 net earnings for Apr. 1909. Aggregate gross earnings for four months ended Apr. 30, $1,303,049; net earnings $605,-101, against $1,160,026 aggregate gross earnings, and $541,602 net earnings for same period in 1909.

Sherbrooke Ry. and Power Co.—The directors of the reorganized company are preparing to place on the market $600,000 of bonds.

Winnipeg Electric Ry.—Gross earnings for April, $238,054; operating expenses $124,642; net earnings $113,412; against $192,490 gross earnings; $96,979 operating expenses; $95,511 net earnings for April 1909. Aggregate gross earnings for four months ended April 30, $1,051,534; net earnings $509,159, against $827,503 gross and $410,039 net for the same period 1909.

Electric Railway Notes.

F. G. Poulton has been appointed Manager of the Nelson Electric St. Ry., Nelson, B.C.

The Hamilton St. Ry. has decided to introduce the pay-as-you-enter system on some of its large cars.

The Berlin and Waterloo St. Ry., is having three of its cars re-built by the Preston Car and Coach Co.

G. M. O. Peters has been appointed Treasurer St. John Ry., vice A. Seely, resigned. Office, St. John, N.B.

W. J. Reaven has been appointed assistant to the Inspector of the Port Arthur and Fort William Electric Ry.

The Montreal and Southern Counties Ry. has ordered a combination baggage and smoking car and eight trailers, 49 ft. 4 ins. over buffers.

The Calgary St. Ry. has received one pay-as-you- enter car, similar to those it already has in operation, from the Preston Car and Coach Co.

Allan Purvis, heretofore Manager Fraser Valley Branch, B.C. Electric Ry., has been appointed Manager Interurban Lines. Office, New Westminster.

G. H. Franklin has been appointed Local Manager Lulu Island Branch, B.C. Electric Ry., vice D. J. Stewart, transferred. Office, Vancouver.

The wage agreement between the Toronto Ry. and its motormen and conductors, expired June 16, and negotiations for a new schedule are in progress.

The Calgary city council has accepted the advertisement of a brewing company to be printed on the back of the street car tickets and the citizens are objecting.

The Port Arthur and Fort William St. Ry. has received four cars from the Preston Car and Coach Co., and has ordered two similar ones from the same firm.

The Dominion Power and Transmission Co. has under consideration plans for the erection of car shops in Hamilton, Ont., for building and repairing the cars of its several lines.

C. E. Taylor, who organized the muncipal electric railway in Edmonton and has been its Superintendent since opening, was presented with a silver cigar case, suit case and bag by the employes, June 12.

D. J. Stewart, heretofore Local Manager Lulu Island Branch B. C. Electric Ry., has been appointed Local Manager New Westminster Branch, vice D. J. McQuarrie, resigned. Office, New Westminster.

D. J. McQuarrie, who recently resigned the managership of the B.C. Electric Ry. city and interurban lines, to enter private business, was presented with a diamond ring, by a number of the employees at Vancouver, recently.

The Nipissing Central Railway Co. has issued a writ against J. W. Fitzpatrick, of Ottawa, to compel the return of a ledger and cash books of the company, alleged to have been wrongfully taken by the defendant.

A Winnipeg Electric Ry. motorman, who stopped his car at the crossing of Main St. and Henry Ave., while some small trouble had tied up the traffic, and who refused to move his car, was fined $10 and costs, June 12. Notice of appeal was given.

F. B. Griffith has been appointed Shop Superintendent Dominion Power and Transmision Co., vice F. H. Foster, resigned. The position is equivalent to that of Master Mechanic of all subsidiaries of the company. Office, Hamilton, Ont.

A passenger on the Montreal St. Ry. was ejected from a car after having refused to pay a fare, the conductor declining to accept an incorrectly punched transfer. He sued for damages and the jury awarded him $50. The company has appealed.

The Ontario Court of Appeal has dismissed the appeal of the Hamilton St. Ry. Co. aginst the Ontario Railway and Municipal Board's order of Nov. 15, 1909, directing it to repair the pavements on certain streets within two feet of the outer rail of the tracks.

The B.C. Electric Ry. employes have been negotiating for changes in their wage schedule, to which the company is reported to be averse. It is said that the matter may be referred to a board of conciliation. The schedule in operation during the past year, expired July 1.

The Ontario Railway and Municipal Board reserved judgment in the recent application to compel the Port Arthur and Fort William St. Ry. to operate the Montreal St. extension. The railway declined to run cars over the route for the reason that there were 12 steam railway tracks to be crossed.

The private sign or marking of Stone and Webster, Boston, Mass., has been affixed to the cars, ferry steamers and other property of the Cape Breton Electric Co., Sydney, N.S. The sign, which is a combination, consists of a triangle within which is a triskelion, is also to be used as a badge by employes.

The Nipissing Central Ry. standard passenger tariff of maximum tolls has been approved by the Board of Railway Commissioners, providing that the local fare in Haileybury, Bucke, Coleman and Cobalt, Ont., respectively, shall be 5c., and between either of these towns, 10c.; from 5.30 a.m. and 12 p.m., and double fare after.

The London St. Ry. and the Water Commisioners are discussing the interpretation of the agreement between them as to the amusement privileges at Springbank Park. The company desires to add other attractions at the park, but the commissioners contend that such attractions can only be provided by outsiders with the concurrence of the city and the company.

The Edmonton Radial Ry. has received two double-end, semi-convertible, pay-as-you-enter cars from the Ottawa Car Co. They are 42 ft. long overall, 28 ft. over bodies, with monitor, bullnose roof, extra broad with 10 sashes on each side, vestibules 6 ft., equipped with doors operated by the motorman; 12 reversable pedestal cross seats with stationary foot rests and one longitudinal stationary seat 34 ins. long in each corner, and with electric heating equipment; bodies mounted on 27-G-1 trucks.

An inquest into the death of a Toronto Ry. conductor, who fell from the footboard of an open car recently, while collecting fares, the jury, in returning a verdict of accidental death added a rider condemning the use of a running board on open cars. J. F. H. Wyse, Engineer Ontario Railway and Municipal Board, stated in evidence that two years ago he had investigated the running board question and found that centre aisle cars in Toronto were impossible owing to the narrow devil strip. The expenditure necessary to modify this would run into the millions.

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MARINE DEPARTMENT.

Dominion Marine Association.

PRESIDENT, F. Plummer, Toronto; COUNSEL, F. King, Kingston, Ont.

Great Lakes and St. Lawrence River Rate Committee.

CHAIRMAN, E. E. Horsey, Kingston, Ont.
SECRETARY, Jas. Morrison, Montreal.

International Water Lines Passenger Association.

PRESIDENT, W. M. Lowrie, New York.
SECRETARY, M. R. Nelson, New York.

The Shipping Federation of Canada.

PRESIDENT, A. A. Allan, Montreal; MANAGER, AND SECRETARY, T. Robb, 526 Board of Trade, Montreal.

Ship Masters' Association of Canada.

GRAND MASTER, Capt. J. H. McMaugh, Toronto, Ont.; GRAND SECRETARY-TREASURER, Capt. H. O. Jackson, 376 Huron St., Toronto.

Dominion Marine Votes for 1910-11.

The Dominion Parliament at its last session voted large sums for purposes connected with the marine interests. In addition to making provision for the establishing of a navy and the maintenance of the dockyards at Halifax, N.S., and Esquimalt, B.C., for which $3,000,000 was voted, there were the usual subsidies for ocean going mail, passenger and freight steamers; coastal services in the different provinces; the construction and maintenance of lighthouses, and other aids to navigation; maintenance and improvement of canals, construction, repair and maintenance of piers, wharves, etc., and all the other miscellaneous services connected with the marine interests. The votes were granted on account of the Departments of Trade and Commerce, Agriculture, Marine and Fisheries, Railways and Canals and Public Works, some of the votes being on capital account, and others on income account. Among the miscellaneous works brought together under the different provinces in the votes on account of harbors and rivers, there are a large number of revotes. Following are the several votes:—

NAVAL SERVICE:—	
Purchase and maintenance of vessels, maintenance of Halifax and Esquimalt dock yards, etc.	$3,000,000
Fisheries protection service	281,500
Hydrographic surveys, including survey of Hudson Bay	320,000
To provide for a steamboat to replace La Canadienne (revote $25,000)	75,000
MAIL SUBSIDIES AND STEAMSHIP SUBVENTIONS:	
Mail, passenger and freight services to ports in Great Britain	$ 642,500
Do., to Australia	180,509
Do., to New Zealand	169,000
Do., to South Africa	146,000
Lines to Mexico, Atlantic and Pacific Coast	141,666
Lines to Cuba, West Indies and S. America	109,500
Lines to Newfoundland	49,000
Steamships to China and Japan	48,666
Steamships to United States Pacific ports	15,470
Miscellaneous steamship services, as follows:—	
Between ports in P.E.I. and mainland	$ 18,625
Between ports in Nova Scotia	47,120
Between Nova Scotia and New Brunswick	6,240
Between Nova Scotia and Quebec	4,875
Between ports in New Brunswick	49,500
Between New Brunswick and Quebec	23,625
Between ports in Quebec	51,020
Pelee Island service, Ont.	375
Between ports in British Columbia	11,350
To provide for extra services	10,000
LIGHTHOUSE AND COAST SERVICE:	
Agencies, rents, etc.	$ 50,000
Lightkeepers' salaries and allowances	400,000
Lighthouse maintenance and repairs	749,000
Construction of lighthouses, etc.	950,000
Lighthouse and buoy steamer, Pacific Coast	200,000
Lighthouse and buoy steamer, St. Lawrence	175,000
Wireless stations, building and maintenance	140,000
Icebreaking on Thunder Bay	40,000
Pilot steamer, Eureka, maintenance, etc.	35,000
Signal service	12,000
Miscellaneous services	55,000
OCEAN AND RIVER SERVICE	
Maintenance and repair of steamer	$710,000
Life saving, rewards, etc.	40,000
Patrolling northern waters	60,000
Wrecking plants	30,000
Removal of obstructions	20,000
Investigation of wrecks	15,000
Examination of masters and mates	11,500
Tidal service	42,500
Schools of navigation	2,000
Miscellaneous services	24,500
ST. LAWRENCE SHIP CHANNEL:—	
Various works	$600,000
Dredging plant (new)	187,500
Purchase of yard property, Sorel	22,500
Permanent piers, Lake St. Peter, etc.	37,500
CANALS:—	
Surveys and inspections	$ 3,000
Staff and repairs	1,106,460
Statistical officers	37,506
Quebec canals generally	54,500
ST. OURS LOCK: New stable, etc.	1,200
CHAMBLY:—Improvements	20,000
" Extensions of wharves, etc.	8,720
LACHINE:—Improvements	27,000
" Entrance pier	60,000
" Concrete vertical wall	165,000
" Wharf and basins	135,000
" Allowance to family of late foreman	1,000
ST. ANNE'S LOCK:—Improvements	2,960
SOULANGES:—Stopping leaks, etc.	100,000
" Miscellaneous works	7,750
CORNWALL:—Entrance lock 17	55,000
" Wall above lock 18	25,000
" Piers at lock 27	24,000
" Miscellaneous works	21,500
WILLIAMSBURG CANALS:—Derrick scow	3,000
CARLETON AND GRENVILLE CANALS:—	
Repairing gap in Carleton dam	12,000
Macadamizing road, etc.	7,000
RIDEAU:—Swing bridges at locks	3,000
Timber piers at bridges	4,000
TRENT:—Improvements	62,500
To pay damages by flood	30,000
Construction	1,750,000
WELLAND:—Heavy repairs	20,000
Stone protection to banks	10,000
Steel gate lifter	12,000
Widening canal, Welland	20,000
Land purchase, etc.	2,500
Straightening channel lock 2	10,000
Dock south of Welland	2,500
Port Colborne, improvements	153,000
Do., elevator	66,000
Surveys, etc., for new canal	25,000
SAULT STE. MARIE:—Construction	70,000
Repairs of break	175,000
Rebuilding north entrance pier	60,000
Iron mooring posts	2,000
ST. PETER'S, N.S.:—Repairs	25,000
HARBORS AND RIVERS:—	
Generally	$ 12,000
Timber for Maritime Provinces	20,000
Construction of wharves, piers, repairs to same and general improvements to harbors and navigable rivers at:—	
19 points in Prince Edward Island	96,950
170 points in Nova Scotia	685,650
69 points in New Brunswick	523,270
157 points in Quebec	929,575
71 points in Ontario	885,300
4 points in Manitoba	38,000
8 points in Sask. and Alberta	99,000
North-West Territories, generally	5,000
33 points in British Columbia	210,550
Lewis and Yukon Rivers	5,000
St. John harbour, New Brunswick	350,000
St. Charles River, Quebec	280,000
Levis deep water wharf, Quebec	55,000
Toronto	250,000
Rondeau, Ont.	200,000
Victoria Harbor, Ont.	181,000
Tiffin, Ont.	143,000
Port Arthur and Fort William, Ont.	1,325,000
St. Andrew's Rapids, Man.	65,000
Vancouver, B.C.	90,000
Victoria, B.C.	155,000
DREDGING.	
Generally	$240,000
Repairs to plant	385,000
New Plant:—Maritime Provinces	180,000
Do., Ontario and Quebec	135,000
Do., Manitoba	13,000
Do., Sask. and Alberta	65,000
Do., British Columbia	310,000
Dredging:—Maritime Provinces	800,000
Do., Ontario and Quebec	675,000
Do., Manitoba	35,000
Do., British Columbia	125,000
Do., general	5,000
Deep Waterways Commission	12,500
International Commission, St. John River	5,000
Construction works for the regulation of navigation on the Upper Ottawa River	48,750
Surveys of Richelieu and Yamaska Rivers—St. Lawrence-Lake Champlain route	6,500
To replace steamers Argus and Challenger in the Quarantine service, three votes totalling (revote $39,000)	69,000
Hydrographic geodetic and other surveys	265,000
Marine hospitals, shipwrecked and distressed mariners	69,750
Steamboat Inspection	53,300
Graving docks	40,100

Navigable Water Protection Act

Regulations have been approved by the Government General in Council, governing draw or swing bridges, other than railway bridges, over navigable waters, and also the establishment and use of cable ferries in navigable waters, as follows:—

Bridges.—Every swing or draw bridge over a navigable water shall be marked at night by a white light on each side of the navigable channel, by a white light on each end of the swing protection, and by a lantern surmounting the swing span showing a red light up and down the channel when the passage is closed, and green when the swing is open. If the passage on both sides of a swing span is navigable, vessels must keep to the starboard opening, and the white lights on each side of the navigable channel must show only in the directions in which they are to be utilized. The signal to be given by a steamer to have a swing opened shall be two long followed by two short blasts of the whistle. Every draw shall be in charge of some competent person whose duty it shall be upon being notified by whistle or in any other manner, that a vessel desires to pass through the bridge, to open the same as promptly as possible, and no vessel shall pass through the bridge until the swing or draw is fully open. Every violation of any of these regulations shall make the party guilty of same liable in the penalty fixed and determined by the law.

Ferries.—No cable ferry shall be established across any navigable water until full details of the proposed scheme have been submitted for the consideration and approbation of the Minister of Marine and until his consent in writing has been obtained. Every cable ferry shall be indicated by a beacon placed as close as possible to one end in such a position as to be conspicuously visible for at least 600 yds. on each side of the ferry. In daytime this beacon shall consist of two squares of stiff material, each not less than two feet square, one pure white and the other bright red, hung on a mast. At night these boards shall be supplemented or replaced by lamps, red and white respectively. Such beacon shall indicate whether or not the ferry cable actually forms an obstruction to navigation; if it forms an obstruction, the red sign shall be above the white one, if not, the white sign shall be uppermost. The lamps at the beacon shall be lighted and kept burning brightly from ½ hr. before sunset until ½ hr. after sunrise. It shall be the duty of the party operating a ferry to see that the beacon be properly fixed and maintained in good working order, and that appropriate signals be shown, during day and night, in accordance with the present regulations. The party operating any such ferry shall, to ensure the safety of small craft, and allow their passage at all times, cause the cable to be suspended either at a sufficient height to leave at least two feet clearance from the water where the water is at least 3 ft. deep and 30 ft. from the banks towards the middle of the passage, or he shall cause said cable to be kept sunk to the bottom. During the night, that is to say from ½ hr. before sunset to ½ hr. after sunrise, all ferry cables shall be kept lowered to the bottom, except when required for actual use. Except when sunk a ferry cable shall be deemed to be a raised cable, whether in actual use or not, and to form an obstruction to navigation. Any raised cable shall be lowered to the bottom, at any time it is required, so as to allow any vessel to

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pass in safety. During the time that any such cable is raised, there shall be some competent person in charge of such ferry and present thereat, whose duty it shall be, upon being notified by whistle, or bell, or in any other manner, that a vessel is approaching, as soon as possible to lower such cable to the bottom so as to allow said vessel to pass in safety. The signal to be given by a steamer to have a ferry cable lowered shall be two long followed by two short blasts of the whistle. Before a ferry cable is so raised, and while it remains raised, whether in actual use or not, the signal at the beacon shall be set at danger, that is the red sign above the white one. No vessel shall proceed to pass a ferry while such signal at the beacon is set at danger. Every violation of any of these regulations shall make the party guilty of same liable in the penalty fixed and determined by the law.

Vessels Removed from the Register.

The following vessels were removed from the register during April and May, for the reasons assigned:—Steam: Alva D., Midland, 10 tons, wrecked; Angler, Port Dover, 14 tons, broken up; D. D. Calvin, Kingston. 483 tons, burnt; E. B. Eddy, Quebec, 38 tons, broken up; Island Belle, Sarnia, 31 tons, broken up; Majestic, Peterboro, Ont., 53 tons, broken up; Minnie M., Montreal, 276 tons, sold to U. S.; Rosey May, Port Arthur, 2 tons, broken up; Salaberry, Belleville, 142 tons, broken up. Sailing: Anne Prudence, Quebec, 24 tons, out of existence, Argosy, Lunenburg, 84 tons, stranded; Ellen L. Maxner, Lunenburg, 93 tons, sold to foreigners; Gaspe, Liverpool, 249 tons, transferred to Newfoundland; Golden Rule, St. John, 55 tons, foundered; Golden Seal, Halifax, 32 tons, unseaworthy; H. F. Church, Sarnia, 306 tons, broken up; Herald, Barrington, 42 tons, sold to foreigners; J. B. Young, Lunenburg, 100 tons, stranded; Lady May, Halifax, 25 tons, transferred to Newfoundland; Maggie Wilson, Halifax, 36 tons, transferred to Newfoundland; Scotia, Lunenburg, 78 tons, transferred to Newfoundland; W. L. Lohnes, Lunenburg, 38 tons, out of existence; Willie H. Crosby, Halifax, 65 tons, broken up; Vivian B. Walters, Lunenburg, 86 tons, stranded.

Notices to Mariners.

The Department of Marine has issued the following:—

41. May 19.—103. Ontario, Lake Ontario, entrance to Presqu'ile bay, Salt point, shoal water in channel, caution. 104. Ontario Lake Ontario, off mouth of Niagara River bell buoy replaced by gas and bell buoy. 105. Ontario, Lake Huron, north channel, depths of shoal east of Turnbull island. 106. United States of America, Lake Huron, Detour passage, gas buoy established on the eastern side of Watson reef.

42. May 23.—107. British Columbia, Vancouver island, east coast, Saanich inlet, Patey rock, beacon light established. 108. British Columbia, Lowe inlet, David point, day beacon. 109. British Columbia, Edye passage and approaches, rocks. 110. British Columbia, Chatham Sound, Porpoise harbor entrance, buoy established.

43. May 25.—111. New Brunswick, St. John River, Belleisle bay, Greys point, light improved. 112. New Brunswick, Chaleur bay, Pokesudie island, light improved. 113. Nova Scotia, west coast, Tusket River, Big Fish island, change in character of light. 114. Newfoundland, east coast, Cape Spear, change in fog alarm. 115. Newfoundland, east coast, St. Johns harbor entrance, Fort Amherst, change in characteristic of fog alarm.

44. May 30.—116. Quebec, Gulf of St. Lawrence, Magdelen islands, Entry island, change in position of light.

45. May 31.—117. Quebec, River St. Lawrence, Beaujeu bank, dredging completed, change in position of gas buoys, buoys discontinued. 118. Quebec, River St. Lawrence ship channel, off St. Thomas de Montmagny, gas buoy established.

46. June 2.—119. General, Canadian list of lights and fog signals, new edition. 120. Quebec, Chaleur bay, north side, Bonaventure point, intended change in character of light. 121. Quebec, River St. Lawrence, Bersimis River, range lights again in operation.

47. June 4.—122. Nova Scotia, south coast, approach to Halifax, change in color of outer gas and whistling buoy. 123. Prince Edward Island, northeast coast, off East point, whistling buoy established. 124. New Brunswick, Northumberland Strait, Shediac harbor range, daymarks. 125. New Brunswick, Northumberland Strait, Richibucto harbor, harbor range lights, additional information.

48. June 4.—126. British Columbia, Vancouver Island, Alberni canal, Stamp harbor, Somass River, beacon light to be established. 127. British Columbia, Burrard Inlet, Vancouver harbor, first narrows, signals established. 128. British Columbia, Chatham Sound, Lucy island, hand fog horn at light station.

49. June 4, 129. Ontario, River St. Lawrence, Thousand Islands, Fiddler's Elbow, south channel between Wood Island and Dashwood Island temporarily closed, caution. 130. Ontario, Lake Erie, Long Point, change in position of life saving station, 131. Ontario, Lake Erie, Pelee passage, Grubb reef, wreck disappeared. 132. Ontario, Georgian Bay, Penetanguishene harbor, change in color of range lights.

50. June 14. 133. Quebec, Straight of Belle Isle, western end. Greenly Island, change in characteristic of fog alarm. 134. Newfoundland, north end. Cape Bauld, change in characteristic of fog alarm. 135. Labrador, Straight of Belle Isle, Amour Point, change in characteristic of fog alarm.

Statistics of Canadian Shipping.

The total number of vessels, of all kinds, on the Canadian register at Dec. 31, 1909, was 7,768, representing 718,533 tons, an increase of 166 vessels and 16,229 tons over the previous year. The steam vessels numbered 3,229, having a gross tonnage of 513,962, and with an assumed value of $30 a ton, the value of the net registered tonnage would be $21,556,590. The number of new vessels built and registered in Canada during the year, was 327, with a net tonnage of 25,306, and estimating the value at $45 a ton, the total value would be $1,138,770. During the year 246 vessels were removed from the register, for a variety of causes, details of which were given in our issues throughout the year, in addition to lists of vessels as registered each month. It is estimated that 36,430 employes were engaged on Canadian registered vessels during 1909. In a list of tonnage owned by all the maritime nations of the world, Canada holds tenth place, as before. During 1909, Prince Rupert was constituted a port of registry for vessels. The number of vessels and their tonnage, according to provinces, is as follows:—

	Sailing vessels and steamers.	Steamers.	Gross tonnage of steamers.	Net tonnage of sailing ships and steamers.
Ontario	2,061	1,507	209,814	208,652
Quebec	1,452	449	113,338	175,370
Nova Scotia	2,058	249	35,828	160,286
Brit. Columbia	1,020	715	87,436	92,746
N. Brunswick	937	190	52,279	62,984
P. E. Island	150	20	4,465	10,154
Manitoba	90	82	7,308	5,087
Yukon Dist.	16	14	3,213	2,984
Saskatchewan	4	3	281	290
Totals	7,768	3,229	513,962	718,553
Totals, 1908	7,602	3,084	483,031	702,324

The ports of registry are distributed as follows:—Ontario, 38; Nova Scotia, 21; New Brunswick, 7; Quebec, 6; British Columbia, 4; Prince Edward Island, Manitoba, Saskatchewan and the Yukon, one each, while in Alberta, no provision has, as yet, been made for the registration of vessels. The ports having a net tonnage of 10,000 and over, are as follows:—

	Vessels		Net
	Sailing	Steam	tonnage
Montreal	171	265	126,919
Victoria, B.C.	109	176	50,585
St. John, N.B.	224	105	46,899
Quebec, Que.	458	159	42,482
Toronto	75	310	38,475
Ottawa	154	257	32,661
Windsor, N.S.	70	14	32,523
Vancouver, B.C.	124	431	32,430
Lunenburg, N.S.	274	12	22,869
Halifax, N.S.	328	87	22,260
Kingston, Ont.	66	137	19,175
Parrsboro, N.S.	85	7	17,942
Collingwood, Ont.	5	78	15,797
Hamilton, Ont.	3	40	15,565
Yarmouth, N.S.	274	90	15,547
Midland, Ont.	5	26	12,231
Charlottetown, P.E.I.	130	20	10,154

Of the 246 vessels which were removed from the register during the year, 14 were sold to foreigners, 27 were wrecked, 17 stranded, 12 lost, 75 broken up, seven abandoned at sea, two sunk in collision, one missing, eight foundered, 33 burnt, nine condemned, 13 transferred to Newfoundland, six transferred to Barbadoes, 21 reported out of existence, and the register of one was surrendered. During the same period, the names of 33 vessels were changed by orders-in-council.

The new vessels built during the year and added to the register, according to Provinces, were as follows:—

	Vessels.	Tons.
Ontario	73	7,973
Nova Scotia	75	6,007
Quebec	66	5,895
British Columbia	93	4,068
Manitoba	5	692
New Brunswick	14	666
Prince Edward Island	1	5
Totals	327	25,306

Inland Navigation Companies' Stocks.

Jaffray, Cassels & Biggar, stock brokers, Toronto, issued a circular recently respecting inland navigation companies' stocks, from which the following are extracts:—

Broadly, it may be said that the ordinary marine risks do not attach to the operations of these companies on our lakes, especially to the Richelieu and Ontario, or the Niagara Co., and experience has shown that this risk is small, even in the cases of the two other companies operating in the more open waters of Lake Superior. These companies carry insurance, so that even the risk of loss of a vessel is not a capital risk. Such loss would bring in insurance, so that the shareholders' capital would remain intact, although the money might not earn so well as a vessel. The accounting methods of the companies are not entirely similar, so that a direct comparison is not possible. In the statements given below, the item "written off" is made to include all special amounts charged against the profit and loss account for that year.

NIAGARA NAVIGATION CO.—The operations of this company do not involve the usual risks. It is in effect a ferry company operating between Toronto and Lewiston. The shortness of the trip eliminates the usual risks, as shown by the company's history. The company is operating four large boats on this service, the Chippewa, Corona, Cayuga and Chicora, and has a small boat, the Ongiara, in service on the Niagara River. The company does a large business in excursions, and its relations with the railway companies connecting with it are satisfactory. It has been free from opposition of late years. An indication of the sound management is found in the fact that a large portion of the cost of the new steamer, Cayuga, was provided out of surplus funds. In 1907, when this boat was added to the fleet, the steamer account was increased by over $270,000, but capital account had been increased only by about $110,000. In the last five years, $144,000 has been written off steamer account. In the following statement the interest on the 4½% debentures has been deducted from the profits shown before showing the earnings. In explanation of the earnings shown it is necessary to point

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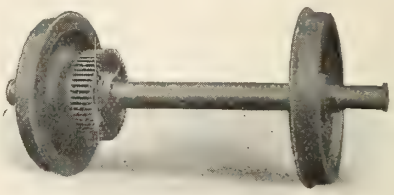

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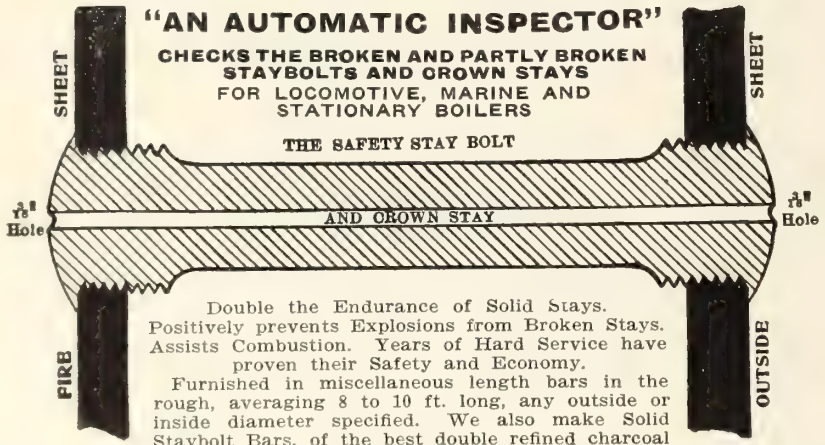

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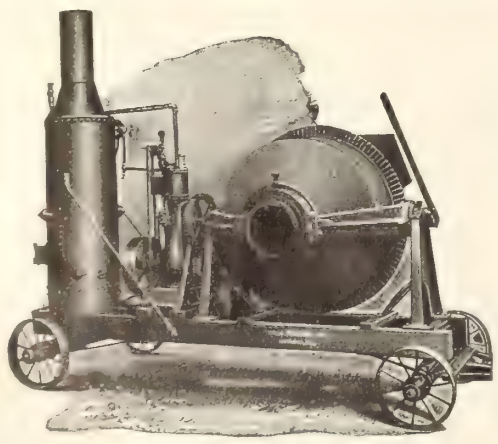

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out that, in 1901, the Pan-American Exhibition was held at Buffalo. The company profited largely by this fact. The statements show:—

	Debentures.	Stock.	Earnings less interest.	Rate on stock. %	Written off, etc.	Balance equal on stock. %	Rate of Div'd. %	Total surplus funds.
1909	$122,000	$701,700	$ 86,455	12.32	$30,000	8.04	8	$148,714
1908	125,000	701,700	96,885	13.80	37,046	8.52	8	143,395
1907	125,000	701,700	92,235	13.14	30,361	8.81	8	129,692
1906	111,000	701,700	118,730	16.92	36,642	11.68	8	123,953
1905	111,000	701,300	97,424	13.88	35,375	9.51	8	98,002
1904	111,000	605,000	62,765	10.37	21,500	6.82	8	88,139
1903	111,000	605,000	70,691	11.66	.....	11.66	8	95,273
1902	111,000	605,000	47,163	7.79	.....	7.79	8	72,981
1901	111,000	605,000	91,818	15.17	.....	15.17	10	74,214

The range of the price of the stock has been:—

	1909.	1908.	1907.	1906.	1905.	1904.	1903.	1902.
High	137	129	126½	133½	133¾	121	134	160
Low	123¾	105	120	117	110	106	109¾	120

THE NORTHERN NAVIGATION CO. operates lines of steamers from Lake Huron and Georgian Bay ports to Sault Ste. Marie and Fort William, and does a local traffic along the eastern and northern shores of Georgian Bay. The control of the company was changed after the unsatisfactory operations of 1902 and 1903. Under new management, with the late H. C. Hammond as president, the condition steadily improved, and the methods introduced by him still inspire the management. The rate of operating expenses has been steadily reduced, while gross business has increased. The outlook for the company is a bright one, and with the completion of the G.T. Pacific line from Port Arthur to Winnipeg and the West, a still larger business should result, since the company has a contract with the G.T.R. until Jan., 1919. Last year the new steamer Hamonic was employed. She proved a successful venture, since her cost, $542,040, was a large venture, considering the company's total capital. At the last shareholders' meeting a by-law was passed increasing the capital to $1,500,000, but this has not been issued yet. The reports show:—

	Stock.	Gross.	Operating Rate.	Net.	Rate of Capital.	Written off and approp'd.	Balance equal on stock.	Div.	Rate.	Surplus and spl. funds.
1909	$1,000,000	$649,297	77.80	$140,089	14.00	$52,350	8.77	$80,000	8	$169,284
1908	843,600	531,554	80.73	102,638	12.22	40,522	7.36	67,315	8	133,910
1907	840,000	633,870	77.63	141,781	16.88	59,990	9.73	67,200	8	122,891
1906	840,000	606,950	77.73	135,173	16.07	[1]50,116	10.11	63,000	6+1½	87,099
1905	840,000	455,217	80.73	87,751	10.44	35,634	6.20	50,400	6	20,784
1904	840,000	421,890	89.71	43,400	5.16	26,316	2.34	......	0	[2]52,988
1903	840,000	507,185	94.16	26,397	3.14	.....	3.14	42,000	5	90,123
1902	840,000	532,301	83.17	[3]88,519	12.64	15,376	10.45	69,773	10	105,725
1901	560,000	....	.....	80,967	18.38	25,000	10.70	44,085	10	62,350

[1]Settlement of litigation with the J. J. Long estate brought in about $28,000, which was also appropriated to special purposes, and is not included in this amount.

[2]Up to this year the reports had shown $90,000 as a reserve fund. The new management appropriated $42,480 **as a reduction of steamers'** valuation and expended $14,340 upon reconstruction and repairs, leaving $33,180 in reserve fund.

[3]It was afterwards charged by the new management that the former management had misrepresented these earnings as being $30,000 too large, and $27,500 was recovered on this charge, as shown in note [1].

The range of price of the stock in recent years has been:—

	1909.	1908.	1907.	1906.	1905.	1904.	1903.	1902.	1901.
High	123¾	105¼	104	110¼	83	81⅜	148	172¾	109
Low	97	83	79¾	80½	57½	50	75	105¾	105

THE ST. LAWRENCE AND CHICAGO NAVIGATION CO. conducts a freight service on the Upper Lakes. At the close of last season it had five steamers, the G. R. Crowe, E. B. Osler, Algonquin, Iroquois and W. D. Matthews. In many seasons the boats have been employed in carrying iron ore down the lakes, winding up the season with the movement of the Canadian wheat crop from Fort William to Georgian Bay ports. In a season such as that described the early business has in a general way about paid the year's expenses, leaving the grain business as the season's profits. Now that the Western grain crops are increasing and the railways fail to move them to lake ports before the close of navigation, this company's boats are finding active employment in the grain trade in the early part of the season. Increasing competition is of course to be expected, but the company's affiliations with the grain trade have been steadily strengthened during its 19 years of existence, and, further, those engaged in the carrying trade are understood to have learned from experience that there is a point below which it is not profitable to depress freight charges. In 1902 the company had but two steamers engaged. Additions to the fleet have been made through new stock issues. The dividend declaration is not made until the end of the season. The extra distribution in 1902 of $40,000, although charged to reserve fund, was immediately replaced in the treasury by a new issue of $150,000 stock. The figures of the company's reports for the years specified were:

	Stock	Earnings	Charges.	Balance.	Equal on Stock %	Written Off	Balance Equal on Stock %	Div'd.	Rate.	Surplus.
1909	$860,000	$112,930	$13,507	$99,423	11.56	.....	11.56	$68,800	8	$132,007
1908	855,700	116,549	56,234	60,315	7.04	.....	7.04	59,899	7	102,383
1907	751,000	113,928	30,770	83,770	11.15	$22,700	8.12	75,100	10	101,968
1906	563,300	125,050	32,780	92,270	16.38	.....	16.38	56,330	10	115,996
1905	563,300	134,891	27,749	107,142	19.02		19.02	56,330	10	80,057
1904	563,300	81,613	31,945	49,668	8.81		8.81	45,064	8	29,245
1903	563,300	78,888	20,234	58,654	11.05		11.05	53,165	10	24,649
1902	350,000	55,312	14,152	41,160	11.76		11.76	85,000	26⅔	18,913
1901	200,000	53,654	12,380	41,274	20.63		20.63	30,000	15	62,753

The range of prices of the stock has been:

	1909	1908	1907	1906	1905	1904	1903	1902
High	128½	126½	126½	138	130	115	118½	[illegible]
Low	105½	109	120	120	100	98	107	[illegible]

RICHELIEU & ONTARIO NAVIGATION CO.—In dealing with that company's affairs, Jaffray, Cassels & Biggar made several errors, such for instance as stating that the company had acquired the three steamboats plying between Toronto and Hamilton, which was not the case. It was also stated that "a new service along the south shore of Lake Ontario had been mooted, but that nothing official had been announced. This was of course incorrect, as the establishment of a service between Youngstown and Ogdensburg, New York, has been arranged for as announced by us some weeks since. We drew the attention of the R. & O. N. Co.'s management to Jaffray, Cassels & Biggar's circular and as the result of correspondence between one of the officials and the brokers the latter corrected the errors pointed out. It may be added that the company's figures are not very satisfactory for comparitive purposes, owing to some changes in its method of bookkeeping, which, while it is claimed they do not affect the general result, are somewhat confusing in regard to the item of operating expenses. [illegible] Biggar's analysis of the statements:

	Capital	Bonds.	Gross Earnings	Operating Ratio	Net Earnings	Rate.	Written Off and Special Approps.	Balance Equal on Stock %	Dividend	Rate	Surplus and Special Funds.
1909	$3,132,000	[illegible]	$1,238,044	68.00	$257,562	8.22	$ 72,566	6.10	[illegible]	[illegible]	[illegible]
1908	3,132,000	956,786	1,241,748	69.00	256,741	8.00	85,233	5.28	[illegible]	5	[illegible]
1907	3,132,000	293,946	1,305,004	78.70	261,423	8.34	89,930	5.47	156,600	5	[illegible]
1906	3,132,000	323,146	1,366,299	79.70	261,040	8.33	[illegible]	3.54	39,150	[illegible]	362,503
1905	3,132,000	349,426	1,217,373	78.86	239,294	7.64		7.64		0	254,660
1904	3,132,000	349,426	999,869	88.64	94,312	3.01	[illegible]	[illegible]	[illegible]	[illegible]	15,365
1903	3,132,000	389,920	1,104,801	80.98	189,632	6.05		6.05	187,920	6	133,262
1902	3,132,000	[illegible]	1,036,666	81.08	174,584	[illegible]		5.57	174,224	[illegible]	[illegible]
1901	2,505,000	452,113	1,109,458	82.96	166,097	6.63		6.63	136,952	[illegible]	131,189
1900	2,088,000	471,580	901,331	82.30	129,322	6.19		6.19	117,813	6	[illegible]

The range of price of the stock has been:

	1909.	1908.	1907.	1906.	1905.	1904.	1903.	1902.	1901	1900
High	95	78	82⅞	89	77¼	87	104¼	116¼	124	[illegible]
Low	78	61¾	67⅞	69¾	62	55	65	[illegible]	[illegible]	[illegible]

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The Toronto Harbor Commission.

The Toronto Harbor is governed by the Commisioners of Toronto Harbor, a corporate body constituted under chap. 10 of the statutes of 1850. There are five Commissioners, four of whom are elected annually, two by the Toronto Board of Trade, and two by the Toronto city council, the fifth, who is usually elected Chairman, is appointed by the Dominion Government during pleasure. The present commissioners are: F. S. Spence, chairman, appointed by the Dominion Government; J. T. Mathews and W. H. Pearson, nominated by the Board of Trade; J. T. V. May and A. Welch, nominated by the city council. The chairman is, and has been during the number of years he has held the office, a member of the board of control or a city alderman; and with the exception of J. T. Mathews, not one of the commissioners has anything to do with marine matters. The board's officers are: C. W. Postlethwaite, harbormaster and secretary; a deputy harbormaster who is also lighthouse keeper and inspector, and a consulting engineer, who is C. H. Rust, the city engineer.

The commissioners passed a set of by-laws in 1886 for regulating "the use of the works and property vested in them or placed under their control, and for the government of all parties using the same, and of all vessels and floats coming into or using the said harbor;" such by-laws still being in force, with the addition of one regulating the speed of vessels, passed in 1909, sec. 8 of the by-laws of 1886.

The Commissioners issued a balance sheet Dec. 31, 1909, which showed that they were administering wharf property valued at $43,073.72, and were in possession of $19,000 of Toronto city bonds and had $13,852.15 in bank. The income for the year was made up of $6,446.21 harbor dues, $4,000 from the C.P.R. and $2,000 from the city, the rest of the $24,730.29 being made up of cash in bank, $10,807.75; interest on deposits and bonds and miscellaneous rents, fines, etc. The commissioners expended $6,308.57 in dredging, $528.41 on lights, buoys and beacons; $2,540 on salaries and $300 on commissioners' fees, the balance being made up of miscellaneous items and the cash balance carried forward to the current year of $13,854.95. The number of vessels arriving in port during last year was 2,939, their tonnage being 1,480,293, a decrease of 492 vessels and 40,872 tons, as compared with 1908. While the expenditures show that the commissioners during 1909 expended on dredging a sum largely in excess of what they had done in previous years, they have not done anything to relieve the congestion at the wharves, by utilizing the $30,000 or so invested in Toronto city bonds, and cash deposited in the banks, to provide additional space.

Rhode's Directory of Passenger Steamers.—The compilation of a list of passenger carrying steamships of the world is a task of considerable magnitude, but in this directory, the publishers have succeeded to a remarkable degree. This is not the first issue of the work, but it speaks forcibly for the improvement which it shows over its predecessors when it is noted that the number of vessels described has been almost doubled. There are two lists given, one a list of lines arranged alphabetically under each line, being given, also alphabetically, a list of its vessls, cross entries showing the different names under which line is known and a grouping of lines or fleets indicates the controlling factor in several fleets. Thus the British and North Atlantic Steam Navigation Co. is the Dominion Line, as also is the Mississippi and Dominion Steamship Co., and the controlling power of the Dominion Line is the International Mercantile Marine. The second list is one of the vessels, arranged alphabetically, and extending over 325 pages. The particulars given include the name, owners, builders, date of construction, and particulars of hull, engines, passenger accommodation, and special equipment. Of the vessels listed 260 are equipped with Marconi wireless telegraphy and emergency apparatus, and a large number with a submarine signalling system. The compiler is inaccurate in including among passenger lines, and listing as passenger steamers the vessels of the following concerns:—J. C. Gilchrist, the Gilchrist Transportation Co., and the Pittsburg Steamship Co., of Cleveland, Ohio. The 91 vessels owned by these three companies are steel bulk cargo carriers principally engaged in the ore carrying trade on the Great Lakes. With the exception of these vessels, and the C.P.R. Great Lakes and B.C. River steamers, none of the passenger steamers on the inland waters of Canada are noted. Thomas Rhodes & Co., 29, 30 Charing Cross, London.

Quebec as a Port.—A special committee which has been considering the position of the port of Quebec with a view of its development, has passed a resolution recommending the formation of a joint stock company "as being the most practical means of exploiting commerce in the port of Quebec." The committee pointed out that the great difficulty in building up a big trans-Atlantic business at Quebec was the difficulty of securing export cargoes, and it will be the business of the proposed company to secure for Quebec an adequate share of Canadian export business.

During April, four deaths occurred amongst navigation employes, in the course of their work, all due to drowning, and four were injured, three by machinery, and one by falling material.

LIST OF STEAM VESSELS REGISTERED IN CANADA DURING MAY, 1910.

Name	No.	Where and When Built.	Engines, etc.	Length	Breadth	Depth	Gross Tons	Reg. Tons	Port of Registry	Owners
Aix	126,782	Port Essington, B.C., 1908	Screw 9 n. h. p	30.1	9 6	3.4	9	6	New Westminster B.C.	H. J. F. Anderson, Westham Island, B.C.
Arono	126,280	Steveston, B.C., 1909	" 2 "	26.7	6.4	2.4	2		" "	W. R. Jayes, New Westminster, B.C.
B. B.	126,881	Tacoma, Wash., 1906	" 2 "	49.0	12.0	4.2	25	17	Vancouver, B. C.	A. Brown, Vancouver, B.C.
Cellar Head	126,749	Steveston, B.C., 1910	" 2 "	34.6	10.3	4.0	13	9	" "	N. Gunn, Vancouver, B.C.
City of Edmonton	126,448	Strathcona, Alta., 1909	Paddle 9 "	132.0	26.8	4.0	301	190	Kenora, Ont.	J. Walter, Strathcona, Alta.
Faloma	126,781	Vancouver, B.C., 1910	Screw 5 "	63.3	12.2	7.6	33	22	New Westminster B.C.	F. S. DeGrey, New Westminster, B.C.
* Florence	126,420	Elizabeth, N.J., 1903	" 65 "	144.0	22.6	9.6	237	123	Toronto	J. C. Eaton, Toronto.
G. R. Crowe	123,324	Dundee, Scotland, 1907	" 116 "	331.0	43 4	22.9	2940	2347	"	St. Lawrence & Chicago Steam Nav. Co., Toronto.
Ilys	126,473	Port Hawkesbury, N.S., 1907	" 2 "	32.6	9.3	4.8	6	6	Halifax, N.S.	J. H. Winfield Halifax, N.S.
Islinda	126,722	Young's Point, Ont., 1910	" 3 "	80 0	16.0	5.0	54	37	Peterboro, Ont.	P. P. Young, Young's Point, Ont.
John Torrent	122,440	Muskegon, Mich., 1875	" 7 "	52 0	14 2	9.0	30	20	Sault Ste. Marie, Ont.	S. Shipman, Richard's Landing, Ont.
Lauzon	126,843	Lauzon, Que., 1910	" 32 "	133.3	34 9	11 0	419	281	Quebec	Levis Ferry Ltd., Levis, Que.
Lena Jackson	126,861	Lake Penage, Ont., 1875	" 4 "	62.0	15.0	5.8	39	18	Sault Ste. Marie, Ont.	Victoria Harbor Lumber Co., Toronto.
Levis	126,842	Lauzrn, Que., 1910	" 32 "	133 3	34.9	11.0	419	281	Quebec	Levis Ferry Ltd., Levis, Que.
Little Miss	126,757	Tetreaultville, Que., 1910	" 4 "	29.0	8.2	5.6	9	6	Montreal	A. S. Forman, Montreal.
Roman	124,774	Beverley, Eng., 1907	" 113 "	145.0	24 0	12.6	357	149	Vancouver, B.C.	Packers Steamship Co., Vancouver, B. C.
Uwilna	126,750	Shanghai, China, 1909	" 2 "	37.0	13.3	7.0	22	15	" "	R. H. Alexander, Vancouver, B.C.
Yennek	126,467	Clayton, N.Y., 1896	" 3 "	57 8	12.6	3.8	39	27	Kingston, Ont.	D. J. Kenney, Gananoque, Ont.

* Formerly Emeline

LIST OF SAILING VESSELS AND BARGES REGISTERED IN CANADA DURING MAY, 1910.

Name	No.	Where and When Built	Rig	Length	Breadth	Depth	Reg. Tons	Port of Registry	Owners
Edward Bros. No. 2	122,439	Bay City, Mich, 1896	Dredge	70.0	25 4	5 8	237	Sault Ste. Marie, Ont.	J. Stevenson, Sault Ste. Marie, Ont.
Harrold L. Berry	126,067	Georgetown, Me., 1890	Schr.	87.4	26.2	7.0	99	Charlottetown, P.E.I.	F. Andrew, New Glasgow Mills, P.E.I.
Hazel Trahey	126,393	Parrsboro, N.S., 1910	"	93.4	28.6	9.0	145	Parrsboro, N.S.	J. Soley, M.O., Lower Economy, N.S.
Hugo	126,474	Shelburne, N.S., 1905	Sloop	20.8	6.5	2.2	1	Halifax, N.S.	M. Brown and H. Stairs, Halifax, N.S.
Julia B. Merrill	126,468	Wenona, Mich., 1872	Schr	128.0	26 5	8.4	190	Kingston, Ont.	H. Daryaw, M.O., Wolf Island, Ont.
Kirk 2	126,882	Vancouver, B.C., 1910	Scow	54.4	26 0	6.0	77	Vancouver, B.C.	A. R. Bissett, Vancouver, B.C.
L. C. M.	126,872	Comeauville, N.S., 1910	Schr.	41.0	13 0	5.5	13	Digby, N.S.	J. J. Melanson, Comeauville, N.S.
L. S. No. 3	126,862	Duluth, Minn., 1896	Dredge	100.0	31 3	6.7	383	Sault Ste. Marie, Ont.	W. R. Parker, Toronto, Ont.
M. E. Hains	126,871	Meteghan River, N.S., 1910	Schr.	58.0	17 7	6 5	31	Digby, N.S.	M. Haines, M. O., Freeport, N.S.
Mina May	126,883	U.S., —	Sloop	27.4	11.0	4.5	7	Vancouver, B.C.	D. Ross, Vancouver, B.C.
Ponton No. 1	126,844	Levis, Que., 1910	Scow	99.3	49.2	6.5	293	Quebec	J. Gosselin, Levis, Que.
Ponton No. 2	126,845	" 1910	"	99 3	49.1	6 5	291	"	" "
Rostand	122,189	Shelburne, N.S., 1910	Schr.	85.0	23.0	9.1	98	Arichat, N.S.	Stewart Fish Co., St. Peters, N.S.
Ste. Celestine	126,846	Rebuilt, Chateau Richer, Que. 1904	"	70 3	21.8	5 3	53	Quebec	W. Burton, St. Luce, Que.
T. F. M. No. 1	126,755	Ogdensburg, N.Y., 1892	Scow	58.5	18.0	5 6	54	Montreal	T. F. Moore Co., Montreal.
T. F. M. No. 2	126,753	" " 1892	Dredge	71.0	22.0	4.5	151	"	" "

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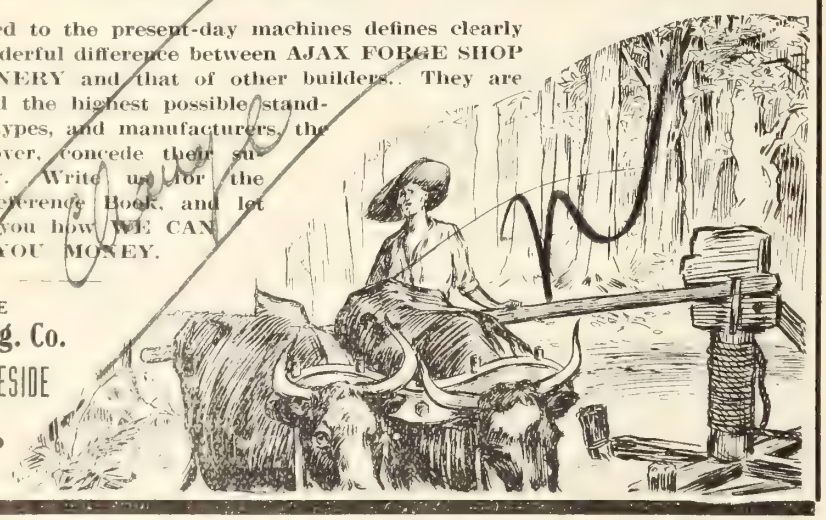

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The Crown of Castile Accident.

L. A. Demers, acting Wreck Commissioner, has given the following decision, concurred in by F. Nash and A. Angers, assessors, in reference to the accident to the s.s. Crown of Castile, on May 27: —"The court, after having carefully weighed the evidence adduced, finds that the damage sustained by the Crown of Castile at Cap-a-la-Roche, at some place between buoys 91 and 93 Q, is due to an error of judgment on the part of the pilot for not allowing sufficiently for the current which was then materially affecting the ship's course; but, owing to the praises of the master of the ship, with reference to his conduct, previous, during and after the accident, the court warns him to be more careful in the future and to remember to be guided in his work by the principal aids to navigation and ascertain for himself the bearings of distances and not rely implicitly on the information which he may receive as regards those bearings, though they may be given in all good faith, as it would appear in this case."

Atlantic and Pacific Ocean Marine.

The Canadian Northern Steamships' s.s. Royal George, arrived in Montreal on her maiden trip from Avonmouth, Eng., June 3. She was considerably delayed by fog in the Gulf.

The s.s. Ben Cruachan, which was wrecked near Louisburg, N.S., recently, was floated, June 15, and temporary repairs affected, after which she was to be taken to Halifax for thorough examination.

The Dominion Government is calling for tenders for the mail service between Canada and Australia and New Zealand, for Canada and Australia, sailings to take place every four weeks from Vancouver, with several alternative routes.

Press reports state that the Canadian-Australian Line and the Matson Line are making arrangements for the transfer of Australian passengers, bound to California, at Honolulu, thus avoiding carrying them through to Vancouver.

The Dominion Government s.s. Gulnare sailed from Quebec, June 11, with a party on board, under charge of W. B. Dawson of the Tidal Survey, for the examination of the currents and tides in the lower parts of the St. Lawrence River and the Gulf.

The White Star Dominion Line s.s. Southwark has been chartered by the Allan Line, to take the place of the s.s Grampian, which has been docked for examination, following on its grounding in the St. Lawrence, at Cap a la Roche, recently.

The widow of C. Fournier is suing the Donaldson Line for $15,000 for the death of her husband, while working in the hold of the s.s. Kastalia, when a longshoreman, who, it is alleged, was intoxicated, fell on him from the first deck.

W. Mackenzie, President Canadian Northern Steamships Ltd., on his return from England, June 2, is reported to have stated that the company was considering the placing of a third vessel on the route between Montreal and Avonmouth.

The arrangements of the Canadian and U. S. Governments, as regards the control of railway rates, will, it is stated, be followed by a similar arrangement between Canada, Great Britain and the U. S., for the joint control of trans-Atlantic passenger and freight rates.

Sir James Mills, of the Union Steamship Co., of New Zealand, who was visiting in Canada during June, while on his way to great Britain, is reported to have said in Vancouver, that the Canadian service with the antipodes would be improved shortly, by the addition of at least one vessel.

Montreal press reports state that the Canada Line, which operates vessels between Canada and Germany, will replace its present fleet of three vessels, by four larger ones, each over 18,000 tons, in order to cope with the increasing passenger and freight business offering.

The Donaldson Line s.s. Saturnia, recently constructed at Glasgow, Scotland, for the Canadian service, on her trials maintained a mean speed of 15½ knots an hour. She is, however, only intended for a 13½ knot speed when in service. She arrived at Quebec, on her maiden trip, June 11.

J.E. Furness, Manager Furness, Withy & Co., who is in England, is reported to be arranging for the extension of the company, which operates the Thomson passenger trade. It is stated that it is the intention to run a fast line of passenger vessels into Quebec and Montreal in the summer and to Halifax in the winter.

The Cairn Line of Steamships, Ltd., has placed on the market, £250,000 of 5% mortgage debentures, for the general development of its business. The company, which operates the Thompson Lines and other vessels, between Canada and Great Britain, was established in 1892, and has paid dividends averaging 8% annually, on its ordinary shares.

The Postmaster General was reported to have said, in Montreal, June 10, that no arrangements had then been made with other companies for the conveyance of mails, but he expected that such would be made in the near future, so that three mails would leave for Great Britain each week. The present contract with the C. P. R. and the Allan Line does not expire until 1912.

W. Lyall, who acted as one of the arbitrators in the recent enquiry into the disputes between the Montreal shipowners and the longshoremen, was entertained to a luncheon there by a number of those interested in shipping, June 13, and presented with a silver flower stand and flower trays, in appreciation of his successful efforts to settle the matter.

Representatives of various shipping companies in Montreal, were received by the Premier June 8, respecting the proposed addition of a new clause to the immigration bill, dealing with the examination of U. S. settlers passing through Canada. A written protest has been sent, an estimate of the loss that would accrue to Canadian companies being placed at $1,000,000 a year.

The Canadian Northern Steamships' s.s. Royal Edward, which sailed from Avonmouth, Eng., June 9, arrived at Quebec, June, 16, having, it is claimed, lowered the record by two hours.

The official record shows that she left Avonmouth, June 9, at 8 p.m., and completed the trip to her dock at Quebec, in 5 days, 23 hrs. 30 mins. The previous record from port to port, is quoted as 6 days, 1 hr. 45 mins.

The Canadian-Mexican Pacific Steamship Co., Ltd., has been organized, for the purpose of taking over the Canadian-Mexican Line, which operated vessels between B.C. ports and Mexico. The chief officers are: President, E. H. Heaps, President A.B.C. Elevator Co.; Vice President and General Manager, T.H. Worsnop. The first sailing by the new company was announced to take place at the end of June, by the s.s Henley. It is also stated that the company has been appointed agent for the Canadian Northern Steamships' Ltd, and a number of other shipping companies. The vessels to be operated are the Lonsdale and Henley; the Georgia, which the old company ran, being returned to England, her charter having expired.

A. A. Allan and T. Robb, President and Manager of the Shipping Federation of Canada, waited on the Minister of Marine recently on the subject of the alleged dangers to navigation in the Cap a la Roche channel. The damage recently caused to the steamships Grampian and Crown of Castile, by apparently striking some hidden obstruction while passing through this channel, has given some ground for the belief that a submerged rock or other obstruction is menacing the safety of navigation. The Minister of Marine, immediately on hearing of the damage to the latter vessel gave instructions for the sweeping of the channel, which work was carried out May 29, with the result that the channel was found to be clear. He also announced that the machinery for the new rock crusher and dredger, now under construction at Sorel, has arrived, and as soon as the vessel was completed, it would be set to work in the channel, and if any obstruction was discovered, it would be dealt with.

Maritime Provinces and Newfoundland.

D. Johnson, a well-known ship builder of River John, N.S., died at Pictou, recently, aged 91.

The Newfoundland Government has awarded a contract to Bowring Bros., St. John's, for the construction of a public wharf at Placentia.

The dredge Triton, which the Dominion Government has purchased in the U. S., was built in 1900, and is of the suction type, 479 tons register. It is said that she will be operated in St. John harbor and the Bay of Fundy.

The New Brunswick Legislature has authorized the city of St. John to grant to the Imperial Dry Dock Co., or other company, any interest it may have in any site for the construction of a dry-dock, exempt the dry-dock plant and machinery from taxation, except water, and pay the company a bonus of $5,000 a year for 20 years from the completion of the dock.

Press reports from Newfoundland state that the Reid Newfoundland Co., has taken exception to the judgment recently delivered by Capt. Lugar, after his inquiry into the causes of the collision between the R.N. Co.'s s.s. Invermore and a French trawler, and will appeal to the Admiralty Court. The judgment held that both vessels were to blame for the accident, and that perjury had been committed by some of the witnesses, but it was impossible to decide by whom.

Province of Quebec Marine.

The Levis Ferry Co., is stated to have placed contracts for the construction of winter ferry boats in Levis.

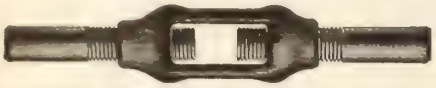
The Department of Public Works received tenders June 29 for the construction of a wharf and approach at Tadousac harbor.

The Dominion Government has decided to build a dam on the St. Charles River, at a cost of about $1,000,000, to make the river navigable for over a mile from its mouth at any tide

Sir H. Montagu Allan arrived in England early in June, where it is stated he is making arrangements for the early construction of the works in connection with the proposed dry dock at Levis, Que.

The Government has confirmed the Quebec Harbor Commissioners' by-law providing for the payment of not

TURNBUCKLES



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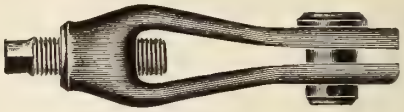

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The Continental Dredging Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $100,000 and office at Montreal, to carry on a general dredging, contracting and construction business and in connection therewith to own and operate steam and other vessels.

V. W. Forneret, acting Superintendent Engineer of the St. Lawrence ship channel has been appointed Superintendent Engineer, by order in council. He is a member of the Canadian Society of Civil Engineers and has been connected with many of the important works on the St. Lawrence, between Montreal and Father Point.

The Acme Transportation Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $50,000 and offices at Montreal, to acquire all, or part of the plant and business of Haney, Quinlan and Co., and Haney, Quinlan and Robertson, Montreal, to own and operate steam and other vessels, and to conduct a general transportation business.

The Quebec and Levis Ferry Co., has appealed to the Court of the King's Bench against two judgments of the Superior Court refusing it evocation from the Circuit Court in cases brought by A. Bernier, (Levis Ferry. Ltd.,), and moved to have proceedings in the several cases, suspended until the decision of the Court of Appeal.

The Department of Public Works will receive tenders to July 5, for the construction of a deep water wharf at Levis. The work is to consist of a horizontal bed for the cribs, prepared by dredging to 35 ft. below low water level, for the whole length, the construction of nine timber cribs, 903 ft. long, 40 ft. wide at the base, and 18 ft, wide at the top, a crib retaining wall behind the western end, 32 ft. long, 27 ft. 6 ins wide at base, 16 ft. 2 ins. wide at the top and superstructure of concrete blocks, 30 to 35 ft. long, 16 ft. wide at base, 4 ft. wide at top, with the necessary ladders, steps and mooring rings

Ontario and the Great Lakes.

The Niagara Navigation Co. has declared a dividend of 4% for the half year payable July 2.

The Pere Marquette Rd. is reported to have decided to operate a line of steamboats across Lake Erie, from Port Stanley, daily.

The St. Lawrence and Chicago Steam Navigation Co. has transferred its steamboat G. R. Crowe from the British to the Canadian register.

The Lake Carriers' Association is recommending that the draught of the Canadian and U. S. Locks of the Sault Ste. Marie canals, be made 18½ ft.

The Port Colborne steam tug Golden City, was struck by the Parry Sound Lumber Co.'s steamboat Seguin, and sunk in the Welland Canal, June 13.

The Inland Line's s.s. Donnacona ran ashore on the Devil Island shoals, near Tobermory, June 12, and after having her cargo lightered, was released on the following day.

Jno. Bell has been appointed General Agent, Inland Lines Ltd., Toronto, vice H. J. Truscott General Agent Inland Navigation Co., which now forms part of the Inland Lines, Ltd.

The Merchants' Mutual Line, Ltd., Incorporated under the Dominion Companies Act, has been licensed to carry on its business in Ontario, with J. S. Lovell, Toronto, as its attorney.

The North Channel Towing Co., Ltd., which was recently incorporated, with a capital of $25,000, and office at Cutler, Ont., owns the steam tugs Andrew J. Smith, W. H. Seymour and Alert.

The Cadwell Dredging Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $50,000 and office at Windsor, to carry on a general dredging, contracting and sand business.

The Rainy River Navigation Co., has announced that it will operate the steamboats Keenora and Agwinde, this year, on the Kenora-Fort Frances route. No vessel was operated by this company last season, owing to the low water at the mouth of the Rainy River.

The Niagara, St. Catharines and Toronto Navigation Co.'s steamboat Lakeside, which operated between Toronto and Port Dalhousie last season, is being thoroughly overhauled, and will probably be put into service again on the same route.

Wm. Lawlor, recently transferred from the Toronto office of the Inland Lines, Ltd., to the Montreal office, is reported to be missing. He is said to have had a considerable sum of money in his possession at the time, and it is feared that he met with foul play.

The s.s. A. E. McKinistry, which recently arrived on the Great Lakes from Scotland, will be operated by Interlake Transit Ltd., in the bulk freight trade. Her dimensions are, length, 250 ft.; breadth, 42¾ ft.; depth, 20½ ft; capacity, 118,000 bush.

The Department of Railways and Canals has awarded the contract for the improvements to the Port Colborne entrance to the Welland Canal, to M. J. Hogan, Port Colborne. The work comprises the widening of the 22 ft. deep water channel along the west pier and the building of a timber and concrete mooring dock west of the elevator.

The U. S. Lake Survey reports the levels of the Great Lakes, for May, in feet above tidewater, as follows: Superior, 601.74; Michigan and Huron, 580.46; Erie, 572.57; Ontario, 246.42. As compared with the average May levels for the past 10 years, Superior was 0.55 ft. below, Michigan and Huron 0.38 ft. below, Erie 0.04 below and Ontario 0.27 ft. below.

The G.T.P. Coast Steamship Co.'s s.s. Prince Rupert, which arrived on the coast early in June, reached Vancouver, June 10, after having been overhauled at Esquimalt subsequent to her trip around the Horn from England. She was considerably delayed on the voyage by bad weather, and owing to her wireless telegraph equipment getting out of order, some anxiety was caused.

The Lake and River Rapid Transit Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $50,000 and office at Ottawa, to own and operate steam and other vessels, wharves, docks, etc., and to conduct a general transportation business. The provisional directors are, E. W. Grange, S. D. Dafoe, J. Muir, C. F. Hamilton and C. A. Matthews, Ottawa, and J. A. Currie, Toronto.

Representations, emanating from Minnesota are being made to the Dominion and U.S. government for the betterment of navigation on the Rainy River, and for the opening up of the Lake of the Woods. The plan suggested, involves the construction of a canal with three locks, connecting the Rainy and Pigeon Rivers, thus forming a connection between Hudson Bay and Chicago and New York, by way of the Great Lakes, Chicago canal and the Mississippi River.

Hall and Eligh, Ltd., has been incorporated under the Dominion Companies Act, with a capital of $99,000 and office at Ottawa, to carry on the business of operating and owning passenger, freight and towing steamers, with power to build or otherwise acquire steam and other vessels, wharves, docks, piers, elevators, etc. The provisional directors are: E. A. Hall, L'Orignal; W. J., and J. H. Hall, and P., and E. W. Eligh, Ottawa.

Press reports from Montreal state that a merger of lake navigation companies with a capital stock of $15,000,000, is under negotiation, by which "practically every inland navigation boat of importance, plying between the Gulf of St. Lawrence and the port of Chicago on Lake Michigan," will be placed under one management. Among those mentioned, are the Richelieu and Ontario Navigation Co., Merchants' Montreal Line, Montreal and Lake Erie Steamship Co., Montreal and Great Lakes Steamship Co., Ottawa River

SAULT STE. MARIE CANALS TRAFFIC.

The following commerce passed through the Sault Ste. Marie Canals in May:

ARTICLES.			CANADIAN CANAL	U. S. CANAL	TOTAL
Copper	Eastbound	Net tons	4,595	12,160	16,755
Grain	"	Bushels	3,813,654	2,872,094	6,685,748
Building stone	"	Net tons	..	..	..
Flour	"	Barrels	399,460	465,915	865,375
Iron ore	"	Net tons	4,299,929	1,755,672	6,055,601
Pig iron	"	"	..	1,856	1,856
Lumber	"	M. ft. B.M.	18,508	74,768	93,276
Silver ore	"	Net tons	..	..	..
Wheat	"	Bushels	8,264,727	2,126,599	10,391,326
General merchandise	"	Net tons	6,712	7,841	14,553
Passengers	"	Number	888	499	1,387
Coal, hard	Westbound	Net tons	89,785	197,661	287,446
Coal, soft	"	"	449,463	769,434	1,218,897
Flour	"	Barrels	600	..	600
Grain	"	Bushels	..	100	100
Manufactured iron	"	Net tons	27,302	38,862	66,164
Iron ore	"	"	..	..	..
Salt	"	Barrels	39,151	73,316	112,467
General merchandise	"	Net tons	89,726	79,698	169,424
Passengers	"	Number	1,653	155	1,808
Vessel passages		Number	1,271	1,587	2,858
Registered tonnage		Net	3,585,163	3,646,521	7,231,684
Freight Eastbound		Net tons	4,707,390	2,062,314	6,769,704
" Westbound		"	661,929	1,096,653	1,758,582
Total freight		"	5,369,319	3,158,967	8,528,286

The Canadian canal opened Apr. 12, and the U.S. canal, May 5.

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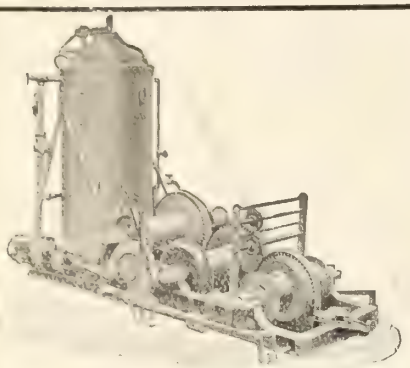

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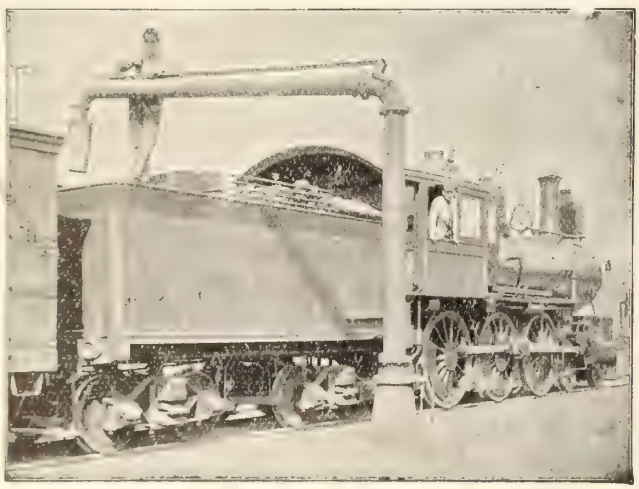

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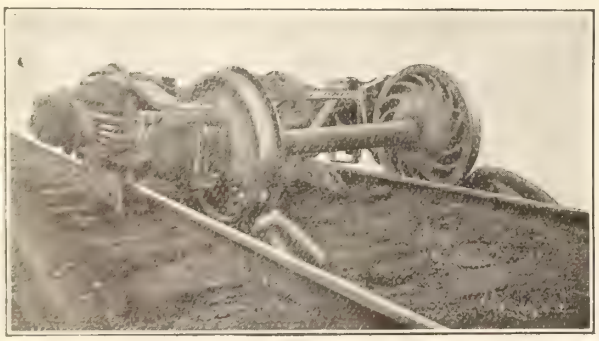

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CINCINNATI, O.

Navigation Co., Montreal Transportation Co., and the Northern Navigation Co., while it is also stated that the C.P.R. and G.T.R. are favorably disposed towards the project.

The Toronto Ferry Co.'s ferry steamboat Trillium was launched from Polson Iron Works, Toronto, June 18, the christening ceremony being performed by Miss Phyllis Osler, granddaughter of E. B. Osler, President Toronto Ferry Co. The vessel, which has been built on the same general lines as the company steamboat Bluebell, has these dimensions: length, 150 ft. beam, over guards, 45 ft., depth, molded, 8 ft. 4 ins. The machinery consists of inclined compound paddle wheel engines with cylinders 17 and 34 ins, diar., by 48 ins. stroke, supplied with steam by a Scotch marine boiler, 10½ ft. diar., by 11 ft. long, at a working pressure of 160 lbs. She is also equipped with a turbine electric generating set, for 350 16 c.p. lights and masthead and running lights. She was expected to be in operation by July 1.

The Keystone Transportation Co.'s steamboat Keystorm, which recently arrived on the Great Lakes, will be engaged in the bulk carrying trade between Cleveland, Ashtabula, Erie and other Lake Erie points and Montreal. She was built in England, and in the main, is similar to the steamboats Keywest and Keyport, also built in England for the same company, the chief difference being in regard to her boilers. The Keystorm has been constructed with one large boiler instead of two smaller ones, and has a slightly reduced carrying capacity, but with increased speed. She is of full canal size with a draught of 14 ft., and has been built to the highest class in the Classification of the British Corporation for the Survey and Registry of Shipping. She is equipped with triple expansion engines. Her dimensions are, length, 250 ft., beam, 42½ ft., and she will carry 2,300 tons on light draught. On her trial trip she attained a speed of about 10 knots an hour.

Manitoba, Saskatchewan and Alberta.

H. J. Truscott, heretofore General Agent Inland Navigation Co., Toronto, has been appointed Contracting Agent Inland Lines Ltd. (which was taken over by the Inland Navigation Co.,) at Winnipeg.

The s.s. Mikado, arrived in Winnipeg from Selkirk, June 10, being, it is said, the first steamboat plying on Lake Winnipeg, to go up to the city. During the trip, surveys of the river at various points were, made, which will prove of benefit to other vessels making the trip for the first time.

The Dominion Government has decided to make a survey with a view of ascertaining the possibility of establishing a navigable water route between Winnipeg and Edmonton, by way of the North Saskatchewan River and Lake Winnipeg. It is believed that waterway of 8 ft. depth can be cleared at a moderate cost. L. R. Boligny, who was one of the party which made surveys on the Georgian Bay Canal route, is reported to have been placed in charge of the work, which will be undertaken during the summer.

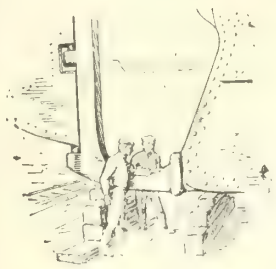
The Hyland Navigation and Trading Co., contemplates the construction of dock accommodation at Winnipeg, 324 by 40 ft., and also intends building two barges and a steam tug. The company is operating the steamboats Bonnitoba and Winnitoba, the former on the Red River and the latter on the Red River and Lake Winnipeg. The officers of the vessels for the current season are, Bonnitoba, captain, G. Fortney; chief engineer, G. Hicks; Winnitoba, captain, E. McDougall; chief engineer, G. King.

A joint meeting of the Winnipeg special wharf committee and the city council was held recently, when the matter of the construction of wharves at various points along the Red River was discussed. It was stated that with the opening of the St. Andrews lock, a large increase of traffic on the river and lake was probable, and that steps should be taken to construct the facilities necessary for the economical handling of passengers and merchandise. H. N. Ruttan, City Engineer, said that the question was a large one, but that some extravagant ideas had been entertained on the matter and some projects mooted that would cost millions. The St. Andrews lock and dam would have the effect of raising the water level several feet, and though there were no fundamental difficulties in the way of establishing a large trade between the city and the lake, wharves or steamboat landings would have to be protected against the spring ice flow. It was decided to obtain the views of the leading shippers in Winnipeg and other Red River ports as to landing accommodation, and later, call a meeting of ship owners, the city council and the board of trade.

B.C. and Pacific Coast Marine.

The barkentine Everett G. Griggs, of Victoria, has been equipped with a wireless telegraph installation.

GOLDSCHMIDT THERMIT CO.



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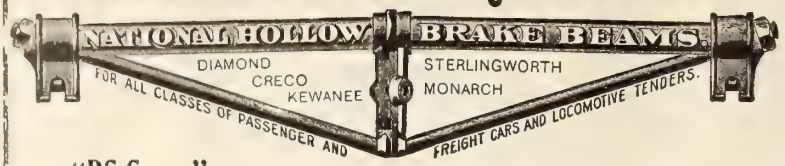

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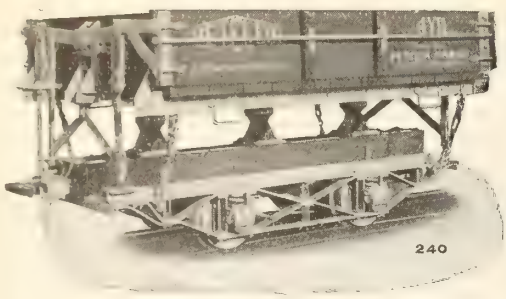

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Sizes One to Seven Yards

Our 1910 Cars are further improved and are ideal for handling all kinds of material.

Simplicity, Strength and Staying Qualities have kept our cars in the front rank for over thirty years.

PETELER CHILLED WHEELS for all purposes are noted for their deep and uniform chill and will reduce your wheel troubles to a minimum.

We also build Logging Cars, Frogs, Switches, and Turntables; Cars for Mines, Stone Quarries, Brick Yards, and Industrial Cars.

Carry stock of Light Rails and Fastenings.

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NEW and REBUILT

Box, Flat, Gondola and Tank

Steam Shovels, Rails, Locomotives and Contractors' Equipment

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STEEL AXLES, TYRES, AND SPRING STEEL

"PHŒNIX" Loco. Spring Steel is the accepted Standard in Canada

Sole Agents:
James Hutton & Co., Montreal

The Victoria Dock Co., Ltd., has applied to the Governor-General-in-Council for the approval of plans and site for works to be constructed in Victoria harbor, lot 5, block 70.

The Imperial Car, Shipbuilding and Drydock Co., of Vancouver, is applying for a subsidy of 3½ per cent. on an outlay of $2,500,000 for the construction of a dry dock at Vancouver.

The White Pass Navigation Co.'s steamboat White Horse, was reported to have left White Horse for Dawson, Y.T., June 8, this being several days earlier than is usual for the opening of navigation on the river.

The Kootenay Ry. and Navigation Co.'s steamboat Kaslo, while endeavoring to berth at Ainsworth, during a storm, struck on a pier, and eventually sank in 14 ft. of water. The service has been continued by the C.P.R. steamboat Kokanee.

The Malahat Tug Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $25,000, to own and operate steam and other vessels, and to enter into contracts for the conveyance of passengers, cattle and merchandise by its own vessels, railways, etc., or by those of others.

The s.s. Bruno, recently purchased by the Grand Trunk Pacific Coast Steamship Co., as mentioned in our last issue, has had some alterations made, in addition to being generally overhauled, at Vancouver, and the name has been changed to Prince Albert, to conform to the company's policy regarding names. She is being operated between Prince Rupert, Portland Canal and Queen Charlotte Islands, connecting with the s.s. Prince Rupert in both directions.

The Grand Trunk Pacific Coast Steamship Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $100,000 and office at Montreal, to own and operate steam and other vessels, wharves, docks, piers, elevators, etc., and to conduct a general navigation and transportation business. The provisional directors are: C. M. Hays, W. Wainwright, W. H. Biggar, Montreal; E. J. Chamberlin, Winnipeg, and C. H. Nicholson, Vancouver; all of whom are connected with the G.T.R., G.T.P.R., or G.T.P. Steamships.

The Grand Trunk Pacific Ry. has purchased the ocean going tug, Escort No. 2, and the car ferry, Georgian No. 2, from Mackenzie Bros. Ltd., Vancouver, B.C., to operated in transferring rails and other equipment between Vancouver and Prince Rupert in connection with the construction of the Mountain Division. The tug Escort was built in 1182, at Coos Bay, Ore., and is a screw driven vessel, with engine of 61 n.h.p. Her dimensions are: length, 95 ft., breadth, 24 ft., width, 13.5 ft., tonnage, 192 gross, 131 register. The Georgian No. 2, is 187 ft. long by 39 ft. beam. The G.T.P. Coast Steamship Co., has also purchased the steamship Henriette and the schooner North Pend, from the same firm, the former being intended for general freight purposes where required, and the latter to be utilized as a coal barge. The Henriette, which was formerly a sailing vessel, is equipped with engine of 32 n.h.p., driving a screw. Her dimensions being: length, 152.6 ft., 30 ft., depth 18. ft., tonnage, 762 gross, 518 register. The schooner North Bend was built at Coos Bay, Ore., in 1877, her dimensions being: length, 152.6 ft., breadth 32 ft., depth 11 ft., tonnage, 392 register.

The Department of Public Works will receive tenders to July 20 for the construction of a steel bow-well twin screw barge loading dredge for use in British Columbia. The specifications calls for a

QUEBEC BRIDGE.

Tenders for Superstructure.

Notice to Contractors.

SEALED TENDERS addressed to the undersigned and endorsed "Tender for Quebec Bridge Superstructure," will be received at this office until 12 o'clock noon, not later than September 1st, 1910, for the superstructure of a bridge across the St. Lawrence River near the City of Quebec.

Plans and specifications may be seen and forms of Tender obtained on and after July 1st 1910 at the office of the Quebec Bridge Board of Engineers, Canadian Express Building, Montreal, and at the Department of Railways and Canals, Ottawa.

Parties tendering will be required to accept the fair wages schedule prepared or to be prepared by the Department of Labour, which schedule will form part of the contract.

Contractors are requested to bear in mind that tenders will not be considered unless made strictly in accordance with the printed forms, and in the case of firms unless there are attached the actual signature, the nature of the occupation, and place of residence of each member of the firm.

An accepted bank cheque for the sum of $500,000.00 made payable to the order of the Minister of Railways and Canals of Canada must accompany each tender, which sum will be forfeited if the party tendering declines entering into contract for the work at the rates stated in the offer submitted and in accordance with the terms stated in the form of Contract accompanying the Specifications.

Cheques thus sent in will be returned to the respective contractors whose tenders are not accepted.

The lowest or any tender not necessarily accepted.

L. K. JONES,
Secretary.

Department of Railways and Canals.
Ottawa, 17th June, 1910.

Newspapers inserting this advertisement without authority from the Department will not be paid for it.

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Has already saved many castings from the scrap heap.
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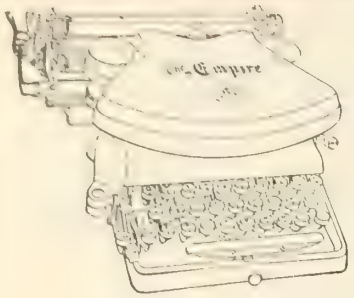

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Visible Writing
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BUILT FOR HARD WORK
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A Light Mellow Ale always up to standard in quality and flavor
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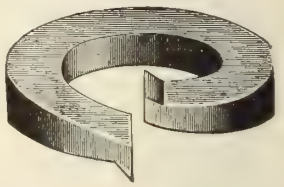
Is the BEST Nut LOCK for all purposes

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Write us if you need a Bond or want an Accident Policy.

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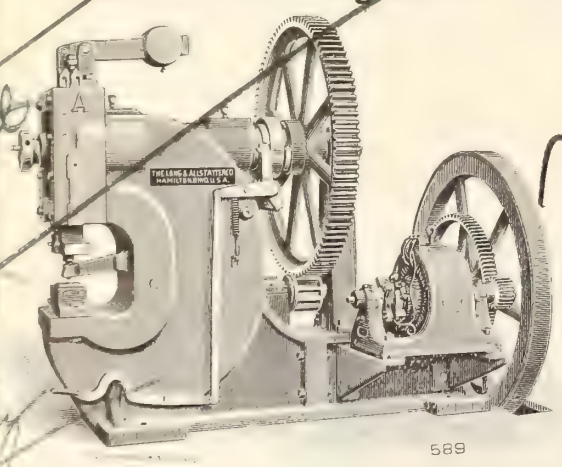
Heavy Motor Driven Punch
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THE LONG and ALLSTATTER CO.
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DIVIDEND NOTICE

Niagara Navigation Company, Ltd.

Notice is hereby given that an interim dividend of four per cent. (being at the rate of eight per cent. for the year) has been declared upon the capital stock of this company, and the same will be payable on the 2nd of July, 1910.

The transfer books will be closed from June 16th to June 30th, 1910, both days inclusive.

By order of the Board,

B. W. FOLGER,
General Manager.

Toronto, June 14th, 1910.

SESSIONS-STANDARD
Friction Draft Gear
Simplest and Best

Both
Made by
Standard Coupler Co.
2 RECTOR STREET NEW YORK

STANDARD STEEL PLATFORMS
Used by all Canadian Railways

vessel with these dimensions: length, between perpendiculars, 199 ft., breadth, molded, 36 ft., 6 ins., depth, moulded, 13 ft., 6 ins.; speed, in working condition with 100 tons of coal and 50 tons of fresh water in feed tanks, eight knots an hour, on a mean draught of about 9 ft. 6 ins. It is required to be of the barge-loading bucket centre ladder type, fitted with chain of 39 buckets of 24 cub. ft. capacity. The hull is to be of steel throughout, built under Lloyds' rules for an A1 steel dredge class, sub-divided into eight water tight compartments, and with accommodation for the crew. The machinery is to consist of two sets of compound surface condensing engines, driving direct on the screw shaftings, and to operate the dredging machinery by gearing, admitting of disconnection, with two boilers of the latest marine cylindrical type for a working pressure of 125 lbs., tested to 250 lbs.; steam hoisting gear and warping winch, 3-ton hand derrick, etc. The engines to have cylinders 18 and 36 ins. diar., by 24 ins. stroke and the boilers to be 12 ft. 9 ins. diar. by 10 ft., with Morrison. or other corrugated furnaces, 3 ft 9 ins., internal diar., with a total heating surface of 2,856 sq. ft. The auxiliary engines for driving the hoisting gear to be of horizontal two cylinder high pressure type with cylinders 13 ins. diar., by 15 ins. stroke. The electric light plant to consist of steam engine, generator, switchboard, searchlight, etc.

The Union Steamship Co.'s s.s. Cheslakee, which was launched at Dublin, Ireland, recently, is intended for coastwise service in British Columbia. She is of the awning deck type and has been built to the highest class of the British Corporation Registry, with dimensions. Length, 132 ft.; breadth moulded, 28 ft.; depth, moulded, to awning deck, 17.9 ft. The machinery, which is being installed at Belfast, consists of triple expansion engines, with cylinders 13½, 22 and 36 in. diar., by 20 in. stroke, supplied with steam by an extra large single-ended boiler. The general equipment includes the usual steam auxiliaries on deck, electric light installation and powerful searchlight, life-saving and fire-extinguishing apparatus, to meet the requirements of both the Canadian and British Board of Trade authorities. Although she is chiefly intended for the passenger trade, there will be a limited capacity reserved for the quick transport of perishable freight.

The Fort George Lumber and Navigation Co., Quesnel, is operating the following vessels, Chilco, captain, J. H. Bonser; chief engineer, J. McInnis. Chillcoten, H. Fraser, captain, —. Ritchie; Quesnel, captain, A. F. Dougherty; chief engineer, S. A. Dean.

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To the Manufacturers of and Dealers in Steam and Electric Railway, Marine, Grain Elevator, Express, Telegraph Telephone and Contractors' Supplies, &c.

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Tate Accumulator Co. of Canada, Toronto

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Air Brakes and Fittings
Allis-Chalmers-Bullock Ltd. ....Montreal
Canadian Westinghouse Co. Hamilton, Ont.

Ales
E. L. Drewry .....Winnipeg.

Alloys
American Vanadium Co....Pittsburg, Pa.

Angle Bars
Hamilton Steel & Iron Co..Hamilton, Ont.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.

Anti Rail Creepers
The Holden Co., Ltd.....Montreal.

Automobiles
Preston Car & Coach Co...Preston, Ont.

Axes
James Smart Mfg. Co.....Brockville, Ont.

Axles
Canadian Car & Foundry Co....Montreal.
Hamilton S. & I. Co., Ltd., Hamilton, Ont.
James Hutton & Co. .....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Jas. W. Pyke & Co.....Montreal.

Beacons
International Marine Signal Co....Ottawa.

Bearings, Side
Canadian Car & Foundry Co....Montreal.
Chicago Railway Equipment Co..Chicago.

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The Hudson's Bay Co. .....

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Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S

Boilers, Portable
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Boilers, Stationary and Marine
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
I. Matheson & Co.....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

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John Inglis Co., Ltd. .....Toronto.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Boilers, Water Tube
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Bolsters
Canadian Car & Foundry Co....Montreal.
Canadian Ry. Equipment Co., Welland, Ont.

Bolts, Bridge
Montreal Rolling Mills Co.....Montreal.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Toronto Bolt and Forging Co....Toronto.

Bolts, Carriage and Machine
Toronto Bolt and Forging Co....Toronto.

Bolts, Track
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Toronto Bolt and Forging Co....Toronto.

Borers, Car Wheel
John Bertram & Sons Co....Dundas, Ont.

Braces, Cross Arm
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.

Brake Beams
Canadian Car & Foundry Co....Montreal.
Chicago Railway Equipment Co..Chicago.

Brake Shoes
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd..Montreal.
The Holden Co., Ltd.....Montreal.

Brake Shoes, Locomotive Driver
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd..Montreal.

Brass and Copper Cloth
The B. Greening Wire Co..Hamilton, Ont.

Brasses, Car
T. McAvity & Sons .....St. John, N.B.

Bridge Numbers
Acton Burrows, Limited .....Toronto.

Bridges
Canadian Bridge Co.....Walkerville, Ont.
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Bronze
American Vanadium Co....Pittsburg, Pa.

Buckets, Coal, Ore and Concrete
M. Beatty & Sons, Ltd....Welland, Ont.
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Canadian Bridge Co.....Walkerville, Ont.
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Russel Wheel & Fdry Co...Detroit, Mich.
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Edgar Allen & Co., Ltd. ..... Montreal.
American Vanadium Co....Pittsburg, Pa.
Canadian Car & Foundry Co....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
John Inglis Co., Ltd. .....Toronto.
Lumen Bearing Co.....West Toronto, Ont.
I. Matheson & Co.....New Glasgow, N.S.
Russel Wheel & Fdry Co...Detroit, Mich.
Standard Steel Works Co..Philadelphia, Pa.

Castings, Brass
Canadian Bronze Co. .....Montreal.
Canada Iron Corporation, Ltd...Montreal.
Kerr Engine Co. .....Walkerville, Ont.
Lumen Bearing Co.....West Toronto, Ont.
I. Matheson & Co.....New Glasgow, N.S.
Tallman Brass & Metal Co., Ltd.Hamilton.

Castings, Car
Edgar Allen & Co., Ltd. ..... Montreal.
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd...Montreal.
Russel Wheel & Fdry.. Co..Detroit, Mich.

Castings, Iron
Allis-Chalmers-Bullock Ltd. ....Montreal.
Canada Iron Corporation, Ltd...Montreal.
Kerr Engine Co.....Walkerville, Ont.
Russel Wheel & Fdry.. Co..Detroit, Mich.

Castings, Iron and Steel
Edgar Allen & Co., Ltd. ..... Montreal.
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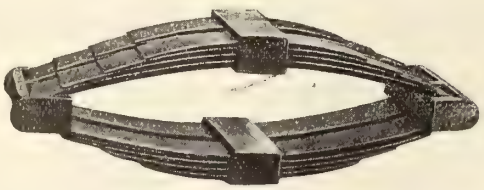

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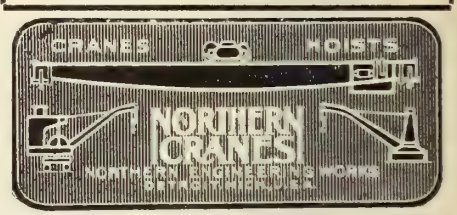

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Kerr Engine Co. .....Walkerville, Ont.
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Valves, Iron Gate.
Kerr Engine Co. .....Walkerville, Ont.
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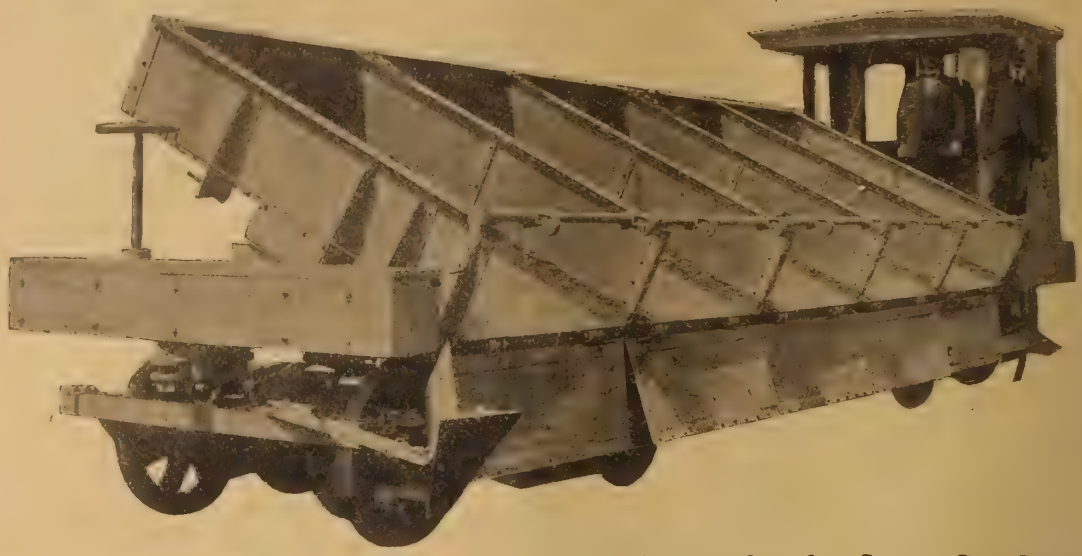

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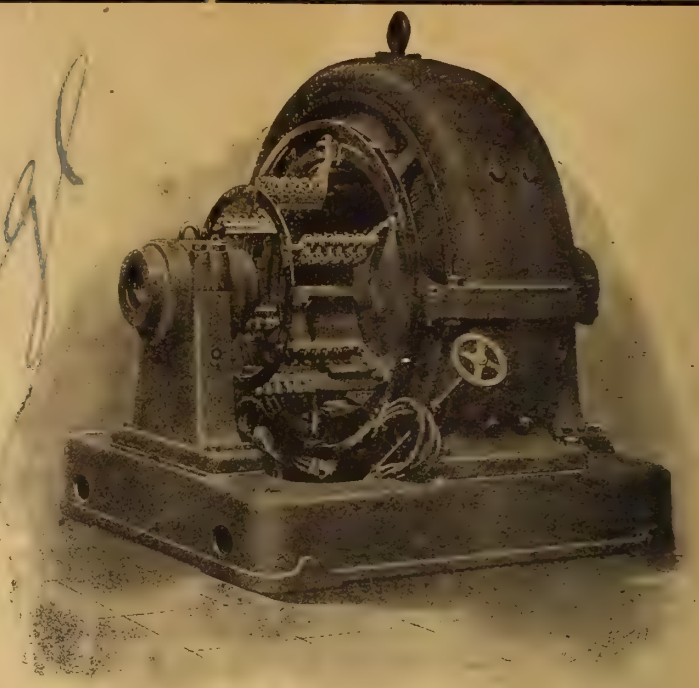

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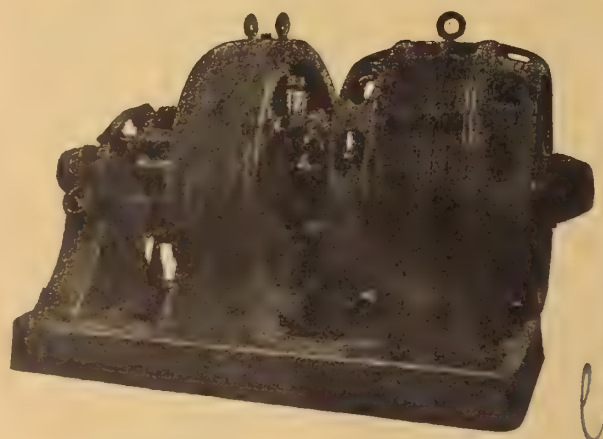

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TORONTO, CANADA, AUGUST, 1910.

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Improvements in Locomotive Boilers.

By H. H. Vaughan, Assistant to the Vice President Canadian Pacific Ry.

A. Boilers with smoke tubes; precautions in constructing and maintaining tubes and tube plates.

THE TYPE OF BOILER generally used in Canada is that with a round top fire-box of what is termed the extended wagon top style, in which the diameter of the circular portion of the fire box and the rear portion of the barrel is larger than that of the front portion of the boiler. Usually the course of the boiler next the fire-box and the front course of the boiler are both cylindrical in form, joined together by a middle taper course. The dome is usually placed on the course next the fire box.

Representative examples of this type of boiler are illustrated in fig. 1, showing a boiler used on the Lake Shore and Michigan Southern Ry., and fig. 2, showing a boiler used on the Union Pacific Rd. They may be regarded as good examples of recent boiler designs in Canada and the U.S. A few of the largest administrations, such as the Pennsylvania Lines including allied roads, and the Great Northern, are using the Belpaire fire-box, while others, such as the Illinois Central and Canadian Pacific Railways, have used the Belpaire more or less extensively, but in each case the latest engines have been equipped with round top boilers.

Examples of recent design in Belpaire boilers are shown in fig. 3, illustrating a boiler used on the Pennsylvania Rd., and fig. 4 showing one used on the C.P.R. These drawings also show a boiler barrel of the tapered form illustrated in the two examples of round top fire-box boilers. This form of barrel is not, however, in universal use, as several roads are using barrels of the parallel or straight top type, the courses usually being rolled cylindrically, and varying in diameter by the thickness of the plates alone. The type of barrel used is largely determined by the conditions governing the permissible weight of the boiler, but, with the same limitations as to the water space around the sides of the fire-box, the number of flues that may be placed in a boiler is limited by the diameter of the boiler at the fire-box end, and it is possible for the diameter of the boiler at the front end to be somewhat smaller without affecting this number. A lighter boiler with the same amount of heating surface can thus be obtained than is possible where a parallel form of barrel is used.

On roads on which the weight of the engine is limited by the weight per axle, the additional weight entailed at the front end of the engine by the use of a straight or parallel barrel, makes but little difference, but, where the weight of the engine is limited by the strength of the bridges over which it has to run, which is usually the case, the tapered boiler barrel has enabled the weight of a boiler with a given heating surface to be somewhat reduced, and it is consequently in general use. This question has also been affected by the tendency to increase the distance between the flues, and the amount of water space between the inner and outer fire box sheets at the sides. The latter, especially, has been an important factor in the more extended use of the tapered barrel, as with a small water space the saving in weight obtained by reducing the diameter of the barrel at the front end would not be as great as is the case with the wider spacing in recent use.

P209 Guy Tombs

General Freight and Passenger Agent Canadian Northern Quebec Ry., and Quebec and Lake St. John Ry.

The extensive use of the round top fire-box is explained by the results obtained from it being on the whole, satisfactory. The Belpaire form of box has no doubt an advantage in the fact that the stresses in the various plates and stays can be accurately determined by calculation, whereas in the round top boiler, especially one of the radial stayed type, these stresses cannot be determined with the same degree of accuracy. The service, however, of many thousands of round top boilers has fully demonstrated the safety of this type when properly constructed and maintained, and has proved the correctness of the calculations by which their strength is determined. The Belpaire fire-box is somewhat more expensive to construct than the round top, and adds a certain amount to the weight of the boiler without a corresponding increase in the heating surface; hence the largely preponderating use of the simpler round top type. Although the round top type has proven entirely safe and somewhat cheaper to construct than the Belpaire, it is open to question whether its extensive adoption is justified from the standpoint of cost of maintenance.

The Belpaire fire-box has given a certain amount of trouble not found in the other type by the cracking of the throat sheet in the O. G. shaped portion between the upper corners of the fire-box and the boiler barrel. The cause of this is not entirely plain, but it is possibly due to the connection between the fire-box and the barrel of the boiler, in the ordinary type of Belpaire, being rigid only at the points where the straight or curved sides and top of the fire-box joint directly to the barrel. This weakness has been remedied in the design shown in fig. 3, in which it will be noticed that the sides of the fire-box are curved to conform to the shape of the barrel for a considerable distance, and fig. 4, in which the same arrangement has been extended to both top and sides, so that the connection at this point has been considerably strengthened, and experience shows that this difficulty has been to a large extent overcome.

With this exception the maintenance of Belpaire fire-boxes has been less than that on round top types, on account of the more equal distribution of the stresses. In the round top radial stayed type the staybolts at the upper corners of the inside firebox are required to transmit a considerable strain in a horizontal direction through the crown sheet, in order to prevent the outer fire-box sheet from moving outward on account of the pressure in the boiler, and in fact there is little doubt that a certain amount of movement outwards occurs. This has lead to a considerable breakage of staybolts along the upper rows of the fire-box, and consequently to the introduction of staybolts of a flexible type which can accommodate themselves more freely to the relative movement of the inner and outer fire-box sheets. There is little doubt, from the experience obtained on

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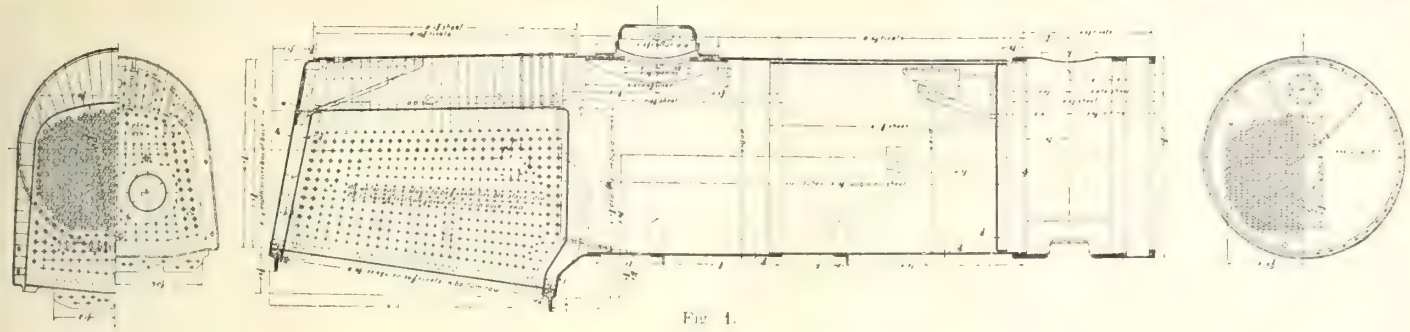
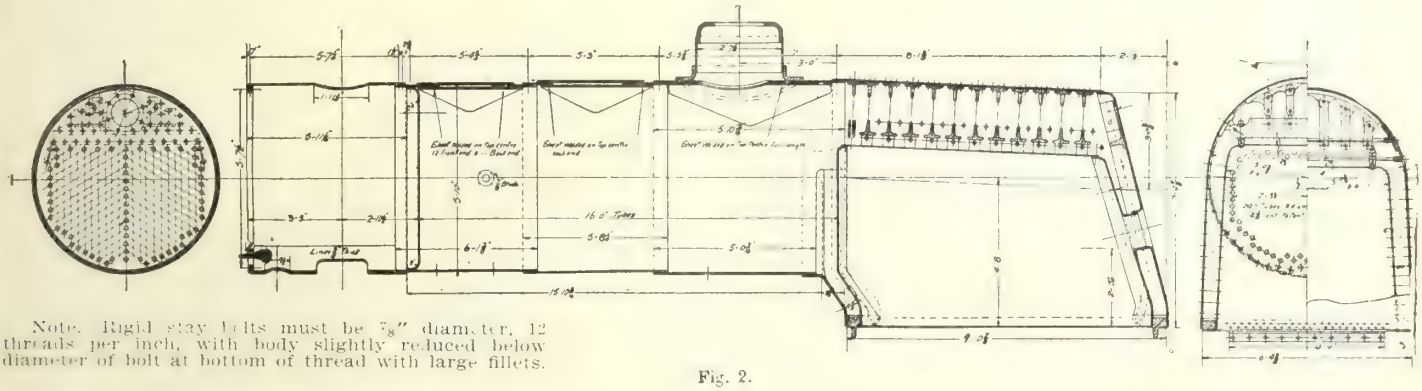


Fig. 1.



Note. Rigid stay bolts must be $\frac{7}{8}$" diameter, 12 threads per inch, with body slightly reduced below diameter of bolt at bottom of thread with large fillets.

Fig. 2.

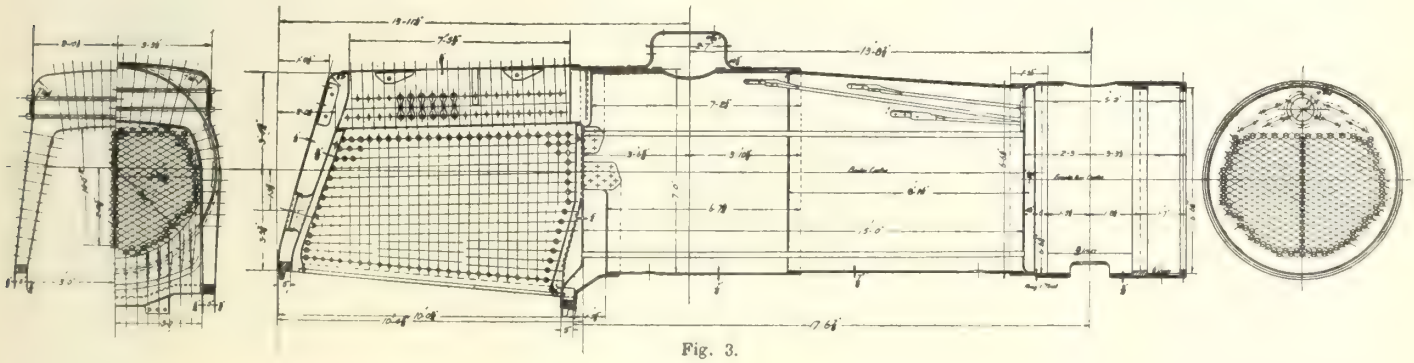


Fig. 3.

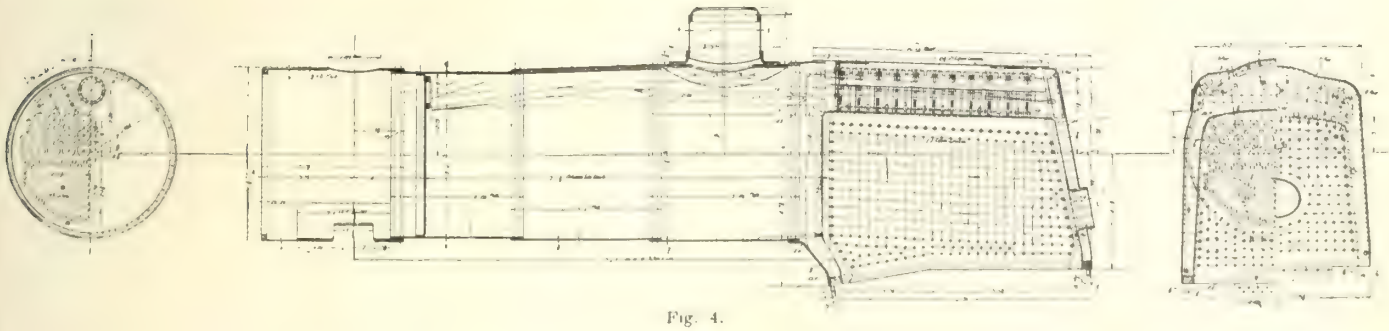


Fig. 4.

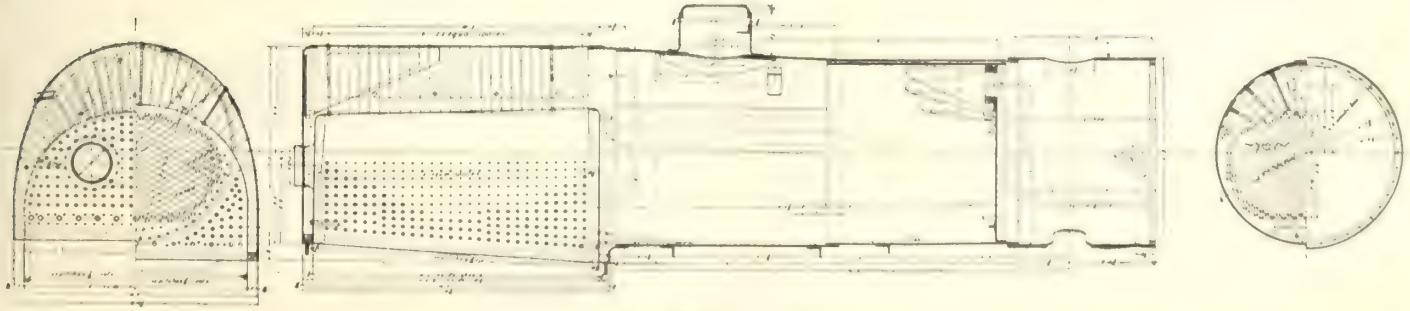
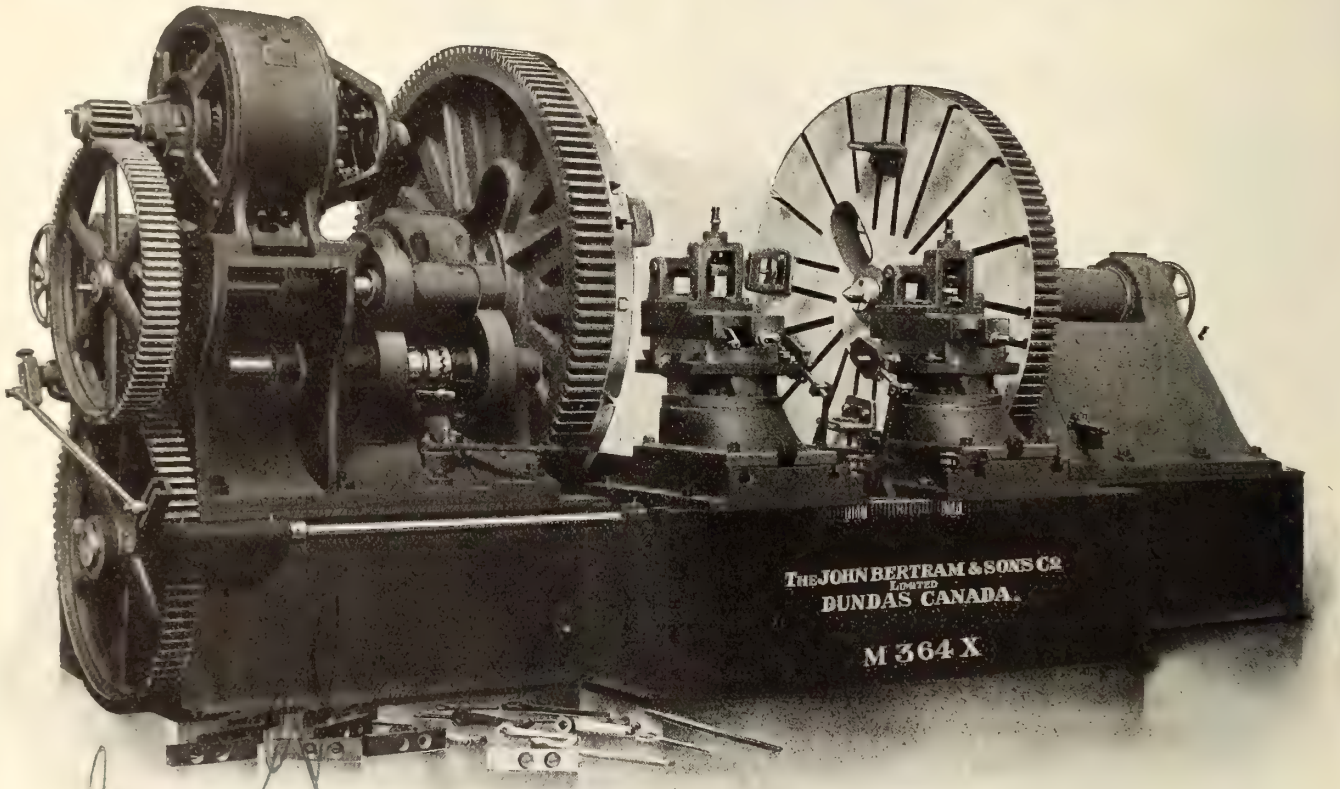


Fig. 5.

BERTRAM RAILWAY TOOLS



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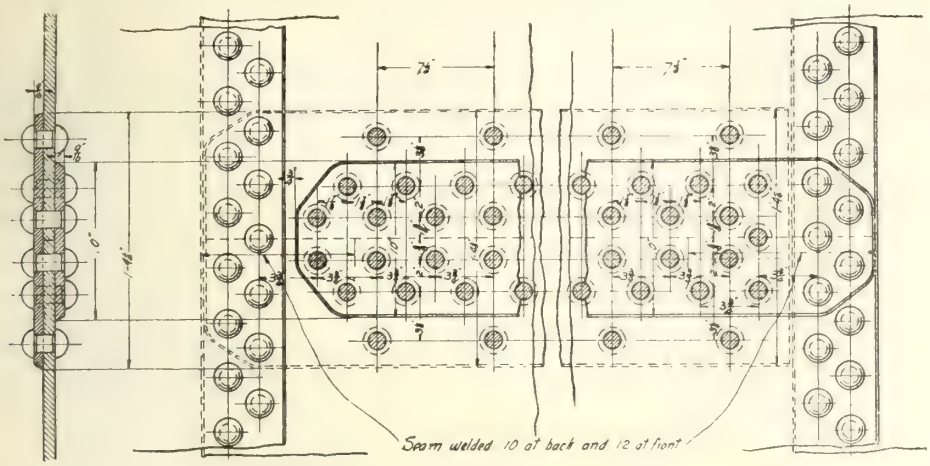


Fig. 6. 1⅛-in. rivets; 1 3-16 in. holes.

a large number of engines, that the Belpaire boiler, especially in bad water districts, is more free from breakage of staybolts than the round top boiler, and there is a certain amount of evidence to show that better service is also obtained from the inner fire-box sheets. While therefore the common use of the round top fire-box is justified from the point of view of first cost and safety, the

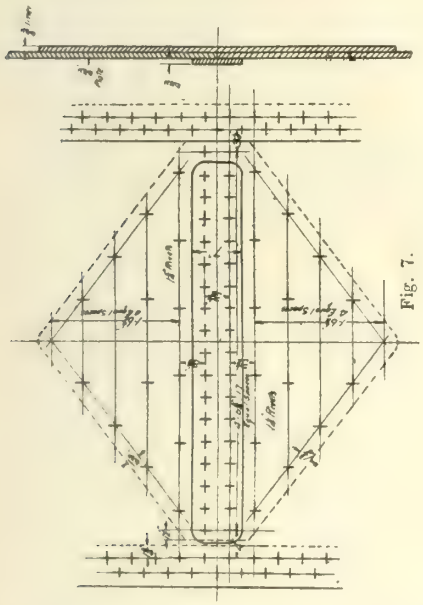


Fig. 7.

use of the Belpaire fire-box may also be justified, at any rate, on districts where the water is of poor quality, from the point of view of the lower cost of maintenance.

The boilers illustrated in figures 1, 2, 3, and 4, have the usual type of fire-box employed for bituminous coal on large modern engines. This fire-box is from 5 to 6 ft. wide, and extends over the frames, and, excepting on engines on which the fire-box is placed back of the driving wheels, over the driving wheels.

The grate area varies with the size of the boiler, but is usually from 45 to 50 square feet. Where anthracite coal is used the Wooten type of fire-box is generally employed, and fig. 5 shows a boiler recently built by the Central Rd. of New Jersey. This design of boiler affords a large area of grate surface and admits of small grades of anthracite coal being burnt at the rate necessary for locomotive service. The fire-box of these boilers is radially stayed, and owing to its form, a certain amount of difficulty has been experienced with the breakage of staybolts, and flexible bolts are therefore employed quite largely in its construction.

BOILER SEAMS.—The longitudinal boiler seam in general use is shown in fig. 6. It is of the triple rivetted butt joint design with inner and outer welt plates, the outer welt plate being narrower than the inner. This joint has a calculated efficiency of about 85% and has proven satisfactory, especially with respect to the avoidance of the grooving which occurs in boiler plates along the edges of the welt plates. A number of administrations have adopted the practice of welding the boiler plates together for 9 ins. at the end of each seam. This practice has been introduced to avoid the necessity for caulking or plugging the ends of the seam between the boiler plates themselves, which project beyond the ends of the outer welt plate and enables the seam to be made perfectly tight by caulking the edges of the outer welt plate and the rivet heads on the outside of the seam. The administrations using this practice report it as satisfactory and while it is not universal it is becoming general.

The seam shown in fig. 7, which is known as the diamond pattern of seam, is used by some administrations. This seam has an exceedingly high efficiency, about 95%, but owing to its being a patented seam it is not in general use. The circumferential seam which is in universal use is a double rivetted lap seam as shown in fig. 8, and this seam is also used for the joints between the throat sheet and the barrel, and the outside fire-box sheet and the back sheet of the boiler.

MUD RINGS are almost universally double rivetted, two administrations in the U.S. and one in South America alone reporting a preference for single rivetting, and in those cases additional rivetting is shown at the fire-box corners. The usual practice is shown in fig. 9, which shows a double rivetted mud ring corner, in which a portion of the fastenings of the outside sheet to the mud ring is provided by means of tap bolts, the remaining fastenings being by rivets through both inside and outside fire-box sheets. This design is used by the majority of administrations replying, but a few employ the design shown in fig. 10, in which the fastenings at the corner are entirely tap bolts, the through rivets being omitted. One administration prefers the design shown in fig. 11, in which the fire-box corners are triple rivetted, the remainder of the rivetting through mud ring being of the ordinary double rivetted style. There is no doubt that a certain amount of difficulty is experienced in obtaining a permanently

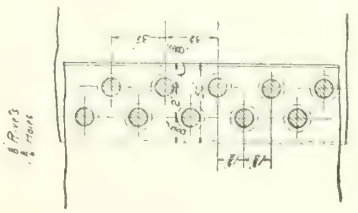
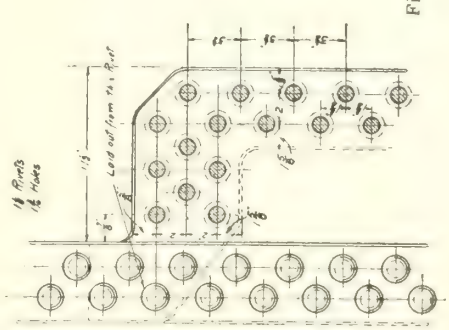


Fig. 8.



steam-tight joint at the front corners of the fire-box, and the triple rivetted design shown assists in overcoming this difficulty, on account of the short length of rivets used at that point.

BOILER DOMES.—The connection between the dome and the boiler barrel in universal use is shown in figs. 1 and 4, and consists of a heavy flanged collar on the outside of the boiler and a reinforcing plate on the inside. This connection has proven entirely satisfactory

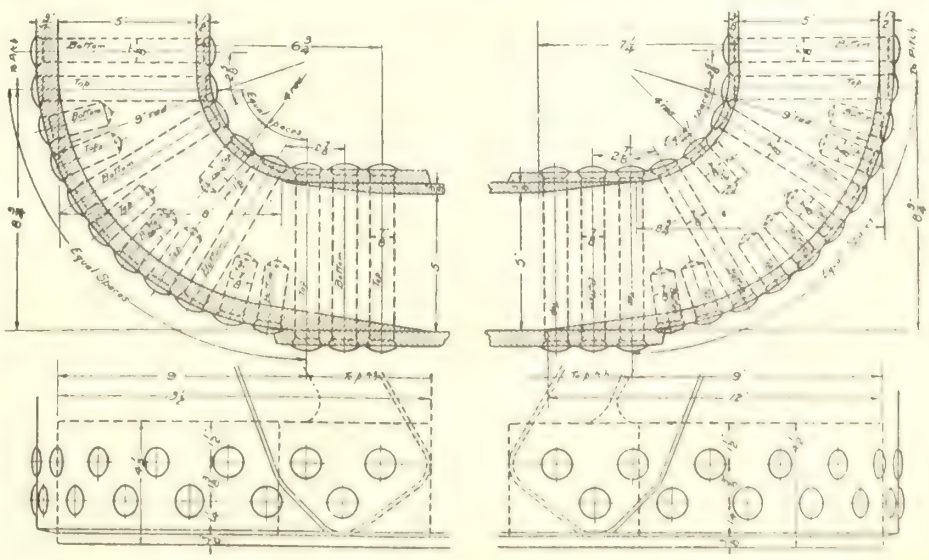


Fig. 9.

Labour-Saving Machine Tools

MANUFACTURED BY: ALFRED HERBERT. LTD., COVENTRY ENG.

The

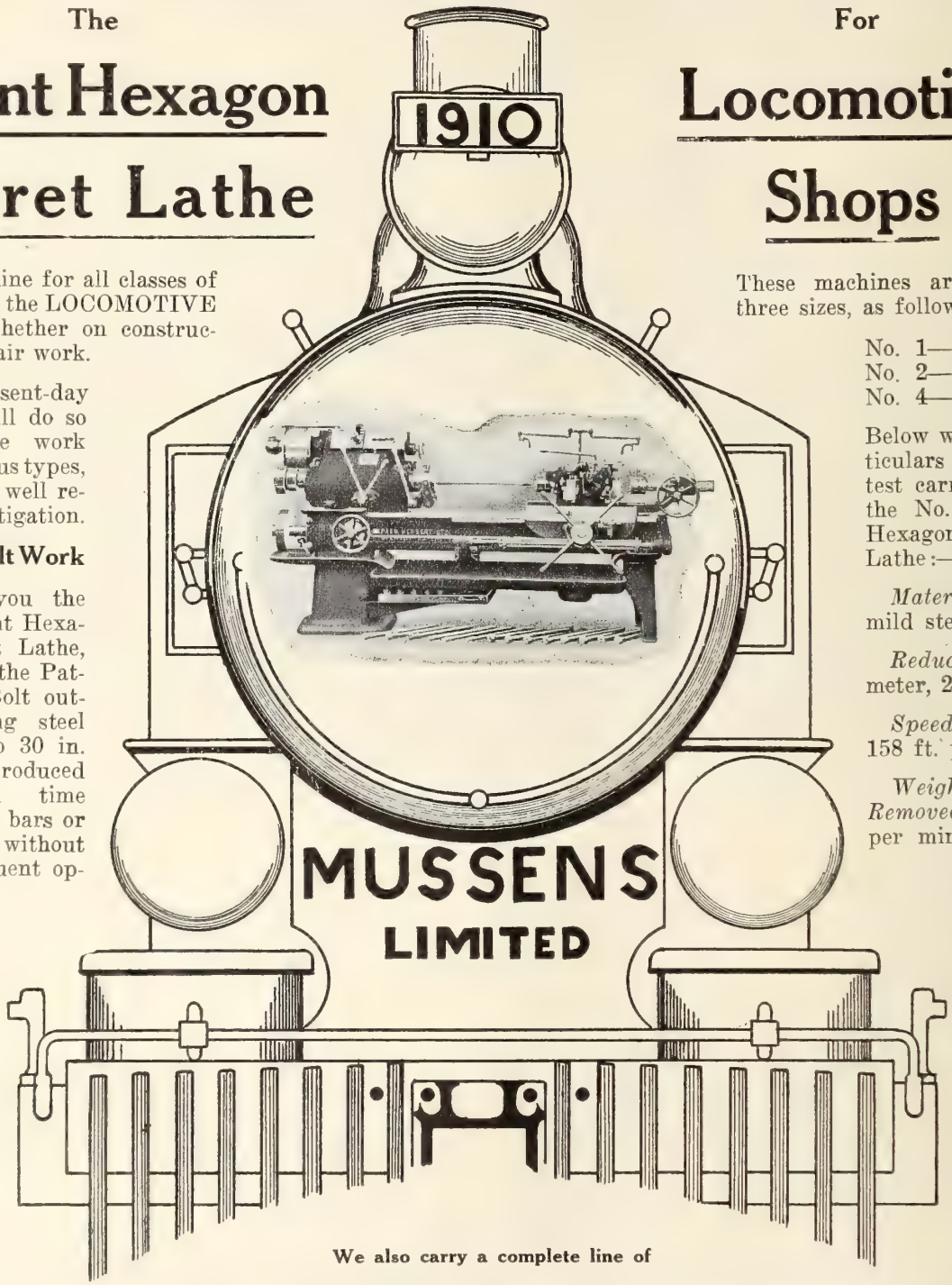
Patent Hexagon Turret Lathe

is the machine for all classes of bar work in the LOCOMOTIVE SHOPS, whether on construction or repair work.

The present-day machine will do so much more work than previous types, that it will well repay investigation.

On Stay Bolt Work

we offer you the No. 2 Patent Hexagon Turret Lathe, fitted with the Patent Stay Bolt outfit, enabling steel stays up to 30 in. long to be produced in record time either from bars or forgings without any subsequent operations.



For

Locomotive Shops

These machines are built in three sizes, as follows:

No. 1—1½" x 21"
No. 2—2¼" x 30"
No. 4—3½" x 42"

Below we give particulars of a recent test carried out on the No. 2 Patent Hexagon Turret Lathe:—

Material—30-ton mild steel.

Reduction in diameter, 2" to ¾".

Speed of Work—158 ft. per minute.

Weight of Metal Removed—7¾ lbs. per minute.

FULL PARTICULARS FREE ON REQUEST

We will be pleased to give a guarantee of output on receipt of samples or sketches

We also carry a complete line of

Machine Tools and High-Speed Steel

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COBALT	TORONTO	WINNIPEG	CALGARY	VANCOUVER
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and has practically superseded all other designs. The dome barrel is rivetted into this collar and to the top flange. This is usually of pressed steel, although cast steel is occasionally used. In some cases the plate forming the body of the dome is welded in place of being rivetted, and the administrations using this practice report satisfactory results. A modification which varies slightly from this design is shown in the drawing of the boiler used by the Pennsylvania Rd, fig. 3. In this case the entire dome is of pressed steel, the collar joining the dome to the boiler barrel and the flange at the top being in one piece. While this design is evidently exceedingly satisfactory, it is not in general favor with locomotive builders who are constructing engines for a number of different roads. and to whom the built up design of dome is preferable on account of their being able to use the same flange blocks for varying heights of domes without expensive alterations.

A further instalment of this valuable and interesting paper, which was written by Mr. Vaughan for presentation at the International Railway Congress Association's meeting at Berne, Switzerland, in July, will be published in our next issue.

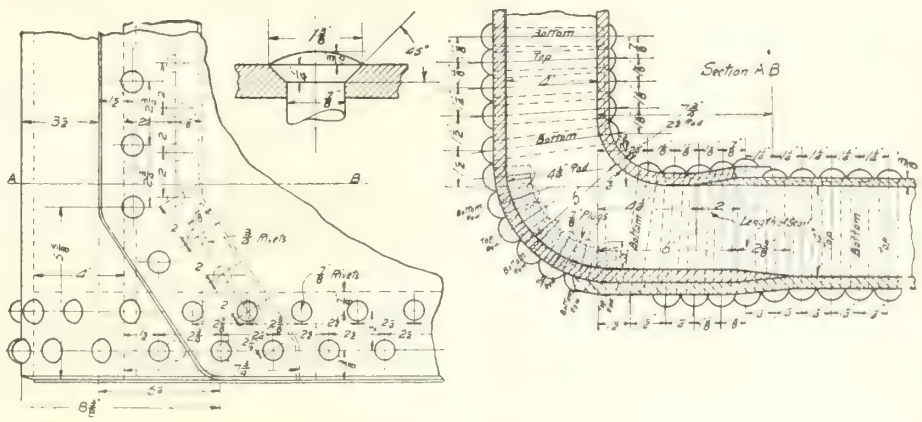


Fig. 10.

August Birthdays.

Many happy returns of the day to—

W. E. Bishop, Manager Hamilton Steamboat Co., Hamilton, Ont., born at Brantford, Ont., Aug. 10, 1868.

J. F. Chapman, General Freight and Passenger Agent Bay of Quinte Ry., Thousand Islands Ry., Oshawa Ry., and Deseronto Navigation Co., Deseronto, Ont., born at Frankford, Hastings Co., Ont., Aug. 25, 1863.

C. H. N. Connell, Engineer of Maintenance of Way Canadian Northern Quebec, and Quebec and Lake St. John Rys., Quebec, born at Woodstock, N.B., Aug. 26, 1876.

F. Barlow Cumberland, Vice President Niagara Navigation Co., Port Hope, Ont., born at Portsmouth, Eng., Aug 5, 1846.

C. D. Fisher, Superintendent District 3 Canadian Northern Ry., Dauphin, Man., born at Athens, Ont., Aug. 24, 1867.

G. H. Ham, head office staff C.P.R., Montreal, born at Trenton, Ont., Aug. 23, 1847.

W. P. Hinton, General Passenger Agent G.T.P.R., Winnipeg, born at Hintonburg, Ont., Aug. 30, 1871.

R. Kerr, Passenger Traffic Manager C.P.R., Montreal, born at Toronto, Aug., 1845.

J. D. McDonald, District Passenger Agent G.T.R., Toronto, born there Aug. 27, 1855.

T. McHattie, Superintendent of Motive Power and Car Department Central Vermont Ry., St. Albans, Vt., born at Dufftown, Banffshire, Scotland, Aug. 8, 1854.

C. Montgomery, Assistant Master Mechanic Pere Marquette Rd., St. Thomas, Ont., born near London, Ont., Aug. 29, 1860.

W. E. Mullins, General Manager Costa Rica Rd., and Northern Rd. of Costa Rica, San Jose, born at Stratford, Ont., Aug. 13, 1870.

F. H. Phippen, K.C., General Counsel C.N.R., Toronto, born at Belleville, Ont., Aug. 26, 1862.

W. M. Porteous, Freight Agent C.P.R., St. Louis, Mo., born at Edinburgh, Scotland, Aug. 3, 1857.

J. F. Richardson, Superintendent Telegraph Eastern Division C.P.R., Montreal, born at Granby, Que., Aug. 23, 1861.

W. G. Ross, Managing Director Montreal St. Ry., Montreal, born there, Aug. 6, 1873.

W. Le B. Ross, Local Treasurer G.T. Pacific Ry., Winnipeg, born at Ottawa, Ont., Aug. 9, 1868.

F. C. Salter, European Traffic Manager G.T.R., and Canadian Ex. Co., London, Eng., born at Sarnia, Ont., Aug. 31, 1863.

C. R. Scoles, General Manager Atlantic and Lake Superior Ry., New Carlisle, Que., born at Grantham, Lincoln, Eng., Aug. 27, 1856.

W. Stitt, General Passenger Agent C.P.R. Eastern Lines, Montreal, born in Kircudbrightshire, Scotland, Aug. 3, 1855.

J. F. Sweeting, Industrial Agent C.P.R. Western Lines, Winnipeg, born at Worthing, Eng., Aug. 20, 1872.

W. F. Taylor, General Storekeeper I.C.R., Moncton, N.B., born at Hillsboro, N.B., Aug. 20, 1855.

W. B. Way, Assistant Superintendent C.P.R., Chapleau, Ont., born at Bowmanville, Ont., Aug. 22, 1867.

Correction.—The birthday of Geo. Collins, General Manager Central Ontario Ry., Trenton, Ont., was incorrectly stated in our last issue. He was born at Kingston, Ont., July 20, 1860.

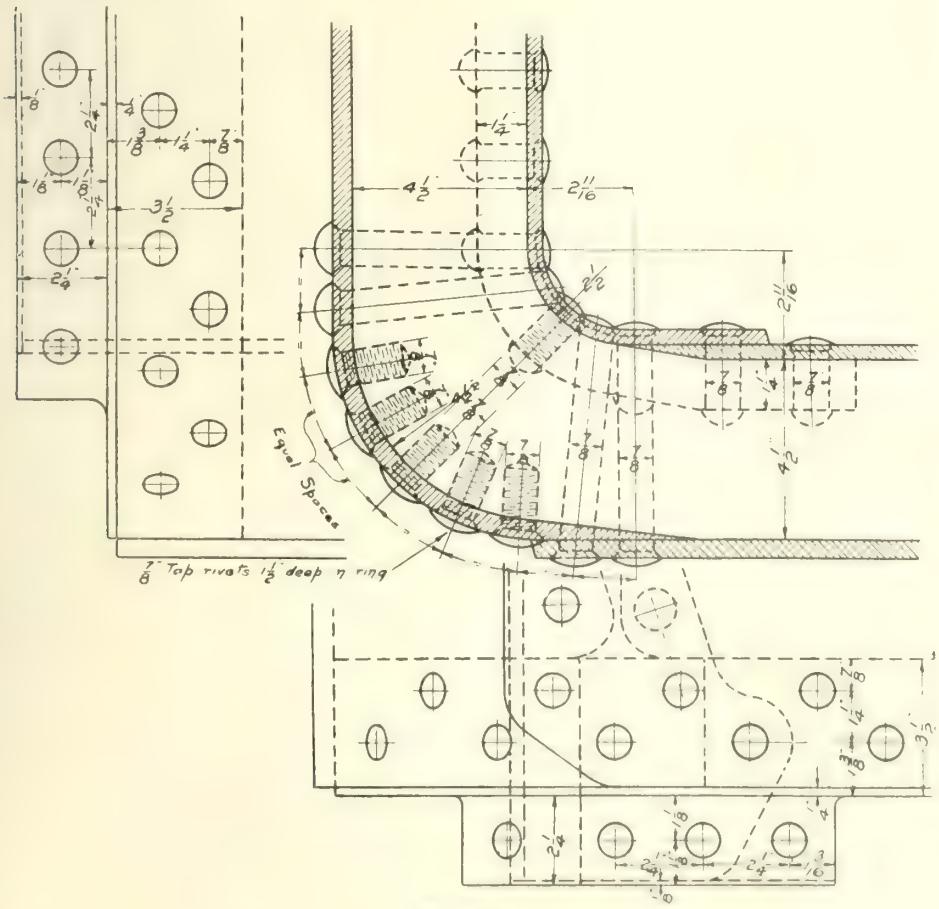


Fig. 11.

Intercolonial Ry. Branch Lines.—During his recent trip to the Maritime provinces, from which he returned to Ottawa, July 4, the Deputy Minister of Railways inspected a number of the branch lines which it is proposed to take over under the provisions of the act passed last year. The lines inspected were the Caraquet Ry., and its extension the Gulf Shore Ry.; the Kent Northern Ry.; the Hampton and St. Martins Ry.; the Elgin and Havelock Ry.; the Buctouche and Moncton Ry.; the Cumberland Ry. and Coal Co.'s line, and the Cape Breton Ry. The information collected is being considered by the members of the Government Railways Managing Board, and a report with recommendations will be prepared.

A. R. Creelman, K.C., General Counsel C.P.R., sailed from Quebec early in July for England, accompanied by his two daughters and Miss Helen McNicoll.

Galena-Signal Oil Company

Franklin, Pa., and Toronto, Ont.

Sole manufacturers of the celebrated GALENA COACH, ENGINE and CAR OILS, and SIBLEY'S PERFECTION VALVE and SIGNAL OILS.

GUARANTEE COST per thousand miles for from one to five years, when conditions warrant it.

Maintain EXPERT DEPARTMENT, which is an organization of skilled railway mechanics of wide and varied experience. Services of Experts furnished free of charge to patrons interested in the economical use of oils.

STREET RAILWAY LUBRICATION A SPECIALTY

Galena Railway Safety Oil

Made especially for use in Headlights, Cab, Classification and Tail-lights, and for Switch and Semaphore Lamps. Burns equally well with the long time as with the one day burner, with or without chimney, as the burner requires.

Is pure water white in color; high fire test; low cold test, and splendid gravity.

Please write to home office for further particulars.

CHARLES MILLER,

PRESIDENT

Canadian Northern Ry. Earnings, Etc.

Gross earnings, working expenses, net profits, increases or decreases from 1908-09, from July 1, 1909:

	Earnings.	Expenses.	Net Earnings.	Net Increase or Decrease.
July	$ 843,500	$613,900	$229,600	$ 26,700+
Aug.	807,100	602,700	204,400	18,300+
Sept.	1,076,800	765,300	311,500	60,400+
Oct.	1,384,200	903,500	480,700	60,600+
Nov.	1,517,600	970,100	547,500	134,000+
Dec.	1.160,300	825,900	334,400	49,300+
Jan.	792,200	669,700	122.500	22,200+
Feb.	698,900	567,400	131,500	35,100+
Mar.	934,100	661,800	272,300	67,800+
Apr.	1,153,100	821,900	331,200	107,300+
May	1,224,900	856,300	368,600	185,700+
	$11,592,600	$8,258,500	$3,334,100	$771,200+
Inc.	$ 2,728,700	$1,957,500	$771,200	.....

Approximate gross earnings for June. $1,228,600, and for two weeks ended July 14, $586,700, against $805,000 and $370,500 for same periods 1909.

C.P.R. Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits, increases or decreases over 1908-9, from July 1, 1909:

	Earnings.	Expenses.	Net Profits.	Net Increase or Decrease
July	7,140,029.93	4,660,159.20	2,479,870.73	205,297.48+
Aug.	7,426,984.62	4,462,926.75	2,964,057.87	385,159.16+
Sept.	8,323,178.03	4,891,288.86	3,431,889.17	1,317,281.40+
Oct.	9,744,596.87	5,358,299.68	4,386,297.19	1,731,030.48+
Nov.	9,075,963.93	5,383,625.98	3,692,337.95	1,471,258.60+
Dec.	8,214,758.04	5,099,334.94	3,115,423.10	918,671.53+
Jan.	6,104,426.90	4,787,830.51	1,316,596.39	926,846.56+
Feb.	5,992,052.14	4,505,032.90	1,487,019.24	724,874.46+
Mar.	7,796.337.54	5,085,164.15	2,711,173.39	907,465.26+
Apr.	7,985,230.21	5,004,119.08	2,981,111.13	837,603.61+
May	8,378,114.62	5,821,850.47	2,556,264.15	629,403.66+
	$86,181,672,83	$55,059,632.52	$31,122,040.31	$10,054,892.20+
Inc.	$16,418,505.55	$6,363,613.35	$10,054,892.20	.....

Approximate gross earnings for June, $8,404,000, and for two weeks ended July 14, $3,950,000, against $6,354,000 and $3.232,000 for same periods 1909.

DULUTH, SOUTH SHORE AND ATLANTIC RY.—Operating revenue for May, $298,112.11; expenses $223,999.76; net revenue $74,112.35, against $246,847.24 operating revenue; $177,-066.90 expenses; $69,780.34 net revenue for May, 1909. Aggregate operating revenue for 11 months ended May 31, $2,999,166.48; expenses $2,065,618.67; net revenue $933,547.81, against $2,449,854.05 aggregate operating revenue; $1,774,649.66 expenses; $675,204.39 net revenue for same period 1908-09. Approximate gross earnings for June, $301,887, and for two weeks ended July 14, $132,889, against $280,151 and $131,771 for same periods 1909.

MINERAL RANGE RD.—Operating revenue for May, $63,899.54; expenses $66,424.64; deficit $2,525.10, against $66,119.32 operating revenue; $61,464.71 expenses; $4,654.61 net revenue for May, 1909. Aggregate operating revenue for 11 months ended May 31, $763,762.09; expenses $680,973.68; net revenue $82,788.41, against $755,806.46 aggregate operating revenue; $635,-909.21 expenses; $119,897.25 net revenue for same period 1908-09. Approximate gross earnings for June, $65,278, and for two weeks ended July 14, $24,471, against $66,026 and $31,441 for same periods 1909.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RY.—Operating revenue for May, $1,196,049.50; expenses and taxes $794,406.03; operating income $401,643.47, against $987,063.73 operating revenue; $702,234.84 expenses and taxes; $284,-828.89 operating income for May, 1909. Aggregate operating revenue for 11 months ended May 31, $14,068,812.18; expenses and taxes $8,175.472.02; operating income $5,893,340.16, against $11,536,672.70 aggregate operating revenue; $7,301,110.60 expenses and taxes; $4,235,-562.10 operating income for same period 1908-09. Approximate earnings for June, $1,926.866, and for two weeks ended July 14. $902,191, against $1,636,189 and $798,037 for same periods 1909.

CHICAGO DIVISION.—Operating revenue for May, $798,060.82; expenses and taxes $566,774.84; operating income $231,285.98, against $611,-977.76 operating revenue; $476,571.01 expenses and taxes; $135,406.75 operating income for May, 1909. Aggregate operating revenue for 11 months ended May 31, $8,132,662.84; expenses and taxes $5,680,835.93; operating income $2,451,826.91, against $6,902,391.73 aggregate operating revenue; $5,012,404.50 expenses and taxes; $1,889,987.23 operating income for same period 1908-09.

Grand Trunk Ry. Earnings, Expenses, Etc.

The following figures show the earnings of the G.T.R., C.A.R., G.T. Western Ry., and D.G.H. and M. Ry., separately, for Apr., as compared with Apr., 1909:—

	1910.	1909.
GRAND TRUNK RAILWAY.		
Earnings	$2,856,200	$2,481,600
Expenses	1,827,600	1,554,700
Net earnings	$1,028,600	$926,900
CANADA ATLANTIC RAILWAY.		
Earnings	$176,600	$154,600
Expenses	157,500	135,900
Net earnings	$19,100	$18,700
GRAND TRUNK WESTERN RAILWAY.		
Earnings	$533,000	$461,300
Expenses	445,100	331,100
Net earnings	$87,900	$130,200
DETROIT, GRAND HAVEN AND MILWAUKEE RY..		
Earnings	$165,900	$142,200
Expenses	151,600	114,300
Net earnings	$14,300	$27,900

TRAFFIC RECEIPTS OF THE SYSTEM.

Aggregate from Jan. 1 to June 30:	1910.	1909.	Inc.
Grand Trunk	£3,318,809	£2,864,776	£454,033
Canada Atlantic.	194,243	166,093	28,150
G. T. Western..	642,384	553,860	88,524
D.G.H. & M.	195,843	160,325	35,518
Totals	£4,351,279	£3,745,054	£606,225

Approximate gross earnings for June, $3.965,-062, and for two weeks ended July 14, $1,800,-407, against $3,465,054 and $1,558,155 for same periods 1909.

A Railway to Hudson Bay.

We are officially advised that the bridge which is to be erected across the Saskatchewan River at Le Pas, Sask., will be of the through Pratt truss type. consisting of four fixed spans of 147 ft. each, and one swing span of 262 ft. It is designed to comply with the Dominion Government specifications for heavy class loading, and provision is also made for carrying a highway on cantilever brackets. The abutments and piers are to be of concrete. The depth of water in the river at the point of crossing is about 20 ft. at low water level, with a flood rise of 20 ft. above that level. The river bottom is of boulders and clay.

An Ottawa dispatch, July 6, says a contract has been given for the superstructure and that the work will be completed this year, in order that work may be started on the railway in the spring.

Reports reaching Ottawa July 12, from the survey parties in the field state that a line with a maximum gradient of 0.4% has been located, which is rather better than it was thought would be obtained. The new route is to the south of Nelson River, which will obviate the construction of a bridge across it. The further reports also strongly favor the settlement of Port Nelson as the terminal on Hudson Bay, but this will not be finally decided upon until after the return of the hydrographic survey parties. These left Halifax July 2 on board the s.s Halifax, and on the schooner Chrissie G. Thomey, which sailed about a week previously. The Stanley will pick the schooner up and tow her to the Nelson River, in the vicinity of which she will cruise during the summer, while the Stanley will return to Fort Churchill, and make surveys in the deeper channels. (July, pg. 535.)

Quebec Railway Acts.—The acts of the Province of Quebec, relating to railways, the taxes payable by railway companies, and to the repayments of railway subsidies, taken from the Revised Statutes of Quebec, 1909, with a table showing the subsidies of all kinds which have been granted and paid on account of provincial railways, have been printed in both English and French in the same volume, having been compiled by J. A. Lefebvre, Secretary of the Railway Branch of the Department of Public Works and Labor, Quebec. The book is for sale by the compiler at $2.

A Graphical Record for Road Tests.

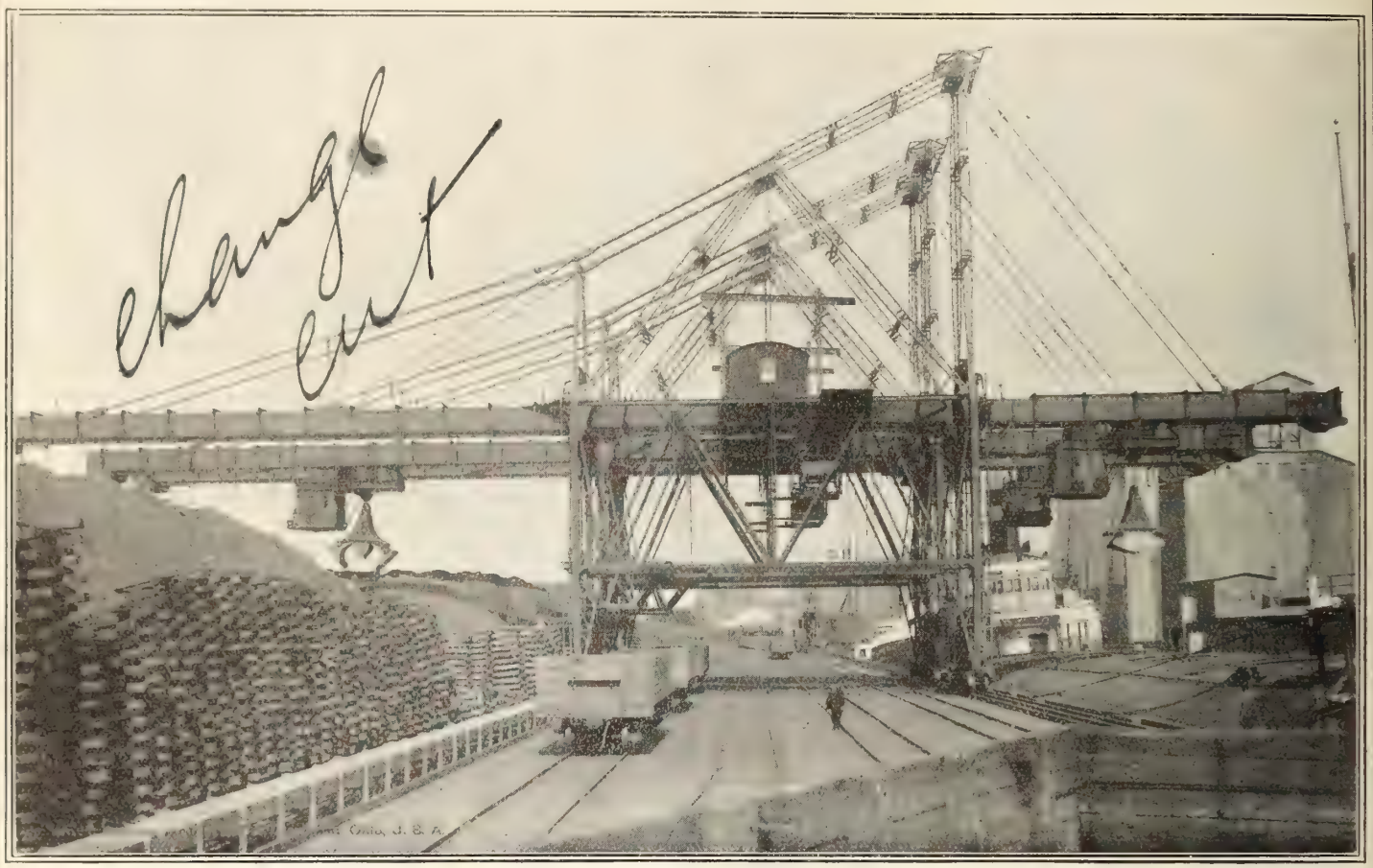
By G. I. Evans, Chief Draftsman, Locomotive Department, C.P.R., Montreal.

A great many railways, from time to time, test some of the numerous devices put on the market for use on locomotives and cars. Such devices are generally not amenable to laboratory tests, and must be put into actual service before any idea can be obtained as to their usefulness, and, as one or more may be applied on different locomotives running on different divisions of a railway, and may be in service any length of time from one to 12 months or more, and, as results are noted and reported by master mechanics and other operating officials, considerable correspondence accumulates before any definite conclusions may be arrived at.

Given a sufficient number of such tests, a man will spend much more of his time than he can spare in wading through files of correspondence, trying to get an idea how matters stand, and having just this condition, the writer some time ago devised the combined record and chart which is shown on page 619, as a convenient way for following up road tests. The record is kept on letter size cards (8½ in. by 10¼ in.) outlined as shown, and printed on both sides. These cards are filed apart from the correspondence, consecutively, in a vertical file, and as they take up but small space, a large number can be retained in the file, forming a permanent record of all tests made. The correspondence file, which is bulky, is regularly weeded out, and all closed tests are removed to the storage file.

The first portion of the card gives a complete record of the application of the device, when reports are to be sent in, and to whom the final report is to be submitted, while the chart shows at a glance how these instructions are being carried out, and what results are being obtained. The chart is divided into two main horizontal sections, the one above the heavy line is for reports favorable to the device under test, and the lower for those unfavorable; each of these main divisions is again subdivided into three sections, each of which represents a degree of excellence or unsuitableness as compared with some standard which has been previously assumed, thus, a report may be received saying that a certain device is giving as satisfactory service as the one which it is intended to supersede. This would naturally be a no. 1, unfavorable, but if the report had shown that the performance was slightly better than the standard, it would be a no. 2 favorable, etc. Unfavorable reports are recorded in a similar manner, slightly inferior to the standard constituting a no. 1 unfavorable, etc. When entering the report a dot is made opposite the month in such a position as to represent approximately the date received and the curve is drawn through these points, a letter representing the division is placed close to the dot showing from where the report came. By noticing whether the dates on which the reports are received correspond with the dates on which they are expected, a check can be kept on who is behind with reports. On the back of the card is a short summary of each report received and finally the date on which the test was closed and the recommendations made as to the advisability of adopting the device.—American Engineer and Railroad Journal.

The Railway Mail Clerks' Association at its recent convention in Kansas City, Mo., adopted a resolution asking the Government to prohibit railways from using wooden mail cars between locomotives and steel cars, or between steel cars.



New York Central and Hudson River R. R.., Buffalo, N.Y. Three fast plants.

THE BROWN HOISTING MACHINERY CO.

Engineers, designers and builders of hoisting machinery of all descriptions.

Write us stating your requirements and ask for catalogues.

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CANADIAN PACIFIC RAILWAY.

MOTIVE POWER DRAWING OFFICE.

RECORD OF TEST NO. 50 ON Piston Rod Lubricator

Applied to engine 1191, Eastern Division, Oct 10 1909; Reports expected every two weeks

" " 866 " " Division, " 30 1909; Reports expected " "

" " _____ " " Division, _____ 19____; Reports expected _____

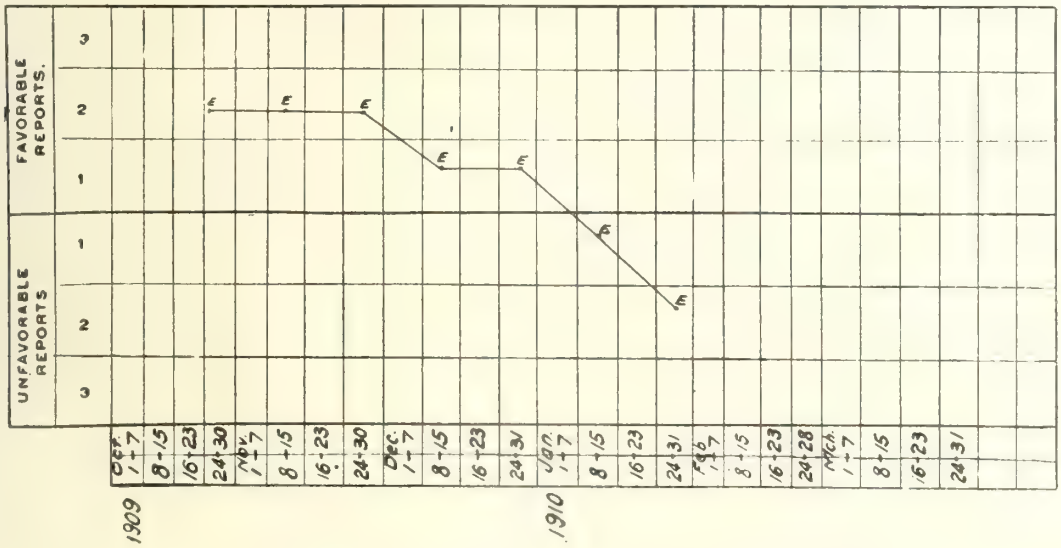
" " _____ " " Division, _____ 19____; Reports expected _____

" " _____ " " Division, _____ 19____; Reports expected _____

" " _____ " " Division, _____ 19____; Reports expected _____

Authority for test Supt Motive Power, letter Oct 1st 1909 Final report to be sent to Asst to Vice President & Supt Motive Power

Remarks as to application This lubricator is intended to oil the piston rods and works as a displacement lubricator when throttle is open, and as a syphon oil cup when throttle is closed. It must be shut off when engine is standing.



Face of card for keeping a graphical record of road tests.

SUMMARY OF REPORTS.

Oct 25th lubricator on 1191 oiling rod satisfactorily, engineer reports more satisfactory than swabs

Nov 12th lubricators on 1191 & 866 satisfactory, same condition as previous reports

" 27th " " " " " " " " " " "

Dec. 12th considerable oil being used

" 28th " " " "

Jan 10th entirely too much oil being used, when engine is drifting and cup is working as syphon all oil is drawn out in a short distance

Jan 28th lubricator becomes inoperative in cold weather owing to fine feed which is necessary

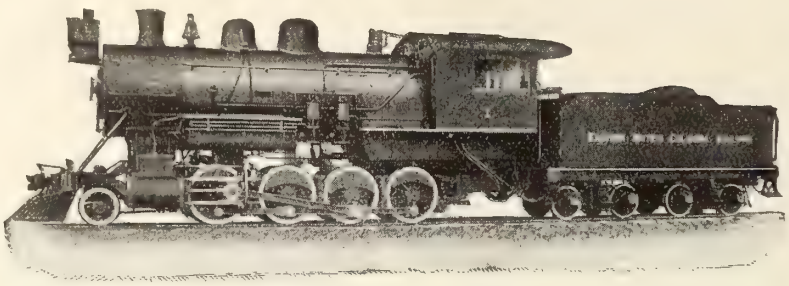
RECOMMENDATIONS.

TEST CLOSED Feb 1. 1910 RESULT Owing to construction of lubricator it was difficult to apply to existing cylinder heads, it used excessive amounts of oil and froze up in cold weather.

Papers filed in Test Fyle, T50.

Reverse of card for keeping a graphical record of road tests.

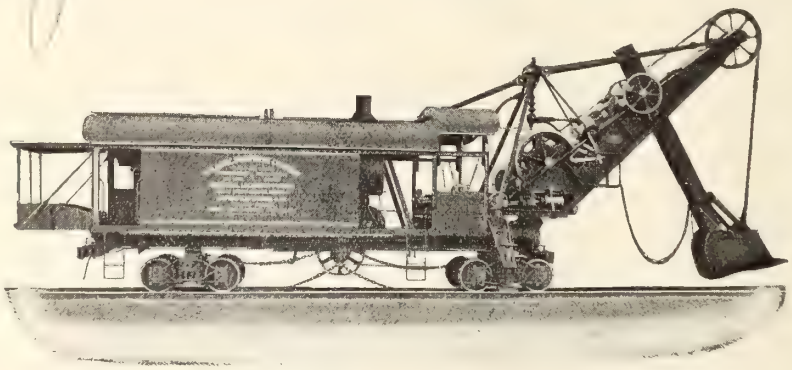
LOCOMOTIVES FOR ALL CLASSES OF SERVICE



Consolidation Type Freight Locomotive, Built for Eastern British Columbia Railway.

Total weight of engine in working order, 186,310 pounds. Weight on driving wheels, 166,100 pounds. Diameter of driving wheels, 51 inches. Boiler pressure, 210 pounds. Cylinders, 20 x 28 inches. Maximum tractive power, 39,200 pounds.

ATLANTIC STEAM SHOVEL



Direct wire rope hoist with but one sheave, instead of chain hoist with from five to seven sheaves, reduces delays and loss of time due to breakdowns, increases the efficiency of the engines, and reduces repair bills as well as fuel consumption.

Finished, interchangeable spare parts always on hand at works.

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C.P.R. Betterments, Construction, Etc.

St. John, N.B.—D. McNicoll, Vice President, had a conference with the city aldermen at St. John, N.B., July 7, with respect to the transfer of the west-side slip. He stated that the company desired the west-side slip, believing it would be a valuable asset in the development of a business, the limits of which were as yet unknown. There was ample room for all kinds of developments on the west side, and the company was not therefore troubling about the problem of getting to Courtenay Bay. In the course of an interview, he was asked if the taking over of the Dominion Atlantic Ry., meant that Halifax would be favored as to the C.P.R. ocean steamship business to the detriment of St. John and replied that St. John people seemed to be very suspicious; why should St. John be jealous of Halifax, or Halifax of St. John?

Lachine Bridge.—A contract is reported to have been let to the Foundation Co., Montreal, for the enlargement of the piers which carry the present bridge over the St. Lawrence at Lachine, so that they will be large enough to carry a second track, and to construct two additional piers. Another report states that a contract has been placed in the U. S. for 10,000 tons of structural steel for the erection of the superstructure.

We are officially advised that it is proposed to extend the masonry piers down stream to provide for an additional track. The spans in general will be of the same length as at present, except that the four northerly truss spans will be shortened from 240 to 120 ft., and four additional piers constructed. An order for the structural steel has been placed with the Dominion Bridge Co., Montreal.

Hull Station.—The Hull, Que., Board of Trade is representing to the company the necessity for the provision of a larger freight and passenger station there.

Georgian Bay and Seaboard Ry.—A mortgage dated Jan. 1, 1910 made between the G.B. and S. Ry., the Royal Trust Co., and the C.P.R., has been deposited with the Secretary of State at Ottawa.

Toronto City Ticket Office.—The company has leased the building, 3 King St. East, adjoining its present city offices, and it is reported that a large office building will be erected on the site of the two properties.

North Toronto Tracks.—Objection has been made by property owners at different points along the route of the old Ontario and Quebec Ry. through North Toronto, to the plan of the viaduct which the C.P.R. proposes to construct in order to do away with level crossings. Cottingham St. property owners ask that that street be depressed to run into the Yonge St. subway, as Dufferin St. runs into the Queen St. subway, so that the residents of the district served will not have to take a circuitous route to reach the cars. Avenue Road property owners also protest against the company's plans, and ask that alternative plans for depressing the present street grades at Avenue Road and Yonge St. be prepared and considered.

North Parkdale Station.—The new station building at North Parkdale, now being built, will be one story brick walls on a concrete foundation, with slate roof. It will have a frontage along the track of 100 ft. 8 in., with a depth of 32 ft. At each end of the building there will be a covered area 28 by 25 ft. The waiting rooms will be 59 ft. by 31 ft. 4 ins. from which is taken a space 16 by 18½ ft. for the office. Adjoining the waiting room is a baggage room 20 by 30 ft., and next to that an express room of similar dimensions. Provision is made for lavatory accommodation off the waiting room. The waiting room and office will be 15 ft high, finished in burlap to a height of 5 ft., and plastered above that height. Provision is made for a basement under the entire building, but at present the basement will only be provided under the baggage and express rooms. The contractors are Wells and Gray, Toronto.

St. Mary's and Western Ontario Ry.—An appeal to the Divisional Court at Toronto against the recent decision of Chief Justice Mulock, to quash the Blanshard tp. by-law granting a subsidy of $20,000 to the company, was made, and judgment delivered June 30, under which an order has been made quashing the by-law, with costs against the municipality. This is the third time the bylaw has been quashed, on some ground or other

Kaministikwia River Bridge.—Tenders were received to July 15 for the construction of piers, abutments and pedestals for the new bridge over the Kaministikwia River at Fort William, Ont. It will be approached on wooden trestles, on a gradient of 1 in 20, and the bridge proper will be 330 ft. long, of which the actual opening of the bascule span will be 180 ft., with 40 ft. for the swing. There are to be in all, 13 pieces of concrete work to be put in position for abutments, piers and pedestals, of which six sets will be for the portion of the bridge over the river. Piers 8, 9 and 10 are for the bascule span, and of these piers 8 and 9 will be 72½ ft by 14 ft. and 24 ft above foundations, while pier 10 will be 45 ft. 10½ in., by 14 ft. 4½ in., and 28½ ft. in height above foundations. The swing part of the span will be carried on piers 8 and 9. The pedestals for the other spans will be 5½ ft. square. The substructure will be of concrete, piles to be used in the foundations where necessary. The superstructure will be of steel, carried on steel pillars, and will have a total length of 330 ft. between the trestle approaches.

McPhillips St. Subway, Winnipeg.—Construction is being proceeded with at a satisfactory rate with the building of subways under the C.P.R. tracks at this point, Winnipeg. There are five tracks crossing the street, and these are connected to another track by a switch. About onehalf of the excavation, estimated at 35,000 cubic yards, has been removed since May 1. The steel superstructure will be carried on 13 concrete pedestals. The excavation runs back to Logan Ave., and for a corresponding distance on the north side of the subway. It is expected to have the work completed by the fall. John Gunn & Sons have the contract.

Bridge at Brown and Brant St., Winnipeg.—A contract has been let by the city council for the steel superstructure of a bridge across the C.P.R. tracks at Brown and Brant streets, Winnipeg, at a cost of $205,160.

Winnipeg-Brandon Second Track.—In connection with the building of a second track between Portage la Prairie and Brandon, Man., we have been officially advised that J. G. Hargrave and Co., having completed the grading for the second track from Winnipeg to Portage la Prairie, have been allowed to continue grading on towards Brandon. The plans for the present season only included the work, including track laying, to Portage la Prairie.

Branch Line from Bassano, Alta.—Press reports state that engineers have made surveys for a line to be run from Bassano, Alta., north-easterly to a junction with the Didsbury and Kininvie line in the irrigation district.

Calgary Improvements.—The re-arrangement of the yard accommodation at East Calgary, Alta., will provide storage for 1,000 additional freight cars. The yards will include a hump distributing track, and will be available in the fall. An 18-stall roundhouse, and a new machine shop are also under construction. The freight warehouse accommodation is being doubled, and the enlarged station is expected to be ready for occupation in Nov.

Strathcona-Edmonton Bridge.—Tenders were received to July 20 for the erection of the substructure of the bridge across the North Saskatchewan River at Edmonton, Alta. It will have a total length of 2687 ft. from face to face of ballast walls. It will be approached from the Strathcona end on a curve of 6 deg. 7 min., near Legal Ave., and cross Soullier and Angier Aves., and will be carried on 29 sets of pedestals to the Edmonton shore, where it will cross the Canadian Northern Ry., Sackatchewan Ave., Hardisty Ave., McKay Ave., and Victoria Ave., the Edmonton approach being on a 2 deg. curve, a total of 1888 ft., 7 in., being on a tangent. The approaches to the bridge will provide for the C.P.R. tracks, with one track for the street railway on either side, a 23 ft., roadway with an 8 ft. sidewalk on either side. About half way between Soullier and Angier avenues the roadway and sidewalks will be carried to a lower level, and carried across the river beneath the floor of the bridge carrying the steam and street railway tracks, near Saskatchewan Ave. Concrete pedestals will be built in groups of four, with foundations carried to hard pan, piles to be used only if necessary, to carry the superstructure over the land. Upon these pedestals will be erected steel work of the same character as that used in the Belly River bridge, to carry the double deck, rail level at the highest point being 140 ft. above ground. This portion of the bridge is on the Strathcona side, and the superstructure will consist of seven spans of 49 ft. 5 in., alternating with six spans of 97 ft. 8 in., and one of 99 ft. exclusive of the approach spans. The river will be crossed on three spans, carried on concrete piers, two of 291 ft., 10½ in, and one of 293 ft. 3 in. The foundations of the four piers carrying these spans are to be carried down to a solid foundation, concrete piles to be used if necessary, and are to be constructed so as to carry nine tons to the square foot. The two centre piers are to be protected against ice, etc., in the usual way. Two spans on the Edmonton side on pedestals will carry the bridge over the Hudson Bay reserve and the C.N.R. right of way. The height of the floor of the railway deck will be 14 ft. clear from the roadway, which will be 23 ft. clear, the sidewalks being carried on a bracket work. The railway track deck, will be 35 ft. wide.

Kootenay Central Ry.—We are officially advised that a contract has been let to Foley, Welch and Stewart, for the construction of the first 25 miles of this projected line from Wardner to near Fort Steele, B.C.

Beavermouth to Revelstoke, B.C.—C.P.R. engineers started out from Beavermouth recently to follow the Columbia River around the Big Bend to Revelstoke, B.C., and press reports state that the object is to secure a route for a line which will connect up with the Kootenay Central Ry.

Kamloops Improvements.—Work has been started on the re-arrangement of the yard accommodation at Kamloops, B.C. A new machine shop and roundhouse is to be constructed, and the existing buildings are to be removed. McDiarmid and Co., Winnipeg, are the contractors.

Phœnix Spur Tracks, Etc.—Large gangs are reported to be employed in laying the 10 miles of track between Phœnix and Eholt and in laying it with

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Quotations for Tee Rails, Fish Plates, etc., promptly furnished.

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80-lb. steel. The spur tracks to the Granby, Snowshoe, Jackpot and Denoro mines are also being improved.

Vancouver to Port Moody, B.C.—A press report says the C.P.R. is starting to build a second track from Vancouver to Port Moody, B.C.

Esquimalt and Nanaimo Ry.—A press dispatch says it has been announced in Victoria, B.C., that a branch line will be constructed forthwith from Duncan to Cowichan, Vancouver Island. This announcement followed the reported sale to the American Finance and Securities Co., of 50,000 acres of timber lands round Cowichan Lake, to open up which the company agreed to build a 25-mile line. (July, pg. 533.)

Great Northern Ry. Lines in Canada.

Midland Ry. of Manitoba.—It is said to have been decided for the present to abandon the intention to build a line from Emerson, at the International boundary, into Winnipeg, an arrangement having been made for running rights over the Canadian Northern Ry. between these two points. The M.R. of M. will build a line from Fort Whyte Jct., at the south-west corner of the city limits, to the freight terminals on Ross St. This line, which will be used for freight purposes only, the passenger trains being run to the Fort Garry union station, will run parallel with the C.P.R. Gretna line from Fort Whyte, on the east side, to Elgin Ave., where it will turn eastward to Ross St. The tenants of the property on Nena St. were all required to vacate by July 15, in order that the different premises might be pulled down. J. Fisher K.C., the company's solicitor, recently said an engineer and party were preparing plans and as soon as they are sufficiently matured work would be started. The first work to be taken in hand will be the subways.

Offices have been opened in the Orls Block, Nena St., with A. Jackson, of the G. N. Ry. engineering staff, St. Paul, Minn., in charge.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—The amended plan and profile and book of reference of the company's proposed line from the east line of sec. 15, tp. 16, to the west line of tp. 26, New Westminster district, 18.3 miles, certified by the Board of Railway Commissioners, has been deposited in the New Westminster city land registry office.

Application is about to be made to the Board of Railway Commissioners for authority to build a spur track to the Vancouver-Prince Rupert Meat Co.'s plant at Sapperton, B.C., and a connection with the C.P.R., as shown on plans deposited in the Land Registry office at New Westminster.

The construction of a bridge at Broadway East, Vancouver, is recommended by Assistant Chief Engineer Stewart, in connection with the False Creek reclamation and development plans. The bylaw confirming the agreement as to this property, referred to in our last issue, was voted on June 28, and was carried by a vote of 2717 against 657, or 692 more than necessary. A. E. Howard, on behalf of the company, said steps would be at once taken to buy out or expropriate the other owners of riparian rights around the head of the creek, and the company would then go ahead, file plans, and start work immediately on their approval. The work would go ahead fully as soon as the city had secured from the Dominion and Provincial Governments a relinquishment of their rights over the tide flats in the creek.

Two new tracks for passenger traffic and two for freight are being added to the company's present yard terminals in Vancouver. (July, pg. 537.)

Cost of Operating Railways.

The accompanying diagram supplied by a railway official, shows how the gross earnings of Canadian and United States railways for the year ended June 30, 1909, were spent. The figures in the inner circle are for Canadian railways, those in the outer circle for U.S. railways. The dotted lines show the extent to which the cost of labor would ultimately be increased and its consequent effect upon betterments and finances of the railways, on the basis of the recent awards of the boards of conciliation in the trainmen's disputes with the companies. The official referred to has also supplied the following memorandum:

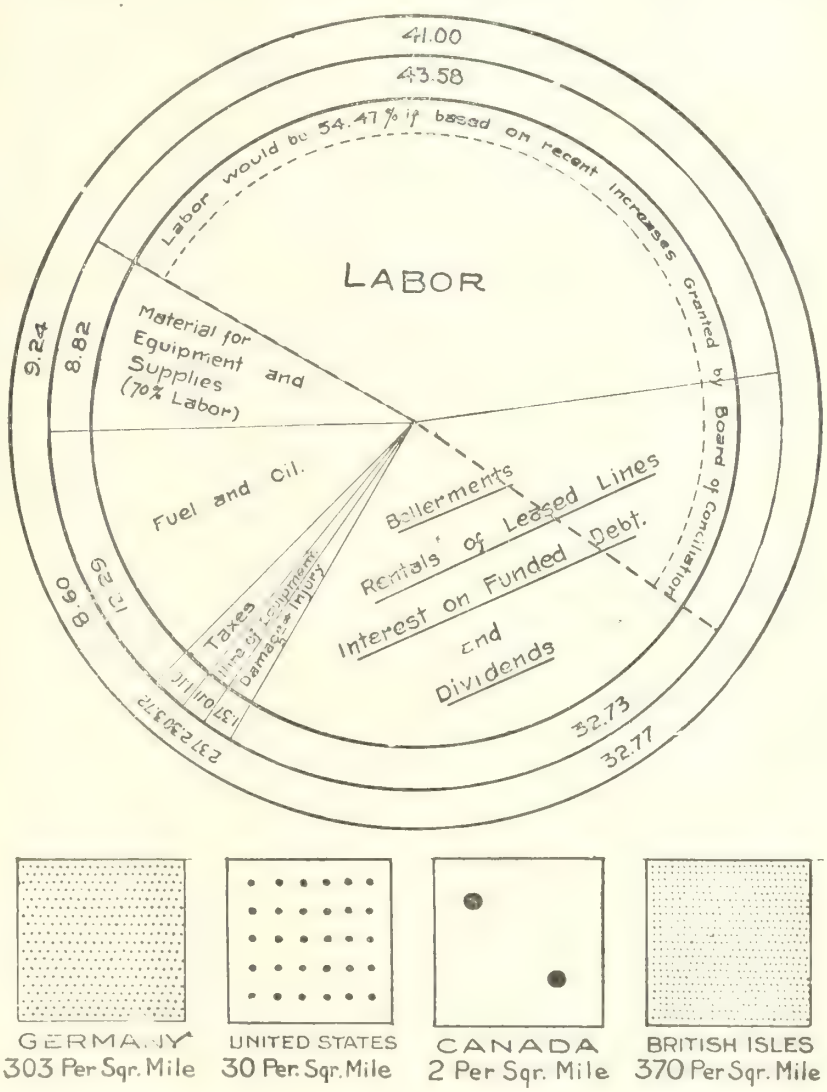
"The diagram should prove interesting to the general public, to railway managers and employes. It should be of some help also to conscientious statesmen who are often asked to throw the harpoon into the railways before the latest wound has healed. It will surprise some people to learn that according to Government reports, 43.58% of the gross earnings of Canadian railways goes to labor direct, as compared with 41% paid on the same account by United States roads. This is largely due to the climatic conditions and to the lower earning power of the Canadian railways. Moreover, U.S. roads, covering about the same territory as Canadian roads cover, operate through a settled country, serving 87,000,000 people, while Canadian roads have only 7,000,000 to serve.

"In addition to the 43% of gross paid for labor, 75% of the money paid on account of fuel and oil, representing 9.7% of gross earnings, goes to the men who mine coal and boil oil. This brings the amount paid to labor directly and indirectly up to 52.65% of the earnings. The cost of upkeep, material, equipment and supplies eats up 8.82% of the gross earnings, 6.02% of which goes to the men who work with their heads and hands to produce these items and articles. So we find that the railway pays out for labor close to 60% of every dollar taken in.

"The fact that Canadian railways pay considerably more of each dollar on this account than is paid by their U.S. competitors refutes the argument that U.S. manufactures come to Canada in order to secure cheaper labor. Naturally our winters being longer and harder and our days shorter than the winters and days are farther south our railways get less out of the day's work.

"Another point against our railways is that nearly every U.S. line running east and west passes through or near some vast coal field. Canadian roads have not only to haul their coal great distances, but in addition have to pay a heavy duty on every ton of coal they import, a serious handicap.

"The tendency in Canada, as in the States for the past decade, has been to raise taxes and at the same time reduce the rates, to reduce the earning power and increase the fixed charges. In the meantime during the past 10 years the wages of railway employes in Canada [illegible] So all things considered Canadian rail-



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The latest Russel Machine has some distinct improvements that save time and trouble, consequently money. Note the new method of suspending the skidding sheaves. They are hung from a vertically hinged jib or triangle the outer end of which is guyed by two lines, one on each side, which are power tightened and can be set while skidding lines are going out. The guy lines lead back so they do not interfere with either skidding or loading.

The uppermost leg of the jib has a spring connection to the tower, reducing shocks. All strains due to skidding are absorbed by the guy lines. The swinging boom is operated by wire ropes passing through sheaves suspended from a steel frame projecting from the tower and leading to two drums on loading engine, controlled by one lever. Machine is raised or lowered by hydraulic or patented geared jacks.

Built for 2 or 4 lines with stiff or swinging boom. Constructed entirely of steel, except loading boom.

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ways make a splendid showing from most any viewpoint, and they unquestionably have in many respects a harder row to hoe than have the U.S. lines, with whom for transcontinental traffic they must compete."

Algoma Central & Hudson Bay Railway.

The following are extracts from a circular issued by the directors to the Lake Superior Corporation's shareholders, recently:—

The most vital and pressing remaining object now sought to be attained is the completion of the A.C. & H.B. Ry. to a connection with the C.P.R. main line, making a total mileage of 225 miles, of which at present only 90 miles are in operation. In its present incomplete condition, implying as it does the isolation of the steel plant from its ore supply during five months of the year, the earnings of the railway company are small and stationary. Through its completion the railway would secure many advantages. The railway revenues, based on careful estimates made by your officers and the board, would much more than suffice to cover the interest on cost of construction. Canadian iron ore of proved quantity and quality will be made available, and, with the railway in operation, the ore can be delivered at Sault Ste. Marie at a cost considerably below the price now being paid for similar ore from the U.S. The opening up of the timber lands will also naturally be of value to the lumber and pulp industries. A valuable land grant of 1,665,000 acres under the Ontario Government land grant will be secured, including timber and mineral lands of great potential value, and to secure which it is a Government condition that the railway be completed by Dec. 31, 1911. This implies the necessity for immediate progress in construction, for which everything is in readiness.

Briefly stated, the plan for the completion of the construction of the railway, which has been unanimously approved by your directors, is as follows: The railway as it exists to-day is sold for the equivalent of $3,000,000 under the powers given in the first collateral trust mortgage of the Lake Superior Corporation and $3,000,000 bonds issued under that mortgage will be cancelled, thereby reducing the amount of the first mortgage collateral trust bonds of the Corporation outstanding to $7,000,000. The railway company will be re-capitalized as follows: 50-year 5% first mortage redeemable gold bonds (limited to $30,000 per mile of completed road), $6,750,000; five per cent. non-cumulative preferred stock, $5,000,000; common stock, $5,000,000. The proceeds of the sale of securities under the above capitalization together with the cash subsidies to be earned from the Dominion Government will give sufficient funds for the completion of the road. In consideration of a guarantee of the principal and interest of the $6,750,000 first mortgage bonds of the railway company by the Lake Superior Corporation, the latter will receive the whole of the $5,000,000 common stock and will hold $1,125,000 of the preferred stock for the benefit of the railway.

The directors are glad to have this opportunity of reporting that, so far as the affairs of the Corporation generally are concerned, most satisfactory progress is being made. The construction of the new furnace, merchant mills and coke ovens is proceeding rapidly, and, so far as can be seen, most of these plants will be entirely completed by the end of the year, whilst the estimated cost is not likely to be exceeded. The board has been especially desirous of placing the steel department in an independent position so far as its necessities in raw material are concerned, exploration for ore has been strenuously carried on for some time past and their efforts have already met with a large measure of success. It is confidently believed that when the railway extensions are completed the steel plant will be in an independent position both in regard to basic and bessemer ores. A permanent supply of limestone of exceptional quality and of very large extent has been secured on extremely favorable terms. Negotiations have practically been completed by which the Corporation will secure and control its own ore areas. Some of the smaller industries, which heretofore have been operated at a loss and have been a drain on the Corporation's resources, have been disposed of on satisfactory terms, to independent operators. Negotiations have been completed for the introduction of new industries to be established by parties with independent capital. The operations of the existing plants have been almost continuous; the reputation of the quality of rails has been maintained, and orders are on hand which will keep the steel plant fully occupied during the next six months, whilst the prospect for future business is excellent.

The A.C. & H.B.R. Co. issued a prospectus in England early in July of £770,000 five per cent. first mortgage 50 year gold bonds, being the approximate equivalent as part of exchange of $3,750,000, the balance of $3,000,000, out of a total issue of $6,750,000, having been taken for issue in France. The prospectus states that the bonds will be a specific first mortgage upon the company's railways terminals and docks, and a general floating charge upon the rest of the assets and undertaking, present and future, including the lands to which the company will become entitled from the Ontario Government.

The company is authorized to construct a line from Sault Ste. Marie, Ont., to the C.P.R., including a branch from Michipicoten Harbor to the main line, and from the C.P.R. north to James Bay, intersecting the National Transcontinental Ry. under construction, and the projected line of the Canadian Northern Ry. The Dominion has granted a cash subsidy of $6,400 a mile for the 225 miles from Sault Ste. Marie to the C.P.R. main line, including the Michipicoten Branch. The Province of Ontario has granted about 1,665,000 acres in respect of the 225 miles. These lands will be granted in freehold, and carry all minerals and all timber free of all charges, except the pine, upon which stumpage charges are to be paid. 1,439,300 acres of this land grant have been selected already by the company, and have been set aside by the Government.

The railway is already in operation for some 80 miles. The company owns extensive terminals and deep-water docks at Sault Ste. Marie, fully equipped for the rapid loading and unloading of ore, coal, steel rails, lumber, etc., and also owns the harbor at Michipicoten. The company owns and operates on the Great Lakes a freight steamship line with a tonnage (including a steamboat under construction) of 15,600 tons.

Part of the proceeds of the bonds will be used to pay for $3,000,000 bonds of the Lake Superior Corporation which have been cancelled, in order to absolutely free the Algoma Central Ry. Company from all encumbrances other than that of its own first mortgage bonds now being issued, and the balance of the proceeds, together with other available funds of the railway company, and the cash to be received by way of subsidies from the Dominion Government will be more than sufficient to cover the expenditure required for the completion and equipment of the road to the C.P.R. main line.

The net earnings from the 80 miles completed, and from the steamship line for the year to June 30, 1909, were £26,700. The net earnings of the 10 months of the present year show an increase of fully 50% over the same period last year. As soon as railway connection is made, the Algoma Steel Co. is prepared to take a minimum of 300,000 tons of iron ore per annum from the Magpie mines, and the railway company will also get the whole freight on the shipments of iron ore from the Helen mine amounting to at least 200,000 tons a year, so that the railway is assured 500,000 tons of freight per annum from these two mines alone.

The estimated gross earnings of the line for the first year after its completion to the C.P.R., taken on a conservative estimate are	£293,600
Less 70% operating expenses	£205,520
Estimated total net earnings	£88,080
Add estimated net earnings—steamship department	£15,000
Total estimated net earnings	£103,080

The amount required to pay the interest on the $6,750,000 of the company's first mortgage bonds is £67,500. No account has been taken in the above figures of any profit which may be derived from the lands, through the sale of timber, ore, or of the lands themselves.

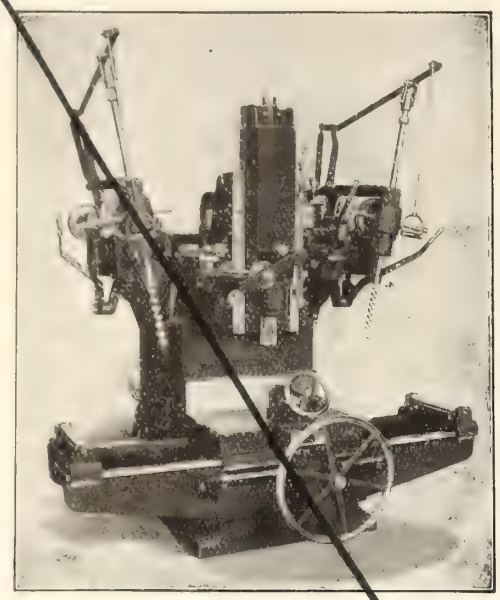
Information as to construction on the A.C. & H.B.R. will be found under the head of Railway Development, on another page.

Ontario Railway and Municipal Board.—The annual report for 1909 issued recently, shows that 261 applications were made of which 183 were in form, and 78 informal. Of the formal applications 171 were heard and disposed of and 12 were carried over into 1910. Of the informal applications some were settled by correspondence, and others disposed of without a hearing. In about 20 cases the parties were referred to the Board of Railway Commissioners as the matter to be disposed of came under the Dominion law. The report gives details of the orders made, and a good deal of information as to railway and municipal matters in the province, especially in reference to the municipal control of public utilities.

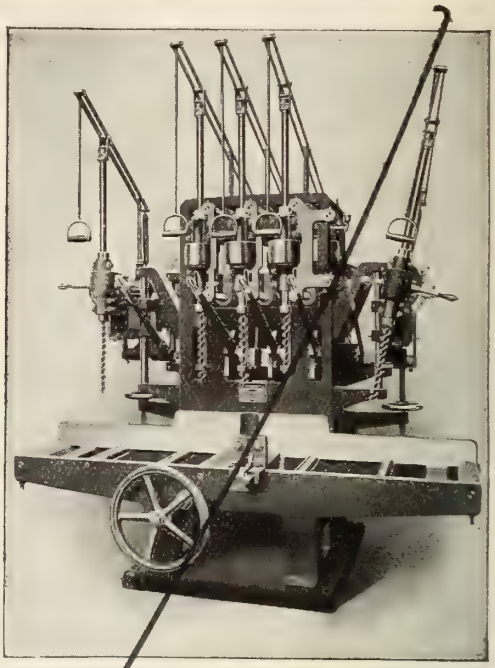
One of the very few houses that was left standing after the fire which practically wiped out Campbellton, N.B., July 11, was that of Superintendent Price of the Intercolonial Ry. I.C.R. station and other buildings were burned, and a large quantity of rolling stock destroyed, the loss being puf at upwards of $100,000.

The report of the Ontario Department of Public Works, which has just been issued, covers the ten months ended Oct. 31, 1909. To be of service to the public these reports should be issued more promptly, or at any rate be made accessible at the time they are presented to the Legislature. The report states that 260.23 miles of new railway were opened for traffic in the province during the 10 months, and that there was then a total of 8,660.42 miles of railways in operation within the province.

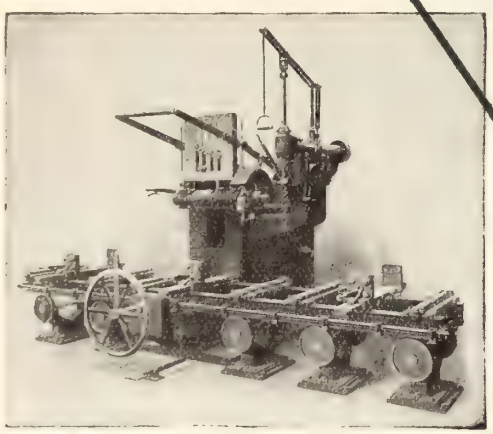
During May, 25 employes were killed and 39 injured, in the course of their work on Canadian railways. Of the fatalities, eight were due to being run over, five to collisions, four to falls, three to being caught between cars, two each to explosions and to derailments, and one to falling material, while of the other accidents, 11 were due to collisions, six to being caught between cars, five each to being run over and to falls, four to derailments, three to falling material, two to explosions, and one each to machinery, to flying material and to being struck by an object in passing.



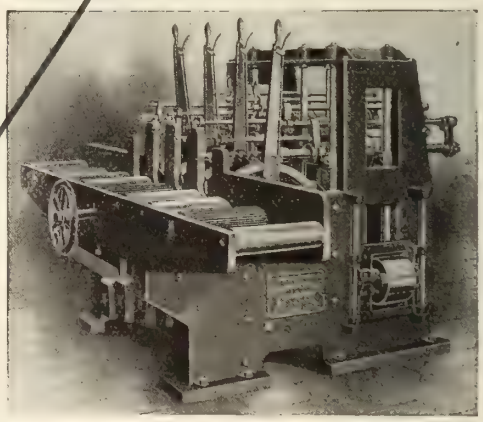
No. 225—Vertical Automatic Hollow Chisel Mortiser.



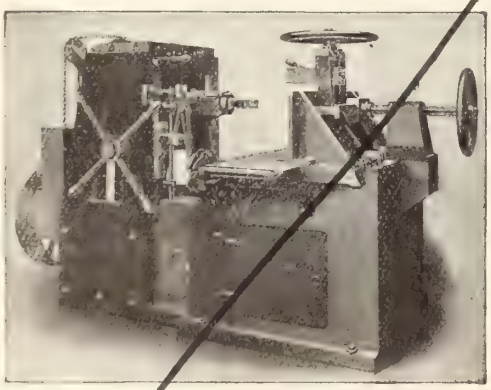
No. 327—Vertical Car Boring Machine with Universal Spindles



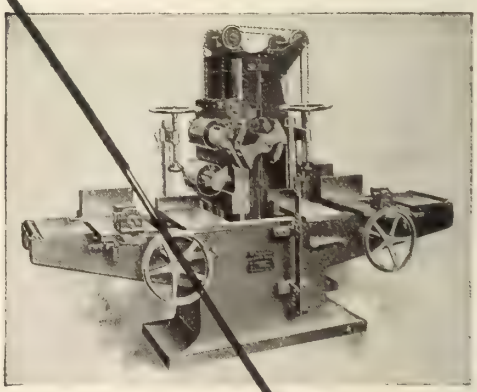
No. 512—Extra Range Automatic Car Gainer with Boring Attachment.



No. 306—Extra Range Horizontal Car Boring Machine.



No. 218—Extra Range Automatic Hollow Chisel Car Mortiser.



No. 525—Vertical Automatic Car Sill Tenoning Machine.

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Alberta and Great Waterways Ry.—The Royal Commission investigating the circumstances surrounding the granting of the charter to this company practically completed its work July 5. The report will be presented to the Legislature next session.

E. A. James, General Manager, stated in an interview July 6, that the capital received by the sale of the bonds was held in trust in the banks. The company would open negotiations with the new government as to the contract. He considered the project was a thoroughly practicable one.

The Edmonton Bulletin states that the failure of the A. & G.W.R. Co. to meet the first instalment of interest on the bonds, due last week, eliminates the company from the project. The Province of Alberta had to meet the obligations and did so. This leaves the province with $7,400,000 with which railway construction may be secured in what sections seem best. So far, the arrangement has cost the province $55,500.

Algoma Central and Hudson's Bay Ry.—Tenders were received to July 30 for 250,000 ties to be delivered on the main line between the crossing of the Montreal River and the Michipicoten River. Good progress is being made with the building of the connection between the Michipicoten branch at Hawk Lake Jct., and Hobon, Ont., on the C.P.R. transcontinental line. The work has been pretty well opened up, clearing gangs are making good progress and contractors are constructing their camps at various points. It is hoped to have 1,000 men at work by Sept. 1

We are officially advised that 150,000 of these ties are to be used for the completion of the main line, the contract for which has been let to the O'Boyle Bros. Construction Co., and is now under way. Track laying from the north and south ends was expected to be started before the end of July. From the south end track will be laid through to the crossing of the Batchewana River, between which point and the Montreal River there are several structures to be built. The object is to push through to the Montreal River in order that the construction of that bridge may be got under way. Meanwhile, the track will be going down from the north, and it is hoped to have it reach the Montreal River by the time the bridge is completed, so that there will be no delay in construction. The other 100,000 ties will be used for the Hawk Lake-Hobon section. (July, pg. 547).

British Columbia and Alaska Ry.—A recent dispatch from Victoria, B.C., stated L. M. Rice, of Seattle, Wash., had returned from completing a reconnaissance survey for this company for a line from near Vancouver through Central British Columbia. (July, pg. 547).

Comox Ry. and Logging Co.—The plans for the route of this projected railway from Comox to Campbell River, Vancouver Island, were approved by the B.C. Government July 4. Part of the route belongs to the Comox and Campbell Lake Tramway Co., the rights of which the C.R. & L. Co. was authorized by its act of incorporation to acquire. (June, pg. 447).

Ha Ha Bay Ry.—We are advised that grading on the first 20 miles is expected to be completed by the middle of August, and the whole line from St. Alphonse to St. Jonquieres, 24 miles, by Sept. 15. It is expected to begin track laying by Aug. 1, and to have the line open for traffic Nov. 1.

We were advised July 11 that grading is expected to be completed at an early date, and that three miles of track have been laid. A cargo of steel rails was expected to be delivered by the end of July, and it is hoped to have the track laying on the whole line completed by Sept.

Halifax and Eastern Ry.—The provisions of the charter, issued under the terms of sec. 13, chap. 1, of the Nova Scotia Statutes of 1906, incorporating a company with this title, have been published in N.S. Royal Gazette. The incorporators are J. B.Bartram, Toronto; T. B. Fogg, Toledo, Ohio; G. H. Raw, S. Hirsch, London, Eng.; and the company is given power to build a line from the Intercolonial Ry. at Dartmouth to Guysboro, and Mulgrave; from New Glasgaw on the Intercolnial Ry. to the Dartmouth-Guysboro line; a branch from near Cross Roads, Country Harbor to the deep waters of Country Harbor, and such other branches and extensions as the Lieutenant-Governor-in-Council may approve, and to own any line of railway which may be acquired under the provisions of the charter. The company is authorized to build telegraph and telephone lines, to own steam and other vessels; to carry on an express business, and to contract with other railway and steamboat companies; and also to engage in other business as connected with the development of the country through which the line will pass. The company is granted a free right-of-way over Crown lands, and to take from Crown lands adjacent to the line any materials available and required for construction; has power to issue bonds for $20,000 a mile; is bound to grant traffic arrangements to the Government and other lines connecting with it; and the lines of the company, right-of-way, stations and other buildings are to be "forever free from taxation by any city, town or municipality, corporation or other similar authority, for any purposes whatsoever."

The contract calls for a start being made on construction by Sept. 1, and for the completion of the lines by Sept. 1, 1913. The main line from Dartmouth to Guysboro will be 164 miles long; the branch to New Glasgow, 40 miles, and that to Country Harbor 12 miles, a total of 216 miles. The construction is to be carried on under Government supervision, and the company is to pay for patrols, appointed by the Government for fire protection during construction. The contract gives the company permission to build a bridge across the narrows of Halifax harbor, so as to enable it to run its trains into Halifax. The Provincial Legislature has granted a subsidy of $6,400 a mile, and there is also available a Dominion subsidy of $3,200 a mile, increasing to $6,400 according to the cost of construction. The company has deposited $50,000 as security. The contract was signed on behalf of the company by J. B. Bartram, President; and G. E. Boak, Halifax, Secretary pro tem. The other officers and directors are: Vice President and General Manager, T. B. Fogg; S. Hirsch, and Duncan Cameron of Halifax, N.S. It is reported that a contract has been entered into with a construction company in London, Eng., for the building of the line, and that the company's representatives will, as soon as the location plans have been approved by the Government, proceed to let sub-contracts.

We were officially advised July 16 that sub-contracts are not likely to be let until late next autumn or the spring of 1911

At a meeting of the Dartmouth town council, July 2, the question of locating the company's terminals in that town was discussed with D. Cameron and G. E. Boak. The latter informed that council that a free right-of-way had been secured in Halifax and Pictou counties, in addition to cash bonuses of $12,000. It was proposed to locate the company's terminals and machine shops in Dartmouth, and he read a letter from T. B. Fogg, V.P. and G.M., as to the land requirements. An area of 20 acres was required having a water frontage of from 1,200 to 1,500 ft.; and a site for a freight and passenger station situated near the ferry. Mr. Cameron said the company asked for a bonus of $50,000 preferably to providing free sites. The company's terminals in Dartmouth would be used by the Intercolonial Ry., and it would use that line to get out of Dartmouth.

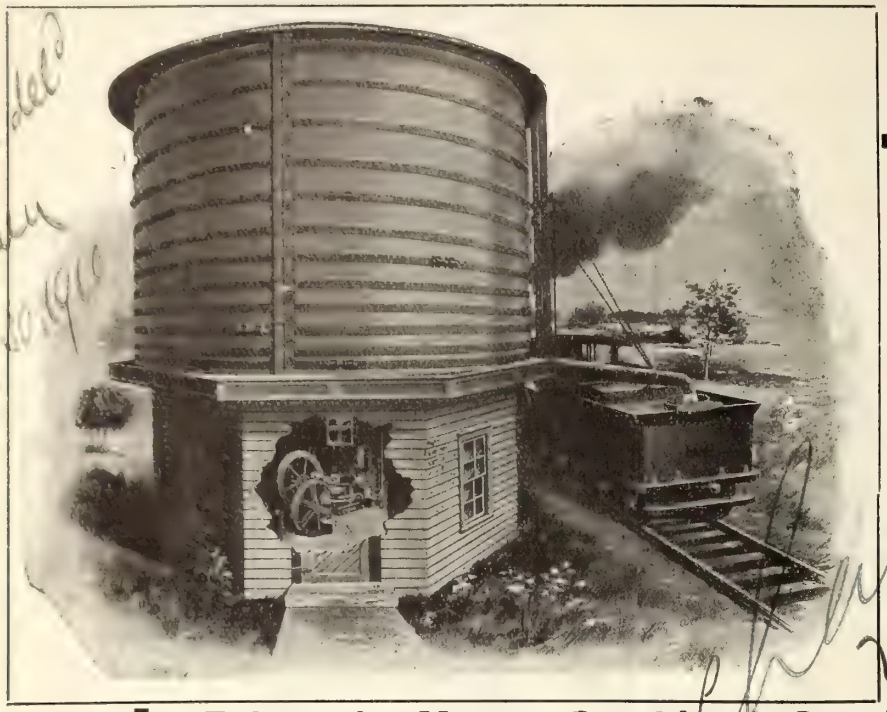
The Dominion of Canada Trust Co. of London, Eng., which has been recently formed, is interested in the placing of the company's securities on the market. C. T. Part, (press reports, say he is director of Barclay & Co., bankers, London, but his name does not appear in the published list of directors) and S. Hirsch, sailed from Rimouski, June 30, after completing their business with the Government.

The same interests have acquired the Dickie lumber areas in Nova Scotia, covering altogether 464,000 acres, for the opening up of which the railway is to be constructed. The lumbering interests will be operated by the Eastern Canada Lumber Co. (July, pg. 547).

Howe Sound and Northern Ry.—A meeting of shareholders was held in Vancouver July 4, to pass a resolution authorizing the directors to borrow $4,200,000 at 4% and to issue debentures secured upon the assets, to be repaid in 30 years. The proceeds will be used for construction. (July, pg.. 547).

Hudson Bay and Pacific Ry.—A prospectus of the H.B. and P. Ry. and Development Co., has been issued from the office, 56 Moorgate St., London, Eng., signed by J. E. F. Greville, (Chairman); V. Williams, E. T. Pearce, J. Kerry, Colonel Jos. Harris, C.E.; J. Weston, of London, Eng., and C. Mannesmann, Ramscheld, Germany. The capital is £150,000 in £1 shares, which are being offered at a premium. It is stated that the company has secured the H.B. and P. Ry. charter subject to the reservation of a 44% interest. It is also stated that the H.B. and P. Ry. Co. which has a share capital of $8,000,000, is authorized to issue 4% gold bonds, guaranteed by the Dominion, both as to principal and interest, to the amount of $20,000 a mile; that it is entitled to a grant of 5,000 acres of land a mile, and to subsidies estimated at $6,000 a mile. The length of the lines authorized is 1,800 miles, and the prospectus states that the estimated cost of construction will be $15,000 a mile. The profits on the construction of the line are estimated at £14,560,000, of which the Development Co. is to receive 56% or £8,209,600, equal to £54 on each £1 share. The first section of the line to be constructed will, it is said, be from Fort Churchill via Pas Mission to Prince Albert, Sask., and thence to Edmonton, Alta., 700 miles, and on this section the prospectus says the 56% of profit coming to the Development Co. will be £3,010,000 or equal to a return of £20 per £1 share. A further statement is to the effect that "the financial requirements for the construction of the line have been arranged, and that considerable profits should be divided as the line is built."

Under the act incorporating the H.B. and P. Ry. Co., as amended it has power to issue $8,000,000 of common stock, and bonds for $20,000 a mile of line, but the Dominion Parliament has not yet authorized the Government to affix any guarantee to the bonds. The Dominion Parliament has not authorized the granting of any cash subsidy for the construction of such a line, and the only land grant authorized for such a line is



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that made by sec. 7 of the Dominion Lands Amendment Act, chap. 25, of the first session of 1884. This section authorized the Government to grant 6,400 miles of land for each mile of a railway in Manitoba, and 12,800 acres of land for each mile from the northern boundary of Manitoba to Hudson Bay, in aid of the construction of a line from the C.P.R. to Hudson Bay. No company in particular being named. (July, pg. 547).

Intercolonial Ry.—The exact route of the deviation of the I.C.R. into Chatham, N.B., was finally decided upon during a recent visit of the Minister of Railways. The contractors, Morrison & Clarke, had 60 men working on the route near Nelson, July 1, and expected to have gangs at work at both ends of the deviation two weeks thereafter. (July, pg. 549).

Kettle Valley Lines.—The arbitrators appointed to fix the value of the grade built between Midway and Rock Creek, B.C., by the old Midway and Vernon Ry., which is to be taken over by the Kettle Valley Lines as a part of the new line to the Fraser River, have been at work since the end of June. The board consists of R. F. Green, Victoria, B.C., appointed by the Provincial Government; L. M. Rice, Seattle, Wash., appointed by the K.V. Lines, and Judge Form, Nelson, B.C., chairman. J. J. Warren, of Toronto, President, K.V.L., A. McCulloch, and H. B. Smith, the two latter being engineers, attended at the inspection of the grades. The amount fixed by the arbitrators will be paid by the K.V.L. to the creditors of the old Midway and Vernon Ry., who, to quote sec. 3 of the act. "did work or supplied materials, including goods and merchandise in connection with the actual building of said grade." This excludes from the list of creditors to be paid those who did survey work, or provided supplies for the survey camps between Rock Creek and Vernon.

J. J. Warren, President, who is the Manager of the Trusts and Guarantee Co. in Toronto, stated in a recent interview in Vancouver, that construction on the extensions would be commenced early in July, and that it was expected to have the line completed from Midway to Merritt within three years. He made a further statement to the Vernon town council, June 25, to the effect that a construction gang would be set to work in the city as soon as arrangements could be made for lake shore frontage and a right of way. The right of way, and a site for a yard and roundhouse would be purchased, but he asked the council to provide 1,100 ft. of lake shore frontage for a station. The company proposed to build a wharf 900 ft. long there, at a cost of about $50,000. The principal division point on the line would be at Penticton.

Arrangements are being made for starting construction on the line, and contractor's outfits were being unloaded at Midway, July 1. The work between Midway and Vernon will be heavy, as the route traverses two important summits, the Kettle River-Okanagan divide, and that of the Okanagan-Coldwater. In the case of the former the maximum gradient of 1.5% is encountered for a short distance, and in the latter the maximum gradient is 1%. The alignment is generally satisfactory. The Dominion Minister of Railways has before him an application for the approval of the route from Coldwater, across the Hope Mountains to Ruby Creek. This shows a line following the Coquihalla River to Hope and thence across the Fraser River, following the north bank from Hope to Ruby Creek, where a junction is effected with the C.P.R.

A contract has been entered into between the company and the Dominion Government under the act granting subsidies to certain railways, for building a line from near Grand Forks for 50 miles up the north fork and the east or west fork of the north fork of the Kettle River.

A Vancouver press report, July 8, states that a contract has been let to Macdonnell, Gzowski & Co., Vancouver, for building 30 miles of line from Merritt, a station on the C.P.R. line between Spences Bridge and Nicola, and the headquarters of the Coldwater River. The contractor's plant was reported in process of delivery, and a start was said to have been made on the work July 9. The contract with the British Columbia Government called for work to be started on the line by July 10. This 30 miles of line will carry the line to the summit between the Coldwater and the Coquihalla rivers. Eastward from this point the line will be built to Penticton, and at Rock Creek, 10 miles north-east of Midway, it will join on to the route of the old Midway and Vernon Ry., which will be utilized to Midway, where connection will be made with the existing Kettle Valley Lines. (July, pg. 549).

Manitoulin and North Shore Ry.—Tenders were received to July 23, for the construction to subgrade of a section of this line from the north side of Goat Island channel, near Little Current, northerly to the White Fish River, about 18 miles. This will practically complete the portion of the line between Sudbury and the lake front, opposite to Little Current. (June, pg. 451).

Matagami River Line.—An application has been made to the Ontario Government by private interests for permission to build a line from mileage 229 on the Temiskaming and Northern Ontario Ry., to the Matagami River. Those interested in the application are:—A. Ferland, C. Richardson, R. W. Gordon, A. E. Burdette, W. C. Chambers of Haileybury, Ont., all of whom are interested in the development of what is known as the Porcupine country.

Nanaimo to Wellington, etc.—Application will be made to the British Columbia Legislature to incorporate a company to build a railway to be operated by steam, electricity or any other motive power, from Nanaimo, northwesterly to Wellington, B.C., six miles, and from Nanaimo southerly to Ladysmith, 20 miles, with branch lines not to exceed 10 miles in any one instance. Taylor and Harvey, Vancouver, B.C., are solicitors for applicants.

The Northern New Brunswick and Seaboard Ry. from Black's Cut, on the Intercolonial Ry., to the iron ore mines at the confluence of the Austin brook with the Nipisiguit River, Northumberland County, N.B., has been practically completed, some ballasting being all that is required to permit it being opened for traffic, which it is expected to be by Aug. 15. The contractors were Wheaton Bros., and J. J. Taylor was engineer in charge of construction. J. J. Drummond, E. McDougal and W. F. C. Parsons, of the Canada Iron Corporation, which owns the mines and railway, recently made a visit of inspection to the property. The ore dock at Newcastle, which is being built by Reid and Archibald, is expected to be ready for operation Sept. 1. The spur line from the Intercolonial Ry. to the ore dock at Newcastle has been completed. (July, pg. 549.)

Ottawa, Rideau and Brockville Ry.—Recent press reports state that the work of building this line is to be started near Oshawa in the fall, and that the surveys are being made. (May, pg. 353.)

Pincher Creek, Alta.—The Pincher Creek district of Southern Alberta is proving an attractive field for the railway promoter. At present Dominion charters for building lines through it are held by the following companies:—Alberta, Peace River and Eastern Ry.; British Columbia and Manitoba Ry.; Canadian Western Ry., Northern Empire Ry., and Southern Central Pacific Ry., and in addition other charters have been granted by the Provincial Legislature, but how far they are controlled by those interested in the above mentioned charters is uncertain.

According to press reports another company is to be incorporated, composed of St. Paul, Minn., men, who are reported to have purchased a large coal and iron area in the vicinity of Cowley. The railway which they propose to construct for the development of their property, as well as for general traffic, is said to have been located from Butte, Mont., across the Milk River towards Pincher, following the Old Man River into Livingstone range, thence running west paralleling the iron and coal deposits north of Cowley. It will cross the C.P.R. Calgary and McLeod branch near Minnapore and have its terminus in South Calgary.

Pine Pass Ry.—Application was made July 6, to the Department of Railways for the approval of the route of this projected railway. The map shows a route from Edmonton to Pearl River Landing, thence up Pine River to its headwaters in Pine Pass; down the Misinchinchi River to the crossing of the Parsnip at or near Trout Lake, and on to the Pack River; following up Pack River to McLeod Lake; along Lake River to Carp Lake; westerly to the Swamp River, a tributary of the Little Salmon; following the Little Salmon to its mouth, about 22 miles above Fort George; thence crossing the Fraser River on to the metals of the G.T.P. Ry. and down the Fraser to Fort George. (May, pg. 353).

Portland Canal Short Line Ry.—We are advised that if the proposed extension, referred to in our last issue, is built it will have to go through Alaska for about 11 miles, and about 5 miles further into British Columbia before the Salmon River mining camp is reached. It has not been decided whether the extension will be built at all; everything depends on how the mines, which are in an undeveloped state at present, turn out.

Contractors' plant and camp supplies, with 100 men left Victoria, for Stewart, B.C., June 30, in connection with the construction of this line from Stewart, at the head of the Portland Canal. The manager of the Westholme Lumber Co., which has the contract, is quoted as saying that as many men as can be obtained will be set to work so as to have the line completed with all the dispatch possible. S. Cameron, Prince Rupert, B.C., has been given a sub-contract on the line.

The Provincial Minister of Public Works on his return from a visit recently made to Stewart, said it was the distributing centre for a large area of mining country. The Government had authorized the expenditure of $12,500 for roadmaking in the district, and he was prepared to recommend the granting of $20,000 for sanitary improvements in Stewart, if the citizens raised $10,000.

A dispatch from Stewart, B.C., July 7, says:—Big construction camps and supply depots have been established at Stewart, and at Bitter Creek and substantial permanent camp buildings erected at the former. A large force is busily engaged in clearing right of way and carrying in supplies, a freight depot for the railway has been erected on the site chosen for the station. Railway supplies are being stored there for the construction period. Pile-driving is being pushed for the wharf and the long approach across the mud flats, and very

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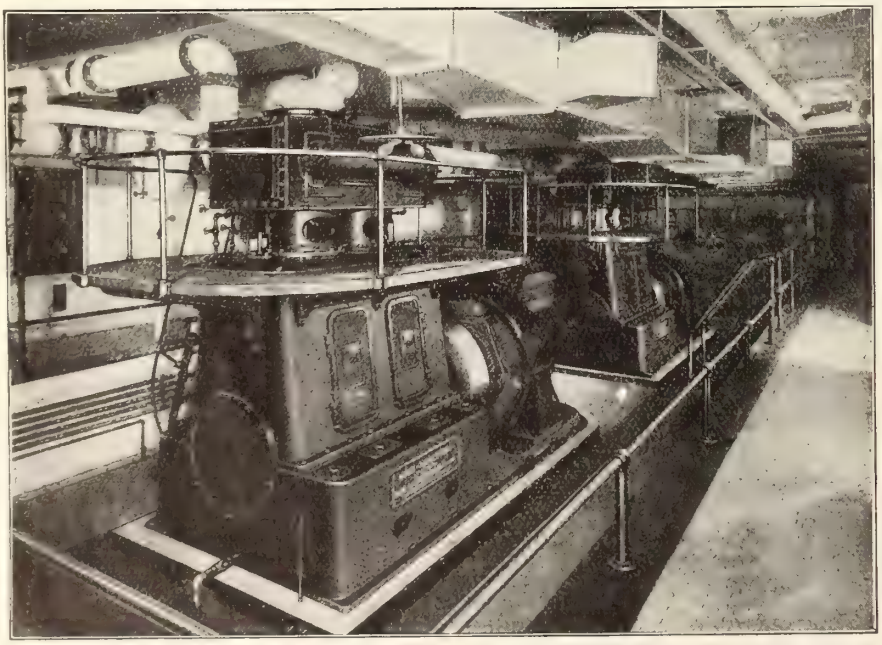

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soon grading will be going ahead on the line as far at least as Bitter Creek. The work is being done under sub-contract by the Westholme Lumber Co., Saul Cameron being in charge. Before the season closes the first 10 miles of the line should be in operation.

Joliette and Lake Manuan Ry.—We were advised July 15 that a contract for building this line has been let to the Enterprise Construction Co. of New York, of which H. O. Hener of that city is President; J. M. Patton, Notre Dame St., Joliette, Que., is Chief Engineer for the railway. The company is arranging to place an issue of bonds upon the market in London, Eng.

Port Moody, Indian River and Northern Ry.—This line which is being built in British Columbia, starts at the western boundary of district lot 256, and skirts the shore line around the head of the inlet and connects with the C.P.R. main line at the Emerson Lumber Co.'s mill, a distance of about four miles. The line is to be completed, according to an agreement, with the property owners, by Sept. 1. The line, is said to be an expensive one to construct, and a great deal of secrecy is being maintained as to the purpose for which it is being built, and by what company it will be operated. One report states that it will be operated by the C.P.R., and that grain elevators will be erected on the waterfront for transferring grain from the trains to ocean going vessels. (July, pg. 549).

Prince Edward Island Ry.—In an interview at Charlottetown, P.E.I., during his recent inspection trip, the Deputy Minister of Railways said it was the first time he had come personally in contact with the question of operating a car ferry across the strait to the mainland, although he had heard about it in Ottawa. While not going into the merits or demerits of the proposition he would state that its adoption would mean the actual rebuilding of the whole railway on the island as the gauge would have to be changed from narrow to standard. (June, pg. 451).

Quebec Central Ry.—J. H. Walsh, General Manager, was in Quebec July 9, conferring with the mayor with regard to sites for station, freight sheds, etc., which it is the purpose of the company to erect as soon as an entrance can be secured into the city over the Quebec bridge. In an interview, Mr. Walsh stated that the President and some of the directors were coming from England to make an inspection of the line. He expected that as a result of the visit, arrangements would be completed for supplying capital to extend the line to Quebec, and to build some branches. (Feb., pg. 111).

Reid Newfoundland Co.—W. D. Reid, President, in an interview July 4, said that grading on the new Bonavista branch was being proceeded with at a satisfactory rate, and that track had been laid 28 miles. Snow fences and station buildings were being put up as construction proceeded, and rolling stock supplied, so that when the last mile of track was laid the branch would be fully equipped and ready for operation.

A press report states that the company is planning to erect a foundry and machine shop in connection with its dry-docks and works at St. John's, Nfld. The new shops will be built to carry out the agreement made last year with the Government, that cars and locomotives for the line be built in Newfoundland.

St. John Valley Ry.—E. A. Stone, head of the New Brunswick School of Engineering, has been appointed chief of a staff of engineers sent out by the Provincial Government to make a survey for an alternative route between Walsford and the city of St. John. The Chief Engineer for the whole of the survey work is D. F. Maxwell. (July, pg. 549).

Temagami and Ontario Northern Ry.—An action has been entered in the Ontario courts by the Sovereign Bank against A. B. Craig of London to recover $9,575.56 on rates made by the company and guaranteed by Craig. The company has a Dominion charter having been incorporated in 1898 as the Temagami Ry., and has power to build a line from Sturgeon Falls or Verner station on the C.P.R. northerly. Extensions of time were granted for construction in 1900, 1902 and 1904. In 1905 the company's title was changed to the Temagami and Ontario Northern Ry., and construction of a line from Sturgeon Falls southwesterly direction to the mouth of French River near Pyng Inlet, Ont., was authorized. No construction has been done. (Mar., 1905, pg. 95).

Temiskaming and Northern Ontario Ry.—The new station at Cobalt has been completed, and the staff took possession of the offices July 1.

It is said that next session of the Ontario Legislature the Commissioners will apply for power to reconstruct the line from North Bay to Matheson, cutting out curves, reducing gradients, and bringing that portion of the line up to the standard of construction adopted between Matheson and Cochrane.

The Commission's engineers are engaged in making surveys for a line to the Porcupine gold fields, but according to a recent statement by the Chairman this is only in line with the general policy, to be ready for anything. He also stated that the mining camps at Gowganda and the Porcupine had yet to prove their worth, and until they did so, the Commissioners would not do anything in the way of building the lines asked for, either now or in the near future.

It is proposed to build a retaining wall along the bluff at Lang St., Cobalt, and Chief Engineer Clement was there July 8, in consultation with the mayor on the subject. (June, pg. 453.)

Toronto, Hamilton and Buffalo Ry.—The Hamilton city council has under consideration the company's application for permission to build three branch lines from near Grant Ave. to east of Sherman Ave., to which there is considerable opposition on the part of the citizens in the neighborhood affected. The council desires to be fully informed as to the company's intentions before taking any definite action. The question of what the council will do when the application comes up for consideration before the Board of Railway Commissioners is also under consideration. (July, pg. 551).

Western Canada Power Co.—The railway which the company is building starts from Ruskin, B.C., on the C.P.R. transcontinental line, and runs northerly to the company's power plant on Stave River, about six miles. Construction is being proceeding with, and it is expected to be completed by the middle of Sept. The line is to be used at present for hauling to the power house the heavy machinery, the contracts for which have been let. Steam will be used at first, a locomotive and some cars having been purchased. Later on electricity will be used for the operation of the railway. (July, pg. 551).

Passenger Agent,—Here are some post card views along our line, perhaps you would like them.

Traveller.—No, thank you, I rode over your line last week, and have views of my own.

Transportation in Northern Alberta

The Athabaska Landing Board of Trade has issued a pamphlet from which the following extracts are taken:

"As a transhipping town no town of the same size shows greater activity than Athabaska Landing, and few towns larger. To find a greater distributing centre one must turn to the cities. The routes, both overland and water, to the northern districts branch out, from Athabaska Landing. In summer the traffic to and from the north is carried on by flat boats, wagons and steamers operating from this point, in winter by sleighs.

"During the entire summer about 400 men are employed in the transportation business conducted from this point, and about the same number are employed during the winter. For 26 years this has been the undisputed distributing point for the entire north, including the Peace River district on the west and the Mackenzie River district to the north. This point has been most peculiarly favored in its natural position to command northern traffic. The railways are now turning towards the north, and Athabaska Landing is destined to become the distributing point by rail for the north in the same manner as it has been over land and water routes in the past. The Canadian Northern Ry. is now engaged in construction work on its lines to this point from the south and also from the east.

"The building of flat boats for transhipping supplies to the northern districts has been a great industry of Athabaska Landing for over 25 years. As the cargoes coming out of the north are small in bulk compared to those taken in, but few boats are brought back to this place. This necessitates the building of new boats annually. The average number of boats built annually is about 75, but owing to the great attention the north is receiving at present this year's output will number nearly 100. These boats are all built from native lumber and afford employment to a large number of men. In addition to the flatboats that are yearly constructed here the Northern Transportation Co. has made Athabaska Landing its headquarters, and its three steamboats were all constructed here. Its largest steamboat which operates on the Athabaska River is 120 ft. long. Last year the company constructed in its yard a small steamboat for use during the period of low water in the Athabaska River. The entire fittings of this boat, except the engines, were made here. The 40 h.p. water tube boiler was built by the company's local engineers."

Railway Lands Patented.—Letters patent were issued during April and May, covering railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Canadian Pacific Ry.	22,183,983
Canadian Pacific Ry., Souris Branch	269,389.10
Canadian Pacific Ry. roadbed and station grounds	7.00
Grand Trunk Pacific Ry.	341.77
Total	291,922.153

The Ruskin Logging Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $100,000, to carry on a general lumber and logging business, and in connection therewith to build and operate single or double track, or aerial or other tramways, with the necessary side tracks, turn-outs, etc., and to own and operate steam and other vessels for the carriage of passengers and merchandise

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CAR CASTINGS, FORGINGS AND REPAIR PARTS

The National Transcontinental Railway Shops near Winnipeg.

Our issue of August, 1909, contained some preliminary particulars of the shops, near Winnipeg, and also an isometric view of them. Now that their construction is well advanced the following complete description will undoubtedly prove of great interest:

The locomotive and car shops now under construction about six miles east of Winnipeg on the National Transcontinental Ry. are intended to look after the general repairs for 1,800 miles of operating line. The plans developed with this capacity in view, and the layout were approved and detailed plans worked out for the various buildings constituting the plant. The site chosen for the shops is on the prairie, and in order to be above all possibility of flooding in the spring freshets, the floor level of the shops was raised about 4 ft. above the existing prairie level by a heavy gravel fill over the whole site occupied by the buildings.

The buildings were grouped as closely as possible in order that the distances between them might be short; as during the winter the cold makes communication difficult if the buildings are much spread out. The various buildings are arranged about a midway, which runs north and south across the property, and are served by a series of standard gauge service tracks branching off from the yard tracks to the south. Communications between the buildings is obtained by means of narrow gauge industrial tracks and the overhead travelling crane which runs the whole length of the midway, thus serving the various shops. The buildings constituting the locomotive shop plant are located on each side of the midway and south of the through track, passing north of the power house, while the car shop plant is north of that line. The grey iron foundry and forge shops, of course, serve both branches of the work. The power house is located centrally, thus doing away with long runs of piping and wiring feeders. The whole plant is laid out so that each building may be extended 100% in the future when increased space is required.

The buildings, with the exception of the storehouse, oil house and stores platform are of steel construction with self-supporting steel frames, concrete foundations and walls up to the windows. The balance of the superstructure masonry is brick, and it is carried up into a parapet wall, all around the building, capped with a concrete coping. The roof drainage is carried down inside the buildings from receiving hoppers in the roof and through running traps to the sewers. The roofing on all the large buildings is a built up roofing composed of felt and asphalt covered with gravel. All window glass throughout the plant is ⅛" thick ribbed glass and the skylights are glazed with ⅜" wire glass of best quality. The skylights are carried on steel ribs with rolled copper sheathing to carry the glass. Copper is used throughout for all flashing gutters and ventilators. The shops when completed, will have a total floor space of a little over 17 acres.

The system of general interior illumination is to be on the mercury lamp principle, with lamps and reflectors hung high in the shops. This form of illumination has been found most satisfactory, giving an easy, even light and no sharp shadows. There will be plug receptacles in all buildings at frequent intervals in order that lamps on cables may be carried to any definite point or into boilers, etc. Ample window areas and wide skylights have been laid out in order to obtain the maximum of illumination, and as the interiors of the shops are all painted white, the light is exceptionally good.

High and low pressure steam, water, compressed air and drinking water are distributed throughout the various buildings, with numerous outlets. Fuel oil is distributed under pressure from the storage tanks to the furnaces in the boilshops, while an accumulator gives the necessary hydraulic pressure for operating the various hydraulic machines.

The electric travelling cranes throughout the plant are equipped with alternating current motors and are operated directly from the three phase circuits from the power house.

The piping distribution system is carried up and down the midway from the power house in a tunnel of sufficient size to permit of passage alongside the pipes, and branches to the various buildings are run from this tunnel in tile conduit packed with asbestos sponge. On entering the building the piping is carried on the trusses and steel work of the shop. The shops are protected from fire by an extensive system of yard piping and fire hydrants, with hose houses at convenient spots.

LOCOMOTIVE DEPARTMENT.

THE LOCOMOTIVE, MACHINE AND ERECTING SHOP consits of three bays 70, 60 and 40 ft. wide respectively and 613 ft. long. The 70 ft. bay has a height from floor to bottom chord of truss of 50 ft. and is laid out with 25 engine pits arranged across the house. There are two entrance tracks for bringing in locomotives and the 120 ton crane which spans the 70 ft. bay, lifts the locomotive and carries it up or down the shop to whichever pit is ready for it. Under the 120 ton crane, is a 10 ton crane spanning the bay for general work and handling material. Each pit is furnished with plug connections for electric light and valves for steam, water and air, and there is a wall bracket crane on the column between alternate pits. The 60 ft. bay is used for the heavy individual motor driven machinery and is spanned by two ten ton cranes for handling material. The lye vat and the fire furnace and floor are also in this bay. The last 72 ft. of this bay is used as a flue shop and is equipped with all the necessary furnaces, cleaners, etc., for this work.

The 40 ft. bay is devoted to the lighter machine work on bolts, rods, motion parts and general departments, and the apparatus is grouped and driven from line shafts, each group being handled by a single motor. At the east end of this bay is the rivetting tower equipped with a 20 ton crane for handling boilers. Overhead in the 40 ft. bay is a balcony running the whole length of the shop and on it are located the indirect heating plants, locker rooms, lavatories, tin shop and light repair and brass departments.

The building is heated by indirect radiation, exhaust steam being furnished from the power house to the heating coils and the air drawn through these coils is driven by fans through the underground concrete ducts and delivered into the building at floor level through outlets along both walls, under the windows.

A 3 in. wooden floor spiked to sleepers bedded in bituminous concrete is used throughout the shop. The balcony floor is of concrete. The compressed air for this shop is furnished by two motor driven air compressors, thus making this shop independent of the central plant air compressor in the power house. Stand-by connections are made with the general air distribution in case of emergency. Across the end, and forming part of the same building, is the

BOILER AND TANK SHOP, which consists of four bays, 60, 50, 30 and 65 ft. respectively, 180 ft. long and 36 ft. from floor to bottom chord of truss. The 60 ft. bay is for general boiler work and is served by a 30 ton travelling crane. There is an inspection pit at the north end of the bay for testing purposes. The 50 ft. bay is devoted to heavy machinery, both individual motor driven and group driven, hydraulic flanging press, etc., and is spanned by a 10 ton crane for handling material. The 30 ft. bay is used for light group driven machinery, and over 100 ft. of it is a balcony on which is carried the indirect heating apparatus for this building, also the locker rooms and lavatories. The balance of the bay is served by a 5 ton electric travelling crane. The 65 ft. bay is laid out with tracks for accommodating tenders and has a capacity for 9 tanks. A 20 ton crane spans this bay and handles the various materials.

This building also is heated by indirect radiation, a system of ducts and outlets similar to those in the locomotive shop being used. A three inch wood floor also of similar construction is used throughout the shop. An individual motor driven air compressor is installed in this shop for supplying the necessary compressed air for use with the various pneumatic tools. Standby connection is made with the locomotive shop pipe line. The motor driven hydraulic pumps and accumulator for supplying hydraulic pressure for the plant are located in the north end of this shop.

THE FORGE SHOP is 260 ft. by 100 ft., spanned by a single truss giving clear space for the location of equipment. Most cranes with jibs swinging from furnaces to hammers handle the heavy materials, while a line of double forges along the south side of the building look after the lighter work. The spring department is located in the southwest end of the shop and is equipped to look after the spring work for both locomotive and car departments. This apparatus is driven from line shafting driven by three 40 h.p. motors carried on wall brackets and is arranged with ample floor space close by for storage of raw and finished material. A motor driven blower furnishes the necessary blast for the furnaces through underground and overhead piping. The steam to the hammers and exhaust return the oil, and hydraulic piping are carried in concrete ducts through the shop and to the various machines. The building is heated by indirect radiation from coils along the walls under the windows. The locker room and lavatory are in a small two-story annex on the south side of the building.

THE FORGE STORES AND SCRAP BINS are close by the forge shop in a frame structure 30 by 220 ft. on light concrete foundations. The east 100 ft. is built as a roofed platform with the floor 4 ft. above grade for handling material conveniently to cars. This platform is divided into bins for sorting and storage of scrap. The western portion is completely enclosed with plank lining inside and drop siding outside, and forms storage for coke, coal and iron stock. The iron stockroom is arranged with an extensive rack system for storing the different stock sizes for use in the forge shop. The coal and coke storage bins are arranged with roof hatches, in order that cars may be unloaded by a clam shell and crane from car and the coal and coke dropped through the roof. Industrial tracks are laid out so that the materials and supplies can be run into the forge shop on small cars.

THE FROG AND TRACK SHOP was laid out with the intention of looking after all repairs to frogs, switches, interlocking plants, etc., and is 60 by 100 ft. and 24 ft. from floor to truss. The shop is spanned by a 10 ton electric travelling crane and is equipped with machinery for handling the above class of work. Saws, light hammers, drills, planers, etc., make up most of the equipment, while a couple of

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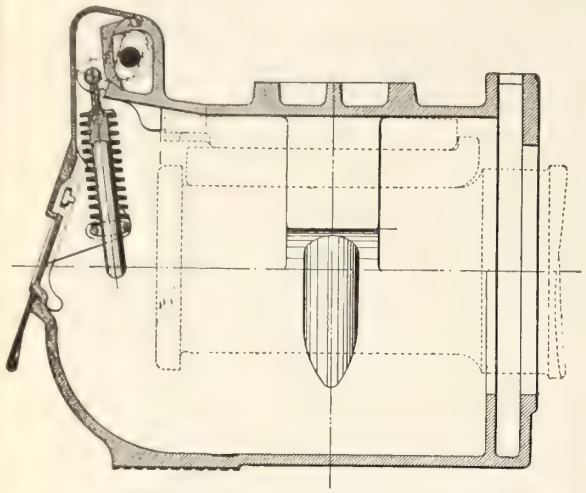

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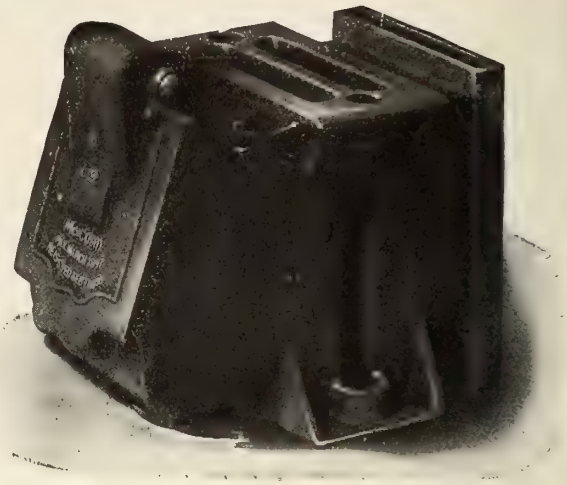

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groups of small machines driven from line shafts look after the lighter rod and bolt work. The lavatory and locker room is located in the southeast corner of the building, being surrounded by a cement wall on expanded metal 8 ft. high, thus allowing the crane to pass over it. The shop floor is 3 in. wood spiked to sleepers, bedded in bituminous concrete. Direct radiation by means of coils along the walls, is used to heat this building owing to its comparatively small size. Close to this shop is the

CRUDE OIL STORAGE, a concrete building, 25 by 60 ft. The building is mostly underground, the floor being 8 ft. below grade, the side walls only projecting 2'6" above ground. A concrete roof carried on steel beams closes in the building, making it fireproof in every way.

Inside, on concrete foundations, are four iron storage tanks each with a capacity of about 8,000 gallons of crude oil. Compressed air connections are made to these tanks, and the oil is forced out and distributed to the various buildings requiring it.

The tanks are arranged so that the pressure can be cut off and the tanks filled by gravity from tank cars standing on sidings alongside the building. Piping connections to the outside of the building, fitted with lock-up valves being supplied for this purpose.

THE STORE HOUSE, which is across the midway from the locomotive erecting shop, consists of a large reinforced concrete platform 4 ft. above grade in order to bring it to car platform level for handling supplies from the storehouse to the various buildings. On the platform is a brick building 60 by 260 ft. with reinforced concrete roof carried on concrete posts. The front portion of this building is fitted up for offices for the store keeper and clerks and has a fireproof vault. The balance of the building is equipped with an extensive system of shelving, racks, reels, etc., suitable for arranging the varied stock of materials which the store house contains. Side doors along both sides of the building give ready access to the interior from the loading platforms. The building is lighted with incandescent lamps and is heated by a system of direct radiation coils. The office portion of the building has ample flooring throughout and the balance has a cement finished top of the reinforced concrete the same as the rest of the platform. From the west end of the store house platform, a connecting platform at the same level and also of reinforced concrete joins the store house platform to the oil house platform 100 ft. away.

THE OIL HOUSE consists of a platform, 50 by 70 ft., rising 4 ft. above grade, and of similar construction to the store house platform. In this case there is a basement below the platform with a headroom of 10 ft. In the basement, carried on concrete foundations, are the 9 storage tanks for holding the various various kinds of oil in stock. An additional tank for holding gasolene is buried outside the building with a pump connection into the building. The tanks are filled either by gravity from tank cars standing alongside the building through fill pipes, or else from barrels poured into fill boxes set in the platform floor and connected to the tank fill pipes. A system of draining pipes is arranged for cleaning out the tanks, the oil is handled upstairs, in the pump room, by a row of Powser measuring pumps, each pump connected to one of the tanks. On the top of the platform is a small brick building 30 ft. long, with concrete roof and divided into two rooms by a concrete wall. One room is the pump room and the other is used for storing oilcans, waste, etc. There is a hydraulic elevator from the basement to the platform level outside the house for handling barrels, etc., from the storage in the basement. There is a stairway to the basement inside the building and there is also a pump running down from the outside. The building and basement are heated by direct radiation coils and the floor is the same as the balance of the platform. The building is made as fireproof as possible and the windows are glazed with ¼ in. wire glass.

THE STORES PLATFORM, alongside and to the north of the store house and separated from it by two tracks, consists of a large platform similar to the store house platform and of reinforced construction 56 by 180 ft. carried on concrete posts and open below. It is also at an elevation of 4 ft. above grade.. The platform projects into the midway 15 ft., enabling the midway crane to handle material from the platform to the other buildings. On this platform is erected a light steel framework, enclosed on the sides and ends with corrugated iron and furnished with a roof covered with prepared roofing. A five ton hand operated crane spans the building and has a runway the whole length on the building and a wide crane door at the front permitting the crane to run out over the platform in front of the building with its load and exchange loads with the midway crane. Access to the building is furnished by four doors on the sides, and one on each end, opening out to the platform. The building is lighted with incandescent lamps in groups with reflectors. The store platform is intended to be used as a storage for large, heavy material, such as castings, pipe, etc., and thus act as a relief to the general store house for this class of material which will be protected from the weather by the light structure and will be conveniently handled by the small crane.

THE LOCOMOTIVE CARPENTER AND PATTERN SHOP, to the north of the stores platform, is a two-story building 70 by 100 ft. with a self-supporting steel frame on concrete foundations. The first floor is of reinforced concrete and is carried on concrete columns, and the roof is also of reinforced concrete, making the first floor practically fireproof as all communications with it are protected with fire doors, etc. The ground floor has a 3 in. wood floor, and is used as carpenter and pattern shop, being equipped with light wood working machinery driven from line shafts. The carpenter shop is intended to look after the necessary woodwork incidental to locomotive repairs and the pattern shop for the manufacture and repair of patterns. The lavatory and locker room is on the north side of the shop and communication with the pattern storage upstairs is by an enclosed stairway, or by an elevator running in a concrete enclosed elevator shaft equipped with fire doors. The elevator is for handling patterns to and from the pattern storage room. The first floor is equipped with shelving and racks for the storage of patterns, the windows are glazed with wire glass and the room made as fireproof as possible. The heating of both floors is by indirect radiation coils.

THE GREY IRON FOUNDRY is a large building 130 by 200 ft. with a cleaning room annex 60 by 80 ft. The main foundry has a central bay 70 ft. wide and two side bays each 30 ft. wide. The central bay is used for the general moulding floor, and is spanned by a 15 ton electric travelling crane equipped with a 5 ton auxiliary hoist for light lifting. There are also small jib cranes attached to the columns for handling flasks, etc. The 30 ft. bay on the north side has the moulding floor for scrap castings at the west end and the core room and core ovens at the east end, each served by one ton hand operated travelling cranes. There are three core ovens, two with shelves and rack cars for general small cores and one large oven with platform car for cylinder cores and similar large work. This core oven with platform car for cylinder and portion of core room is served by a 5 ton bracket crane. Between these two departments on the north side is the cupola room with two cupolas, one 84 ins. and one 72 ins. in diameter. The scale room for weighing charges and the blower room on an elevated steel platform are also in the cupola room. The core ovens are fired from the cupola room, thus keeping all the ash, etc., in one place.

The loaded cars, after weighing, are handled by pneumatic elevator to the charging floor and are handled by pneumatic charging machines. The charging floor has a steel plate floor and is laid out with a transfer truck and storage tracks for keeping loaded cars on hand ready for charging while the cupolas are running. The cupola room and charging floor are 30 by 40 ft. The 30 ft. bay on the south side of the building has the brass foundry at the west end, and enclosed with expanded metal screens 10 ft. high. This small foundry is equipped with brass furnaces and regular brass foundry equipment and is served by a one ton operated travelling crane. The lavatory and locker rooms are also in this bay and the heating apparatus for the indirect radiation heating system. The cleaning room is at right angles to the main building and is spanned by a 5 ton electric travelling crane. In this annex are the tumblers, grinders, etc., and a service track runs right through the room, enabling cleaned castings to be loaded right on the cars for shipment. The moulding sand is stored in bins on the south side filled from cars on the service track and distributed by industrial tracks inside the building.

Along the north side of the building between the service track and the foundry is a long galvanized iron shed, roofed in and divided into separate compartments. Here are stored direct from cars, the coke, pig and scrap iron under cover and these are brought into the foundry on cars running on industrial tracks also under cover between the bins and the building. Having both material and handling tracks under cover is a great point in the handling of materials in the cold winter weather. The grey iron foundry is intended to supply the demands of both the locomotive and car departments. Besides the above equipment, a gravity moulding machine and a brake shoe moulding machine are installed.

THE MOTIVE POWER OFFICE BUILDING, south of the locomotive erecting shop and opposite the store house, is a brick structure with a steel interior frame. The floors are of maple on spruce joists carried on the walls and steel work. The building is 60 by 68 ft. and consists of two stories and basement. The basement is devoted to a large testing laboratory, lavatories and storage. The ground floor has offices for the officials and clerks for the department, while on the first floor is the drafting room, file room and blue printing room. A vault is carried up from the basement to roof with vaults on each floor. The building is plastered throughout and the halls and stairs have a wood wainscotting.

The building is heated by direct radiation coils and has incandescent electric lighting fixtures.

CAR DEPARTMENT.

THE COACH SHOP repairs are carried out in a building 115 by 260 ft. There are four working tracks down the centre of the shop with a standing capacity of 12 standard coaches. An industrial service track runs between each pair of tracks for handling material. Along each side is a balcony 16 ft. wide with a light wall enclosing it from the floor of

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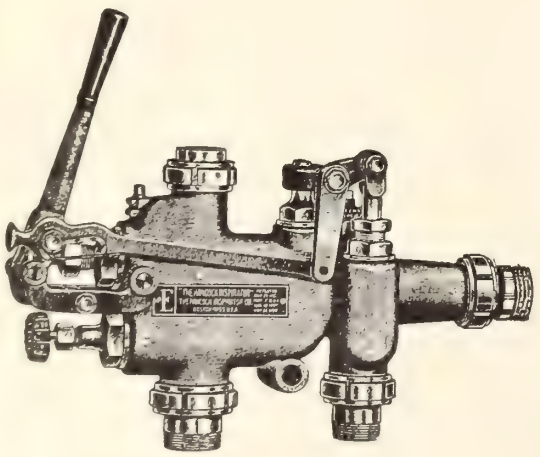

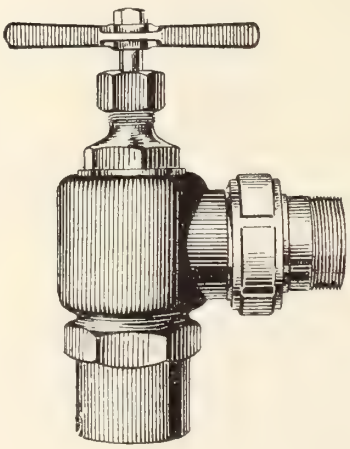

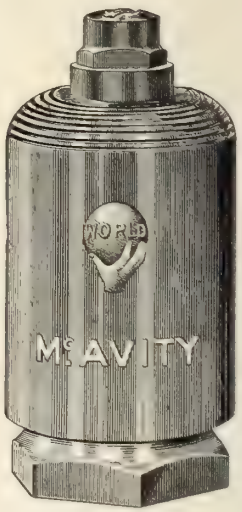

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the balcony to the roof of the building. There are windows in this partition giving light from the shop as well as the windows on the outside wall. Material is handed up to these balconies by large hoists; one at each corner of the building. The north balcony is devoted to cabinet work and is laid out with a line shaft operating various light working tools such as scroll and band saws, lathes, drills, surfacers, etc. On the main floor directly below this north balcony are a number of heavier woodworking tools, most of them individual motor driven, such as rip saws, planers, mortisers, matchers, etc., for preparing the lumber before it is sent upstairs to the cabinet shop. One of the ideas in putting the cabinet work upstairs, was to get the work in a dry spot where it would not be affected by dampness, etc., as it would be if on the ground floor. The south balcony is divided into several departments; the east end is used for the upholstering repair work, then the tinsmith shop, then a varnishing room, and the west end is devoted to a small brass shop, with lathes, a small shaper, drill, etc., and a couple of buffing machines and a lacquer oven. On the main floor below this balcony are located the nickel plating department with its tanks, buffing wheels, etc., the sash washing sink, and in the centre are the lavatories, locker rooms and indirect heating apparatus. The building has a wooden floor and the balconies have concrete floor. The heating is by indirect radiation. Cars are handled right through the shop, entering it at the east end, passing through the shop and undergoing the necessary repairs and then going straight across the midway and entering the

COACH PAINT SHOP, a building 67 by 340 ft. with four through tracks for painting cars and two industrial service tracks. This shop has a standing capacity for 16 standard coaches. The lavatories and heating apparatus are in an annex on the south side. The building is heated by indirect radiation and has a concrete floor draining between the tracks. The cars enter at the east end, either direct from the coach shop, or else from yard tracks with cross over connections, and pass through the shop and out at the west end.

THE FREIGHT CAR SHOP is south of the coach paint shop. It is the second largest building in the plant and is 200 by 600 ft. with nine through tracks having a standard capacity for 108 standard freight cars. The building is divided into three equal bays 65 ft. wide, and there are three car repair tracks with two industrial supply tracks to each bay. Cars enter the east end and are repaired and pass on to the west, where they are painted and stencilled, and then pass out of the west end of the building into the yard. The two side bays have a clear height to bottom chord of truss of 20 ft., while the centre bay has a clear height of 30 ft. and is spanned by a 20 ton electric travelling crane with a 5 ton auxiliary. This centre bay is intended for the handling and repairing of steel cars in the future when required. The locker rooms and lavatories are in small annexes on each side of the building, and the two sets of indirect heating apparatus are housed in small annexes on the north side of the building with tile distributing ducts throughout the shop. The floor is 3 in. wood throughout the shop and concrete in the lavatories and heating annexes. On each side of the freight car shop are platforms, racks and bins for the storing of prepared rods, bolts, etc., for work on freight cars. These bins, etc., are served by industrial tracks running through the shop.

PAINT STORES BUILDING, north of the freight car shop and between it and the coach paint shop, is a small building 30 by 40 ft., and is used for storing, mixing and delivering paint, etc., to the two paint shops, and is conveniently located and connected to them by a direct industrial track. The building is fitted up with tanks for the various oils and varnishes, bins for dry colors, glass racks, stencil racks and washers, and a color grinder and putty mixer. Barrels of oil, etc., are handled from the platform which surrounds the building by a small telpher hoist which runs around the interior of the shop. The telpher trolley runs on a trolley beam supported from the roof trusses.. A standard service track passes the building, so material is economically delivered and handled.

THE SCRAP PLATFORM is alongside the paint stores and just north of the freight car shop. It is built of wood and with the platforms at the car floor level. This large floor, 50 by 200 ft., is divided into bins for the sorting and classification of scrap from the car repair shop. It is served by industrial tracks and has a standard service track passing along the north side for shipping the scrap.

THE CAR DEPARTMENT OFFICE BUILDING near by and close to the midway is similar in every respect to the motive power office building described above, only in this case it houses the officials, clerks and offices of the car department.

THE DRY KILN is a small concrete and brick building about 40 by 50 ft., divided lengthwise into two kilns. There are two large entrance doors at each end and tracks running through the kilns to run in the loaded trucks. The doors at the ends are double with an air space, and the walls are also constructed with an air space. The coils for heating are distributed on the floor, which is of concrete and arranged to drain to a gutter. After the doors are shut, the kilns are controlled from a small cabinet at the west in which are the steam and the return control valves, lighting switches and recording thermometers, the sensitive bulbs of which are several feet along the wall inside the kilns. In this way, once the kiln is closed, a complete record of the process is obtained in the control cabinet.

LUMBER SHED.—After passing from the lumber yards through the dry kiln, the lumber, if it is to be stored, is taken to the lumber shed, which is close alongside and is 60 by 165 ft. with standard and industrial service tracks running through it. It has a wood floor well laid on sleepers and gives a storage for dried or dressed lumber protected from the weather.

PLANING MILL.—From the lumber shed or dry kiln, the lumber enters the east end of the planing mill, which is 100 by 300 ft., and is arranged so that standard cars of material can be run in at the east end and the material unloaded right at the machines. The north side of the shop is devoted to the still work, and here the machines are arranged in order so as to take the rough sill as it enters the building and dress, cut off, mortise, tenon and bore it and pass it out of the west end of the shop all ready to be run into the coach shop alongside of the freight car shop across the midway. The south portion of the shop handles the flat work for flooring, sheathing, etc., and in the same way the material entering the building is handled by the saws, planers, matchers, cut off saws, etc., and is shipped to the shop where it is to be used. At the west end of the shop is a department for door and sash work, with the necessary planers, saws, sanders, etc., for this work. A small line shaft drives the grinders, saw menders, etc. On the south side at the centre is located the lavatory and locker room, and on a steel platform above them there is arranged the indirect heating apparatus. On the same platform are arranged the exhauster fans for handling dust, chips, etc., from the various machines and driving them through pipes to the power house, where they are used under the boilers. Most of the machines are driven by individual motors. The floor of the building is of wood and the heating is by indirect radiation.

THE WHEEL FOUNDRY is close to the grey iron foundry and served by the same service tracks.. It is some 70 by 150 ft. laid out in the straight line floor principle with 4 floors of 25 wheels each giving a capacity of 100 wheels a day. This building like all the others can be extended when required. There are 32 annealing pits and two pitting cranes. Wheels are cleaned and loaded on to cars from platform at pit top level. The cupola room, the core room, and charging floor are at the north end of the building and are equipped with pneumatic elevator, scale room, pneumatic machine blower, storage tracks and all necessary details for operation. The building is heated by indirect radiation. The stock storage sheds are arranged on the same principle as those for the grey iron foundry, and everything is handled under cover. These sheds and those for the grey iron foundry are laid out on the same lines and may be extended and made one long storage when occasion demands. There is a wheel breaker in connection with the wheel foundry and a ball weight casting breaker between the wheel and grey iron foundry.

WHEEL AND MACHINE SHOP.—When the wheels leave the wheel foundry, they are taken to the wheel and machine shop building, 70 by 160 ft., spanned by a 10 ton electric travelling crane and equipped wheel press, wheel lathes, tire furnace, etc., for all wheel work, and with arch bar drills, engine lathes, planners, drills, nut tappers, grinders, etc., for general car shop machine work. The building has a wood floor and is heated by indirect radiation. The lavatory and locker rooms are on the south side of the shop. In front of the building is a storage space for mounted wheels convenient to the freight car shop across the midway.

THE POWER HOUSE is 110 by 150 ft., divided lengthwise by a brick fire wall into two rooms, 45 and 60 ft. wide respectively. The boiler room 45 by 150 ft. is laid out to receive 10 water tube boilers in units of about 400 h.p. Two of the these boilers are arranged with Dutch ovens for burning shavings, etc., and refuse from the planing mill while the balance of the boilers are equipped with chain grate stokers. The ash pits are furnished with chutes which run the ashes into the conveyor and they are carried up to the ash hopper and thence through the wall by means of a chute into the waiting ash car outside the building. The boiler room and basement floors are of concrete and all shafting, etc., for driving the stokers is carried along the ceiling of the basement.

The engine room 60 by 150 ft. has a pump pit 16 ft. wide and 8 ft. deep running along the whole length of the fire wall. The pit is bridged by gangways from the boiler room to the engine room floor. In the pump pit, is located the air receiver for the compressor, the vacuum pump, the fire, boiler, service and well pumps and the feed water heater. The water and exhaust and other lines are carried along the walls of the pit with all connections from apparatus. The floor and retaining wall of the pump pit are of concrete. In the engine room are located three 500 k.w. a.c. generators driven at 150 r.p.m. by direct connected cross compound corliss engines, one 250 k.w. a.c. generator driven by simple engine, and two 150 k.w. d.c. generators, one driven by simple engine and the other by motor. Two exciter units for furnishing the necessary excitation for the generators are also driven by simple engine. A 1,500 c. ft. capacity

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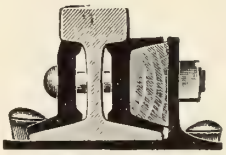
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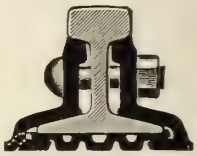
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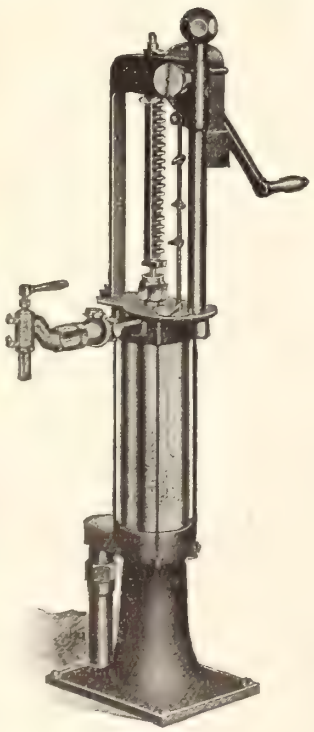

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corliss engine steam driven air compressor completes the engine room apparatus. Along the north is located the switchboard with generator, totality and feeder panels. All connections from generation to switchboard are underground in conduits. From the switchboard to the various buildings and cables are carried in tile ducts laid in concrete. All wiring distribution between power house and other buildings being made underground.

The engine room is spanned by a 10 ton hand-operated travelling crane for handling heavy apparatus, etc. The finished floor of the engine room is polished maple laid on a false floor carried on sleepers, bedded in bituminous concrete. A concrete chimney 11 ft. diameter and 200 ft. high alongside the power house, furnishes the necessary draught for the boilers, while a tank with 100,000 galls. capacity elevated 125 ft. above the grade gives pressure for general water service distribution. A smaller tank of 10,000 galls. capacity is hung just below the larger tank giving storage and distributing pressure for drinking water which is piped to drinking fountains throughout the shops.

WATER SUPPLY.—In order to obtain a soft water supply at the shop site, a pumping station is erected on the bank of the Red River just above the city of Winnipeg. The pump house has suction pipes running out into deep water of the river connected to vertical triplex high speed pumps with a capacity of 1,000,000 imperial gallons in 24 hours. These pumps are direct connected to gas engines by friction clutches. A duplicate gas producer plant is installed and cross connected in every way in order to render a shut down practically impossible. From the pump house, the water is conveyed six miles to the shops through 12 ins. diameter wire wound wooden stave piping; pipe line being fitted with valves, access, access boxes, etc. At the shop site, the pipe line empties into one end of a storage settling reservoir with a storage capacity of 2,000,000 imperial gallons. This reservoir is constructed of concrete and is 60 by 270 ft. long and 25 ft. deep with a dividing wall running lengthwise dividing it in halves. The surrounding walls and floor are of mass concrete and the centre dividing wall is of reinforced concrete, designed so that one half of the reservoir may be emptied for cleaning, while the other half remains full. The reservoir is roofed over with a double plank roof carried on steel beams and a prepared roofing over all. This roof is to keep the dirt and drifting snow out. Close up under the roof are hung a number of pipe coils for heating in winter to prevent the ice forming too thick on top of the water and thus interfering with the outlet pipes, etc. The water is drawn off from the opposite end from that at which it enters, thus giving a good opportunity for the dirt to settle. The reservoir is arranged with by-pass piping by which it can be emptied by the pump and also with overflow outlets to prevent flooding. Water is drawn from this reservoir for the high level tank and connections are also made to the fire pumps in the power house.

SEWAGE SYSTEM.—As there is no municipal sewer to drain the shops into, it has been necessary to instal a sewer system for them, and as there is not sufficient fall from the shops to the Red River for a gravity flow sewer, it has been necessary to put in a pumping station to force the sewage to the river. A gravity system of tile collecting pipes runs through the shop site connecting with roof downspouts, sanitary sewers and all drains. This sewer line is arranged with manholes, surface drains, vents, etc., and discharge into a concrete pump forming the basement of the pump house. The next floor carried the volute centrifugal pumps of 16,000 galls. per minute capacity with suction pipes running down into the sumps and shafts running up to the floor above where are located the vertical shaft motors for driving. These motors are controlled by an automatic starter, which is operated by a float in the sump below, adjusted to start and stop the pumps when the water in the sump reaches certain levels. The pumps and motor are in duplicate to have a steady increase of breakdown and the control is so arranged that if one motor fails to start the other will be started before the water reaches a dangerous level. Under heavy rain conditions, the flow from the shops and the grounds, is estimated at approximately 16,000 galls. a minute, so pumps of that capacity have to be installed. The pump house is a small reinforced concrete building located about 1,400 ft. from the midway. The two pump discharges run into a single 36 ins. diameter banded wood stave pipe which runs from the pump house to the Seine River, into which it discharges close to its junction with the Red River. The sewer pipe line is carried from the shops to the river along the N.T.R. right of way.

The details of the shop plant were developed and the actual construction carried out under the supervision of Frank W. Walker, M.E., Superintendent of Terminal Shops for the National Transcontinental Railway.

G.T.R. Betterments, Construction, Etc.

Southern New England Rd.—In connection with the application of the G.T.R. through its controlled company the Central Vermont Ry., to build a line between Southbridge and Palmer, Mass., so as to give it, with a line in Rhode Island, a route to Providence, application has been made to the Massachusetts Railroad Commission, by the New York, New Haven and Hartford Rd., to build the same line. The G.T.R. states that it will build the line whether permission is given to the other company or not, but the N.Y., N.H. and H. Rd., states that it will build only if given an exclusive franchise. The case was further argued June 29, but no decision has been announced.

A press dispatch from Boston, July 12, says that the Massachusetts State Railroad Commission has given the company the necessary permission to construct the line in question from Palmer, Mass., to the Rhode Island State line, and that the application of the New York, New Haven and Hartford Rd., to build the same line had been refused. In an interview at Montreal, July 14, President Hays, said "The G.T.R. has no intention of building into Boston, as our agreement with the Boston and Maine Rd. is eminently satisfactory." This statement was made after a deputation from Boston, had waited on him to urge the building of such a line.

Allandale Freight Shed Burned.—The freight sheds and weigh scales house at Allandale, Ont., were burned July 1. There was a large quantity of freight in the shed, which was all burned, as well as 12 cars and their contents.

Tiffin to Wyevale.—A contract has been let to the Midland Railway Construction Co., a company controlled by Jas. Playfair, Midland, Ont., for the construction of nine miles of line from Tiffin, on the old Midland Ry., southerly to three miles south of Wyevale, on the Penetanguishene branch. The work is expected to be completed this year. The construction of the line will enable the company to run trains from Toronto and western points to Tiffin and Midland by a shorter route than the present line via Orillia.

Toronto Improvements.—The company has acquired all the land required along its right of way between Dufferin St. and Sunnyside, for the doing away with level crossings, with the exception of four pieces, to secure which expropriation proceedings are being taken. A definite start upon the work is expected to be made at an early date. The improvement will give the company four tracks between Toronto and its Mimico yards, and will do away with a dozen protected level crossings.

Erie St. Bridge, Stratford.—The new bridge, across Erie St., Stratford, Ont., on the line to Goderich, was put in position June 30, without disarranging the traffic. It has been built in connection with the improvement of the line to carry the heavier locomotives and trains now being operated over it. (July, pg. 537.)

Railway Commissioners' Traffic Orders.

Summaries of other traffic orders are given on another page under "Orders by Railway Commissioners":—

COAL RATES FROM LUNDBREK, ALTA.

10960. June 16.—Re complaint of Galbraith Coal Co., Ltd., of Spokane, Wash., and Lundbrek, Alta., complaining that the C.P. Ry.'s special tariffs on coal and coke, C.R.C. nos. W414 and W1296 (the latter since superseded by C.R.C. no. W1359), unjustly discriminate against shipments from Lundbrek in favor of shipments from Lethbridge, Alta. It is ordered that the railway company revise and re-issue its special tariff rates on coal and coke from the shipping points on its Lethbridge, Crows Nest, and Cranbrook sections, to points west thereof, so as to place the said rates on a reasonable basis relatively to the special tariff rates on coal and coke at present in force, or as they may be reduced, from Lethbridge; the said special tariffs of revised rates to be published and filed within 90 days from date of issuance of order.

International Traffic Rates.—We mentioned in our July issue the appointment of J. P. Mabee, Chairman of the Dominion Board of Railway Commissioners as Canadian representative in connection with the discussion of an arrangement for the joint control of international traffic rates between Canada and the United States. The U.S. Government on July 14, appointed M. A. Knapp, chairman of the Inter-State Commerce Commission as its representative. It is understood that Messrs. Mabee and Knapp will meet and discuss the whole matter, and will draw up a report with recommendations, either separately to their own governments or jointy to both governments, and that following the report some legislative action will be taken in both countries.

W. C. Norris, a lawyer of Marcus, B.C., and one of the original directors of the Kettle Valley Lines, has been convicted of stealing $125,000 from the Oregon Trust and Savings Bank, of which he was cashier. He brought an action to have the charter of the railway in the U.S. confiscated on the ground that practically the whole of the stock was held by Canadians.

The Grand Trunk Pacific Transfer Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $100,000, to carry on a general transfer business, and in connection therewith to own and operate steam and other vessels, self-propelled and other vehicles of every description, wharves, warehouses, etc., and to conduct the general businesses of shipowner and baggage contractor.

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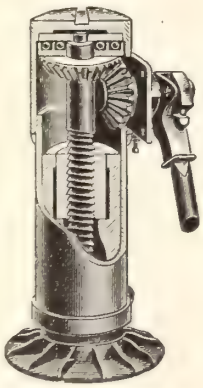
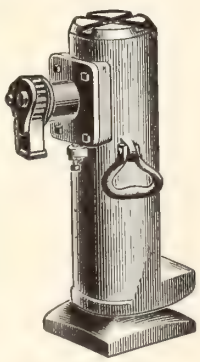


Sectional View



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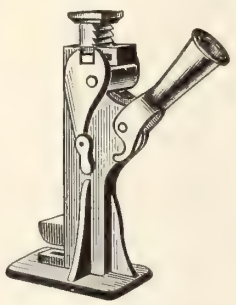

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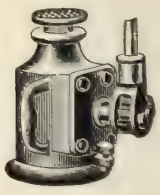

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Orders by the Railway Commissioners.

Beginning with June, 1904, we have published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed our paper have a continuous record of the Board's proceedings. No other paper has done this.

The dates given of orders, immediately following the numbers, are those on which the hearing took place and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the date assigned to them.

Orders 10778 to 10797 were omitted from our July issue, the summaries of them not having been dispatched from Ottawa in time.

10778. June 4.—Authorizing C.P.R. to build bridges 77.82, Chapleau section, Lake Superior Division; 116.78, Chapleau section, Lake Superior Division; 69.3, Boundary section, Pacific Division.

10779. June 4.—Authorizing C.N.O.R. to build between lots 28 and 29, con. A., Haldimand, tp., at station 330.30.

10780. May 23.—Authorizing C.N.O.R. to build bridge to carry Don Mills road over its line at station 26.85.

10781. June 4.—Authorizing C.N.O.R. to build between lots 21 and 22, con. A., Haldimand tp.

10782. May 23.—Ordering G.T.R. and C.P.R. to provide gates and watchman at Royce Avenue crossing, Toronto.

10783. June 2.—Authorizing C.P.R. to use natural gas for lighting passenger cars, subject to terms and conditions made, and a penalty of $100 for failure to comply therewith.

10784. June 2.—Dismissing application regarding protection at G.T.R. crossing, west of Stanfold station, Que.

10785. June 4.—Extending time provided in order 9114, within which C.P.R. was required to complete subway at Iberville St., Montreal, to July 15, and rescinding order 10571, May 16.

10786. June 4.—Authorizing C.P.R. to build across highways on its Lethbridge-Aldersyde Branch at mileage 5.10, 8.90, 11.20, 17.60 and 19.60.

10787. June 6.—Authorizing C.N.O.R. and C.P.R. to operate trains over crossing at mileage 56.6, west from Hawkesbury, without first being brought to a stop.

10788. May 23-25.—Dismissing town of Brampton's application for order directing G.T.R. to provide commutation tickets between Brampton and Toronto, similar to those granted between other suburban points and Toronto, such as Oakville, Streetsville, Whitby and Oshawa, Ont.

10789. June 6.—Approving Vancouver, Fraser Valley and Southern Ry. location in New Westminster, B.C.

10790. June 6.—Authorizing city of Brantford, Ont., to build temporary level crossing over Western Counties Electric Ry. canal, Brantford and Hamilton Electric Ry. and G.T.R., pending the building of bridge on South Market St.

10791. June 6.—Authorizing Montreal Light, Heat and Power Co., to place wires across G.T.R. at 16th Ave., Lachine, Que.

10792. June 6.—Authorizing Ontario Hydro-Electric Power Commission to place wires across Bell Telephone Co.'s wires at lot 127, Thorold tp.

10793. June 7.—Ordering M.C.R. to divert crossing between cons. 6. and 7. along north side of its line to town line road between Tilbury east, and Raleigh tps., crossings to be protected by an electric bell.

10794. June 7.—Approving C.N.O.R. location through Ledger, Purdom, Booth, and Nipigon tps., Thunder Bay district, mileage 480 to 500 from Sudbury Jct.

10795. June 7.—Authorizing C.P.R. to build extra track between secs. 1 and 2, and between secs. 12 and 11, tp. 21, r. 1, w. 5 m., near Erskine station, Macleod branch, Alta.

10796. June 6.—Recommending to Governor-in-Council for sanction, Bedlington and Nelson Ry. bylaw, re spitting in cars, etc.

10797. June 6.—Authorizing C.P.R. to build bridge 84.1 over Little Creek, Windsor section, Ontario Division.

10962. June 20.—Ordering C.P.R. within 90 days to install an electric bell at Norman St. crossing, near mileage 2, Kenora section, Ont.

10963. June 21.—Ordering G.T.R. within 90 days to install an electric bell at Ottawa St. crossing, Hamilton, Ont.

10964. June 21.—Ordering C.P.R. within 90 days to install an electric bell at crossing on north half of sec. 5, tp. 3, r. 5, Morden station, Man.

10965. June 21.—Authorizing C.P.R. to build three additional tracks across King St., Virden, Man.

10966. June 21.—Authorizing city of Port Arthur, Ont., to lay main under C.P.R. at 2nd Ave.

10967. June 21.—Amending order 6750, Mar. 30, 1909, which directed Columbia and Western Ry. to protect Riverside Ave. crossing, Grand Forks, B.C.

10968. June 21.—Extending to July 20, time within which C.P.R. was required by order 10273, Apr. 21, to install electric bell at Martin St. crossing, Milton, Ont.

10969, 10970. June 20.—Authorizing Ontario Public Works Department to build Sudbury-Soo trunk wagon road across C.P.R. Sault Ste. Marie branch at grade, lot 7, con. 11, Long tp., and lot 9, con. 6, Lorne tp.

10971. June 20.—Ordering M.C.R. to divery crossing three-quarters mile west of Fletcher station, Tilbury east tp., Ont., which when completed relieves the company of the necessity of keeping a watchman there.

10972. June 22.—Authorizing M.C.R. temporarily and pending final determination of the matter, to operate trains over Malden Road crossing, 0.71 mile west of Woodslee station, Ont., at greater speed than 10 miles an hour, provided that it maintain a watchman there.

10973. June 22.—Authorizing C.N.R. to connect its Maryfield Extension and Moosejaw Branch, in ¼ sec. 24. tp. 6, r. 18, w. 2, m., Sask.

10974. June 18.—Approving location of C.N.O.R. station grounds at Brighton.

10975. June 22.—Authorizing C.P.R. to build two additional tracks across Lacrosse St., Virden, Man.

10976. June 22.—Approving plans of G.T.R. station at Nixon, Ont.

10977. June 22.—Approving location and plans of G.T.R. station at Hepworth, Ont., and re-location of track crossing highway to the south.

10978, 10979. June 21.—Authorizing G.T.R. to build branch to premises of Goldie and McCulloch Co., Galt, Ont., and John Dick, Toronto.

10980. June 20.—Amending order 10752, May 19, which directed G.T.R. to divert highway and build bridge between cons. 1 and 2, King tp., Ont., by providing that the bridge be maintained by railway and the roadway and fences on each side of approaches by the municipality.

10981. June 22.—Authorizing Hamilton Cataract Power, Light and Traction Co. to place wires across Bell Telephone Co.'s wires at lots 14 and 15, con. 6, Barton, tp., Ont.

10982 to 10987. June 23.—Authorizing Esquimalt and Nanaimo Ry., to build across highways at mileage 133.2, 132.62, 134.10, Argyle St., Port Alberni, mileage 131.5, 131, and 132.18, from Victoria, B.C.

10988. June 23.—Authorizing Vancouver, Victoria and Eastern Ry. and Navigation Co. to build spur to Prudential Investment Co.'s premises, Vancouver, B.C.

10989. June 25.—Authorizing C.P.R. to build spur to Quaker Oats Co.'s premises, Peterboro, Ont.

10990. June 24.—Ordering that cost of building and maintaining M.C.R. and P.M.R. interchange track at Leamington, Ont., be divided equally.

10991. June 23.—Declaring that P.M.R. crossing immediately east of its Leamington Ont., station is protected to the Board's satisfaction.

10992. June 23.—Extending to July 10, time within which rates on petroleum and its products from Toronto, Petrolia, Sarnia, and Wallaceburg, shall become effective, as required by order 10356, Apr. 25.

10993.—June 25.—Authorizing Ontario Hydro-Electric Power Commission to place wires across C.P.R. telegraph wires, lot 55, con. 1, Ancaster tp.

10994. June 24.—Authorizing Laval Electric Co., to place wires across C.P.R., near Mascouche station. Que.

10995. June 23.—Authorizing town of Fraserville, to maintain water pipe across Temiscouata Ry. at Riviere du Loup, Que.

10996. June 24.—Authorizing R. Forbes Co. to lay pipe under G.T.R. at Hespeler, Ont.

10997. June 23.—Authorizing W. J. Aikens, to lay pipe under Toronto, Hamilton and Buffalo Ry., at Cainsville, Ont.

10998. June 27.—Authorizing city of Toronto to lay a sewer under C.P.R., G.T.R., and C.N.R. at Riverdale Park.

10999. June 27.—Amending order 9977, Mar. 23, made on application of Alberta Central Ry., approving its location from Red Deer, by cancelling approval of line from Red Deer to west side of sec. 8, tp. 38, r. 27, w. 4 m.

11000. June 27.—Approving Alberta Central Ry. location from mileage 2, sec. 3, tp. 38, r. 27, w. 4 m., to mileage 20.

11001. June 27.—Authorizing C.P.R. to build additional track across road allowance at east boundary of sec. 33, tp. 9, r. 25, w. p.m., Routledge, Man.

11002 to 11013. June 25.—Authorizing Atlantic, Quebec and Western Ry. to build across highways at 12 points in Gaspe county, Que.

11014. June 27.—Approving form of permit allowing the use on M.C.R. of a railway bicycle.

11015. June 28.—Authorizing National Transcontinental Ry. to cross C.P.R. Emerson Branch overhead at St. Boniface, Man.

11016 to 11018. June 27-28.—Temporarily approving, pending final determination of Bell Telephone Co.'s tariff of tolls and form of agreement with other companies, agreements with C.N.Q.R., June 13, People's Telegraph and Telephone Co., June 8, and Wolford Rural Telephone Co., May 17; providing that it be not taken to authorize any higher tolls than were authorized previous to May 13, 1906.

11019. June 27.—Relieving C.P.R. from providing further protection at crossing between lots 19 and 20, Blandford tp., Ont.

11020.—June 28.—Approving C.N.R. location through tps. 26-23, r. 24, w. 5 m., Alta., mileage 212.83 to 257.32 from junction line at Vegreville.

11021. June 28.—Approving James Bay and Eastern Ry. location northwards from Roberval, through Roberval, Quiatchuan, Ashuapmuchuan, Demeules and Dufferin tps., Que.

11022. June 29.—Extending, for two months from date, time within which C.P.R. shall erect gates at Louis St. crossing, Farnham, Que., as required by order 10450, Apr. 28.

11023. June 28.—Authorizing C.N.O.R. to build a siding across concession road at Sudbury Jct. between cons. 4 and 5, Neelon tp.

11024. June 28.—Authorizing C.N O.R. to build bridge over Goforth's Creek, and to carry its tracks across public road at mileage 214.28 from Ottawa.

11025. June 28.—Authorizing city of Toronto to lay pipe at Davenport Road, under G.T.R.

11026. June 29.—Ordering M.C.R. to divert Medora and Thomas Sts. and combine the two crossings, west of Essex station, Ont.

11027. June 29.—Approving plans showing interlocking signals and switches to be installed by G.T.R. at Alford Jct., Ont.

11028. June 29.—Approving plans of C.P.R. bridge over Kaministikwia River, Fort William, Ont.

11029. June 29.—Rescinding order 8110, Sept. 14, 1909, authorizing Vancouver Power Co. to cross with its railway the New Westminster and Southern Ry. and providing for installation of full interlocking plant, by ordering that the crossing be protected by double-armed semaphore operated by trainmen making crossing.

11030. June 29.—Authorizing C.P.R. to operate a branch across road allowance and on Bardsley's premises, n. e. ¼ sec. 4, tp. 2, r. 7, w. 2, m., at Shand, Sask.

11031 to 11033. June 29.—Authorizing Saskatchewan Government Telephones to place wires across C.P.R. at three points.

11034. June 29.—Authorizing Ontario Hydro-Electric Commission to carry wires across G.N.W. Telegraph Co.'s wires at lot 120, Thorold tp.

11035. June 28.—Authorizing city of Lachine, Que., to lay pipe under G.T.R. Lachine Wharf Branch, at Notre Dame St.

11036. June 29.—Authorizing city of Toronto to lay pipe under G.T.R. at St. Clair Ave.

11037. June 30.—Authorizing Montreal Rolling Mills Co., to build automatic coal handling railway over G.T.R. Lachine Canal Bank branch, on St. Ambroise St., St. Henri, Que.

11038. June 2.—Authorizing Lincoln Paper Mills Co. to lay water main under Niagara, St. Catharines and Toronto Ry., in Merritton, Ont.

11039. June 21.—Rescinding order 10798 June 7, which authorized a diversion of M. C.R. crossing at Fletcher station, Ont.

11040. June 29.—Authorizing C.P.R. to build a subway at Cornelia St. and overhead bridge at George St., Smiths Falls, Ont.

11041. June 27.—Ordering that all railways subject to the Board's authority, file with the Board not later than Aug. 15, supplements to their official distance tables, issued in compliance with order 5954, Dec. 21, 1908, showing names of points at which freight traffic may be interchanged with connecting railways; names of railways with which freight may be interchanged at such points; whether freight traffic when may be so interchanged consists of c. l. or l. c. l. or both; whether the interchange is by switch connection or by cartage.

11042. June 23.—Authorizing Lachine, Jacques Cartier and Maisonneuve Ry. to cross Montreal Park and Island Ry. at Bagg Ave.

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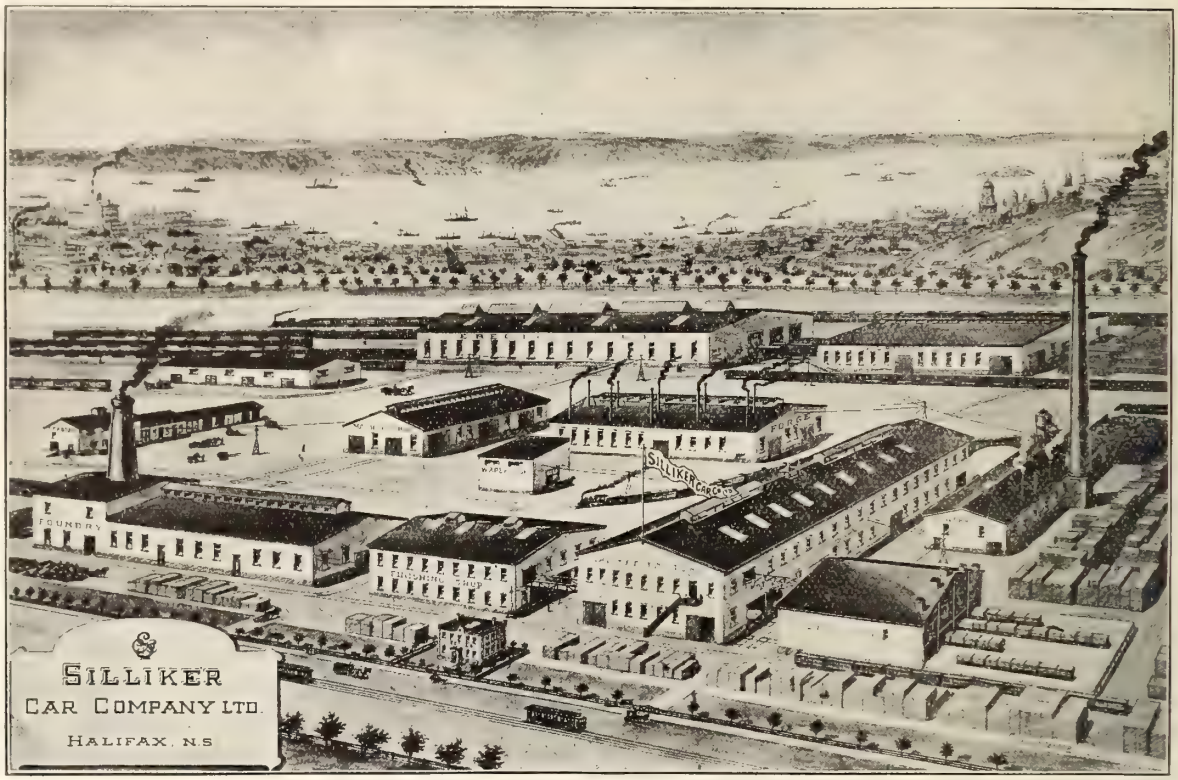

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Sault aux Recollets, parish, Que.

11043. June 24.—Authorizing Matsqui municipality to build highway across C.P.R. Mission Branch at Matsqui, B.C.

11044. July 2.—Authorizing C.P.R. to build spur for Nichols Chemical Co., Hungerford tp., Ont.

11045. July 5.—Relieving G.N.R. from providing further protection at Government Ave. crossing, Weston, B.C.

11046. June 30.—Authorizing C.N.O.R. to build across road between Hope and Hamilton tps.

11047. June 30.—Authorizing the C.N.O.R. to close and divert road through lot 20, con. B. Murray tp.

11048. July 5.—Authorizing C.P.R. to use 21 bridges.

11049. June 24.—Dismissing application of Montmorency village, Que., for order directing Q.R.L. and P. Co., to provide crossings there.

11050. June 23.—Dismissing application of Board of Trade of Three Rivers, Que., alleging excessive freight rates and defective service of the G.T.R. between Three Rivers and St. Celestin.

11051. June 23.—Dismissing application of St. Valere de Bulstrode parish, Que., for order directing G.T.R. to reconstruct its part of Black River bridge.

11052. June 5.—Approving plans of drain to be built under P.M.R. in Harwich tp., Ont.

11053, 11054. June 30.—Approving locati of C.P.R. stations at Ruskin and Chase, B.C.

11055. June 30.—Authorizing C.P.R. to build additional track across road allowance at Coleman, Alta.

11056 to 11059. June 30.—Authorizing C.P.R. to build additional siding across road allowance between secs. 3 and 4, tp. 10, r. 22, w. p. m.; additional track across road allowance between secs. 17 and 18, tp. 10, r. 21, w. p. m., and across Dundee St., Alexander; additional siding across road allowance between secs. 14 and 15, r. 27, near Hargrave Station, and additional siding across road allowance between secs. 31, and 32, r. 1, w. 2, m., near Burrows station, Man.

11060, 11061. July 5.—Authorizing C.P.R. to build spurs to premises of Woodhall Metal Co. and McClary Mfg. Co., Calgary, Alta.

11062, 11063. July 5.—Authorizing G.T.R. to build a branch to premises of Ontario Asphalt Co., Walkerville, C. Kreutziger, Waterloo, Ont.

11064. July 5.—Authorizing G.T.R. to build branch from its line from Toronto to North Bay 820 feet distant from m.p. 37 to the canal lands north of side road running west from road between cons. 1 and 2, East Gwillimburg, tp., Ont.

11065. June 29.—Authorizing Ontario Hydro-Electric Commission to place wires across G.N.W. Telegraph wires at lot 55, con. 1, Ancaster tp.

11066, 11067. July 5.—Authorizing Queen City Oil Co. to lay a pipe under G.T.R. and Kingston and Pembroke Ry., Kingston, Ont.

11068. July 6.—Recommending to Governor-General-in-Council for sanction, agreement of sale of May 19 between Royal Trust Co., and Quebec Oriental Ry. Co.

11069. June 24.—Dismissing application of city of Quebec, for order directing Q.R.L.H. & P. Co. to cross C.P.R. main line at Lesage Ave.

11070. June 23.—Dismissing application of city of Three Rivers, Que., regarding condition of Plaisance St. crossing over C.P.R.

11071. June 24.—Adding Bell Telephone Co. as a party to St. Maurice and Champlain Telephone Co.'s application for order directing Portneuf Telephone Co. to carry out an agreement.

11072. July 5.—Extending until Sept. 15, time within which C.P.R. was required by order 8992, Dec. 17, 1909, to complete work at crossings in Artemesia tp., Ont.

11073. July 5.—Approving W.E. & L.S.R. Ry.'s bylaw 102, authorizing A. Eastman, General Manager, to prepare and issue tariffs of tolls.

11074. July 5.—Approving location of G.T.P.R. Melville-Regina Branch from mileage 33 to 91.24, Sask.

11075. July 5.—Approving change of location of C.P.R. station building from Lanorale to Joliette Jct., Que.

11076. July 5.—Authorizing C.P.R. to build under Bell Telephone Co.'s wires between cons. 2 and 3, lots 6 and 7, Etobicoke tp., Ont.

11077, 11078. July 5.—Authorizing Ontario Hydro-Electric Power Commission to place wires across Bell Telephone Co.'s wires at two points.

11079. July 6.—Authorizing city of Winnipeg to build conduit under C.P.R. at King St.

11080. July 8.—Authorizing city of Ottawa to lay sewer under C.P.R. on Beech St.

11081. July 5.—Authorizing C.P.R. to build spur to Calgary Paving Co.'s premises, Calgary, Alta.

11082. July 6.—Ordering M.C.R. to divert crossing between cons. 6 and 7 along the north side of its line to town line road between Tilbury East and Raleigh tps., Ont.

11083. July 6.—Amending order 10819, June 6, by substituting Millbank for Mornington, in lines 3 and 4 of the recital.

11084. July 5.—Relieving T.H. & B. Ry. from providing further protection at Canboro Road crossing near Fenwick station, Ont.

11085. July 4.—Ordering C.N.R. to comply with order 9293, Jan. 17, within two months from date and in event of its failure to do so, it shall be liable to a penalty of $25 a day for every day after work remains uncompleted.

11086. June 23.—Ordering G.T.R. to provide station for freight and passengers with agent at Three Rivers, Que., and furnish improved train service between Doucet's Landing and Victoriaville.

11087. July 6.—Authorizing Atlantic, Quebec and Western Ry. to open for traffic the portion of its line between Port Daniel and Grand Pabos, Que., mileage 20¼ to 35.

11088. June 30.—Authorizing C.N.O.R. to cross overhead between lots 20 and 21, con. 1, Cramahe tp.

11089. July 7.—Authorizing Seymour Power and Electric Co. to place wires across Bell Telephone Co.'s wires at lots 22 and 23, Thurlow tp., Ont.

11090, 11091. July 7.—Recommending to Governor-in-Council for sanction, Algoma Central and Hudson Bay Ry. and Manitoulin and North Shore Ry. bylaws re spitting in cars.

11092. June 27.—Dismissing Grand Valley Ry. application to cross Brantford and Hamilton Electric Ry. at Murray St., Brantford, Ont.

11093. June 28.—Authorizing Toronto, Niagara and Western Ry. to build across 24 highways in Toronto.

11094. June 27.—Dismissing Grand Valley Ry. application to cross H. & B. Ry. at Cayuga st., Brantford, Ont.

11095. June 27.—Dismissing C.P.R. application re protection at Dundas and Waterloo road crossing, Galt, Ont.

11096. June 27.—Authorizing Toronto, Niagara and Western Ry. to take certain portions of lot 35, con. 3, and part of lots 14 to 24, inclusive, Toronto.

11097. June 27.—Dismissing Grand Valley Ry. application for authority to cross Western Counties Electric Co.'s canal at Murray st., Brantford, Ont.

11098. June 27.—Dismissing application of Colchester South municipality, Ont., alleging inadequate passenger and freight service furnished by P.M.R.

11099. June 27.—Dismissing Hamilton Radial Electric Ry. application for order directing city of Hamilton to provide safety appliances and to erect overhead crossing at east end of city's bridge on east side of Sherman Inlet.

11100. June 28.—Authorizing Canada Southern Ry. to take certain lands of F. Pawloski in Windsor, Ont.

11101. June 27.—Dismissing city of Toronto's application for order directing G.T.R. to provide protection at its Woodbine ave. crossing.

11102. June 30.—Dismissing Grand Valley Ry. application for approval of location of proposed terminal connecting G.V.R., Brantford & Hamilton Electric Ry. and T. H. & B. Ry. with the Holmedale factory district, Brantford, Ont.

11103. June 27.—Ordering C.P.R. to install an electric bell at Weston road crossing, York tp., Ont.

11104. July 9.—Ordering C.N.R. to forthwith erect stop-order boards, placed 100 ft. on each side of Pembina st. crossing, Winnipeg; that all C.N.R. trains be brought to a full stop before being flagged over the crossing, and ordering Winnipeg Electric Ry. to forthwith build a single track under C.N.R. there.

11105. July 8.—Amending order 10998, June 24, authorizing R. Forbes Co. to lay water pipe under G.T.R. at Hespeler.

11106. July 12.—Authorizing city of Winnipeg to build conduit under C.P.R. on King st. and Higgins ave.,

11107. July 8.—Authorizing Lincoln Paper Mills Co. to lay water main under G.T.R. in Merritton, Ont.

11108. July 7.—Authorizing city of Ottawa to lay water main under C.P.R. at Beechwood ave. crossing, near St. Patrick st. bridge.

11109, 11110. July 7.—Authorizing city of Peterboro, Ont., to lay sewer under G.T.R. at Dalhousie and Ware sts.

11111. July 12.—Authorizing United Fuel Supply Co. to lay pipe under M.C.R. at Main st., Brigden, Ont.

11112. July 6.—Declaring that C.P.R. crossing at Dundas st., Woodstock, Ont., is protected to the Board's satisfaction.

11113. July 8.—Ordering C.P.R. to provide farm crossing for W. Hutchin, Brownsburg, Que.

11114 to 11116. July 7.—Authorizing C.N.Q.R. to build between lots 20 and 21, Ste. Foye parish; between lots 2363 and 2365, Little River parish; and across Gros Pin road, lot 4144, Limoilou parish.

11117. July 7.—Extending to Dec. 1 time within which G.T.P.R. Branch Lines Co. was required by order 10613, May 12 and 13, to install interlocking plant at its crossing of C.P.R., at Alix, Alta.

11118. July 12.—Authorizing the New Brunswick Southern Ry. to build bridges 50.54, at Pocologan River, and 30.5, at Linton stream.

11119. July 9.—Authorizing G.T.P. Branch Lines Co. to divert road between secs. 20 and 21, tp. 33, r. 23, w. 4 m., South Alberta District.

11120. July 12.—Authorizing C.P.R. to build bridges, 125.2, at Hastings, B.C., and 45.3, at Alliston, Ont.

11121, 11122. July 12.—Authorizing C.P.R. to build spurs across Champagne ave. and Ducharme st., Outremont, Que., and for city of Winnipeg to connect with Winnipeg Electric Ry.'s easterly gas house spur.

11123. July 12.—Authorizing C.P.R. to build bridges, 62.8, Goat River, Sirdar section, Western Division; 37.4, Toronto section, Ontario Division; 120.79, Chapleau section, and 107.92, Cartier section, Lake Superior Division.

11124. July 7.—Authorizing B.C. Lands and Works Department to operate interlocking plant and signal apparatus on Fraser River bridge at New Westminster.

11125. July 9.—Authorizing Laval Electric Co. to place wires across other wires near Mascouche station, Que.

11126. July 12.—Authorizing city of Lethbridge, Alta., to lay sewer and water main under C.P.R. between secs. 4 and 5, tp. 9, r. 21.

11127. July 12.—Authorizing St. Marys Wood Specialty Co. to lay drain under C.P.R. in St. Marys, Ont.

11128. July 12.—Authorizing city of Lethbridge, Alta., to lay water main and sewer under tracks at Westminster road.

11129. July 7.—Authorizing C.N.Q.R. to divert road on lots 1 and 3, Portneuf parish.

11130. July 11.—Approving Anglo-American Telegraph Co.'s tariff of tolls in Prince Edward Island and New Brunswick and between these provinces. C.R.C.I.

11131. July 12.—Approving C.P.R. Sault Ste. Marie Branch revised location as constructed at Desbarats station, and authorizing C.P.R. to build across Huron ave., Desbarats, Ont.

11132. July 12.—Approving C.P.R. location from Sedgewick to sec. 30, tp. 44, r. 12, w. 4 m., mileage 0 to 3.65, Alta.

11133. July 12.—Authorizing C.N.R. to build across 16 highways in tp. 2, r. 19 to 21, w. p. m., Man.

11134, 11135. July 12.—Extending to Aug. 8 time within which C.P.R. was required by orders 10524 and 10523, May 9, to install electric bells at William st. and Colborne st. crossings, London, Ont.

11136. July 8.—Relieving C.P.R. from providing protection at Zorra st. crossing, Beachville, Ont.

11137. July 12.—Authorizing Montreal St. Ry. to connect with C.P.R. on Sanguinet st.

11138. July 8.—Authorizing Robert McNair Shingle Co. to build crossing over C.P.R. right of way one mile west of Port Moody, B.C.

11139. July 12.—Authorizing C.P.R. to build additional track between secs. 5 and 6, tp. 2, r. 25, w. p. m., at Waskada, Man.

11140. July 8.—Authorizing C.P.R. to build spur for Saskatoon Brick and Supply Co., Saskatoon, Sask.

11141. June 27.—Authorizing G.T.R. to build two additional sidings on and across St. Clair ave., Toronto.

11142. July 6.—Dismissing application of proprietors of Russell House, Ottawa, for order fixing terms of contract for installation of room telephone service.

11143. July 12.—Authorizing C.P.R. to reconstruct bridge 53, over Maitland River, on its Teeswater Branch, Ont.

11144. July 12. Authorizing C.P.R. to build two spurs for Frank Lime Co., at Hillcrest, B.C.

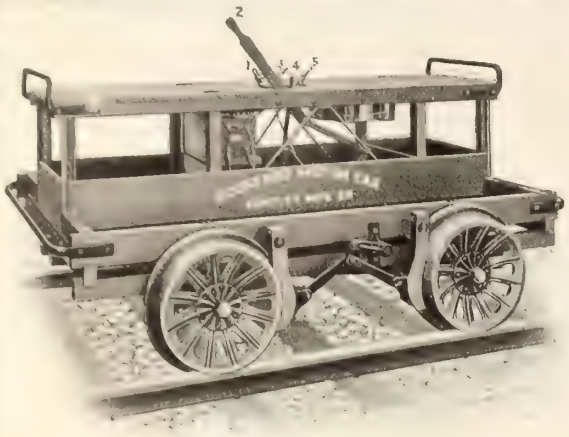
11145, 11146. July 12.—Authorizing town of Maisonneuve, Que., to lay pipes under C.N.Q.R. at Aird ave., and Aird st.

11147. July 12.—Authorizing C.P.R. to build spur to Western Dry Dock and Shipbuilding Co.'s premises, Port Arthur, Ont.

11148. July 13.—Amending order 11087, July 6, by striking out "Grand Pabos" in recital and operative parts and substituting "Newport."

11149. July 13.—Relieving Quebec, Montreal and Southern Ry. from providing protection at Chemin de Ligne crossing, Sorel, Que.

11150. July 13.—Relieving P.M.R. from providing protection at crossing at Cedar Springs, Ont.



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11151. July 13.—Relieving C.P.R. from providing protection at crossing between cons. 2 and 3, Lobo tp., Ont.

11152. July 5.—Relieving Dominion Atlantic Ry. from providing protection at crossing of second highway west of Middleton station, N.S.

11153. July 12.—Approving G.T.P. Telegraph Co.'s tariff of tolls, C.R.C. 9, filed May 18, 1909.

11154. July 13.—Approving Vancouver, Fraser Valley and Southern Ry. location from eastern boundary of city of Vancouver to False Creek, B.C.

11155. July 13.—Authorizing C.N.O.R. to build across Vale st., Colborne.

11156. July 11.—Authorizing G.T.P. Branch Lines Co. to connect its Yorkton Branch with C.N.R. in s.w. ¼ sec. 26, tp. 30, r. 4, w. 2 m., at Cancra, Sask.

11157. July 12.—Ordering that C.N.R. prohibit whistling by locomotives operating within the city of Winnipeg; such whistling to be allowed only where it shall be deemed necessary, by those in charge, to prevent accident, and ordering that any person offending against this regulation be liable to a penalty of $50 for each offence.

11158. June 24.—Authorizing Quebec Railway, Light, Heat and Power Co. to cross C.P.R. at St. Valiers st.

11159. July 13.—Ordering that all portions of Hudson's Bay Co.'s reserve in Edmonton, Alta., west of 16th st. and south of C.N.R. right of way, as a strip between two lines parallel with and perpendicularly distant 25 ft. from G.T.P.R. centre line of the G.T.P.R., and containing 1.8737, more or less, be released from operation of plan originally filed.

11160. June 27. Ordering G.T.R. to build a branch about five miles north of Georgetown, Ont.

Railway Finance, Meetings, Etc.

Alberta Ry. and Irrigation Co.—Traffic receipts for June, $34,115, against $22,284 for June, 1909. Cumulative traffic receipts for 12 months ended June 30, $389,252, against $310,226 for same period 1908-09.

Alexander Gibson Ry. and Manufacturing Co.—A settlement was effected July 12, in the case of the Royal Trust Co. and others, representing the bondholders, against the company, Alex. Gibson, the Bank of Montreal and others. The property consists of cotton mills, 450,000 acres of timber limits, railway equipment and other property, upon which the Bank holds a first charge of $689,848; and there are other charges aggregating about $1,000,000. The settlement provides that all the properties to be sold, and to be distributed among the creditors, Alex. Gibson to be paid an annuity of $5,000 and to have the use of his house and grounds at Marysville, N.B., for life. The estate formerly owned the Canada Eastern Ry., and the Fredericton Ry. Extension and Bridge Co., which were taken over some years ago by the Dominion Government, and are now operated as part of the Intercolonial Ry.

Canadian Collieries (Dunsmuir) Limited.—The final payment was made to the Dunsmuir estate, June 16, and the Mackenzie, Mann & Co. interests took final possession of the collieries, railway and other property. The offices are being transferred to Vancouver, B.C., where offices have been taken in the Burns Building, Hastings St. W. L. Coulson, has been appointed General Manager of the collieries. A. D. McRae is Managing Director.

Canada Southern Ry.—A dividend of 1½%, payable Aug. 1, has been declared for the past half year. Up to the present time the dividends have been at the rate of 2½%, but under the lease to the Michigan Central Rd., made in 1903, the rate was to be increased to 3% in 1910.

Central Vermont Ry.—A Boston, Mass., dispatch of July 4, stated that the New York, New Haven and Connecticut Rd.., was purchasing the C.V. Ry. E. H. Fitzhugh, Vice President, said the story was "utterly absurd and without a shadow of foundation in fact. The C.V. is not for sale." The G.T.R. owns over $2,000,000 of the C.V.R. authorized capital stock of $3,000,000, and guarantees the interest of its bonds under a traffic agreement.

Cumberland Ry. and Coal Co.—A lease of the company's coal areas in Cape Breton has been granted to the Dominion Coal Co., with an option of purchase for $500,000 at any time during the currency of the lease.

D'Israeli Asbestos Co.—The differences between the directors of this company, which has some railway building in view, have been settled by the election of a new board as follows:—President, S. Wood; Vice President, L. A. Codere; other directors: L. D. Morton, A. H. Marquis, T. Sherman, —. Peters, F. R. Beckwith, S. A. Warrell, F. Campbell, R. Gagnon. In consequence of the arrangement the conspiracy charges against former directors and officers have been dropped.

Grand Trunk Pacific Ry.—A London, Eng., cable, July 15, states that arrangements are being made for the issue of £2,000,000 of 8% G.T.P. Ry. bonds at £82 10s., for construction purposes.

Intercolonial Ry.—The returns for the first three months of the financial year are being made up, and an Ottawa dispatch July 11, states they indicate a surplus of about $125,000, in spite of heavy outlays on renewals in the spring charged to current account.

Lake Superior Corporation.—At the June meeting of the directors it was reported that the Cannelton Coal and Coke Co. in West Virginia, had been acquired in order to provide fuel for its various undertakings. The reports of the earnings for the company's railways and industrial plants for ten months ended April 30, were stated to be satisfactory.

London and Port Stanley Ry.—The report of the London, Ont., City Auditor on the accounts of the L. and P.S. Ry., for 1909, shows that the earnings from operation by the Pere Marquette Rd., increased $9,732.72 over 1908; the passenger business decreasing $345.52 and the freight traffic increasing over $10,000. The tolls received from the Michigan Central Rd. decreased $77.65, and the express business fell off $191.56.

London and South Eastern Ry.—Following are the officers and directors for the current year:—President, W. J. Reid; Vice President, T. H. Smallman; Secretary-Treasurer, J. W. Little; other directors: J. Labatt, J. A. Campbell, M. Masuret, and the Mayor of London, Ont., ex-officio.

The Midland Terminal Ry. two miles in length, operated in connection with the blast furnaces at Midland, Ont., carries freight only. The company owns two locomotives and eight flat cars. The total cost of the railway is reported at $20,742.67; of rolling stock, $12,622.20, and of land and buildings $228,980.14, and it is also reported that on June 30, 1909, there was a balance of $3,262.36 at credit of profit and loss account, making total asets of $265,608.37. The liabilities were: capital stock, $250,000, which is held by 12 shareholders; and $15,608.37 of loans and notes payable to the Canada Iron Corporation. The earnings for the year ended June 30, 1909, were $12,330.54, and the operating expenses $13,334.63, a loss of $1,004.09. The officers and directors are: President, General Manager and Superintendent, J. J. Drummond, Midland; Treasurer, A. K. Fish, Montreal; other directors: G. E. Drummond, C. E. Gudewell, R. Milton, Montreal; F. Leeming, Brantford, Ont.; clerk, A. C. Adams, Midland; General Counsel, W. J. White, K.C., Montreal.

New York Central and Hudson River Rd.-Michigan Central Rd.—There has been deposited with the Secretary of State at Ottawa, a lease dated June 8, by the Guaranty Trust Co. of New York, trustee, to the New York Central and Hudson River Rd. Co.; the Lake Shore and Michigan Southern Ry. Co.; the Michigan Central Rd. Co.; the Cleveland, Cincinnati, Chicago and St. Louis Ry. Co., and the Chicago, Indiana and Southern Rd. Co., in pursuance of chap. 38 of the Statutes of Canada, 1907.

Quebec and Lake St. John Ry.—An action has been brought in the Quebec courts by C. A. Hanson of London, Eng., against the company to recover £250,000, being the value of prior lien bonds held by him. C. A. Hanson is head of the brokerage firm in England, with which the Montreal firm of Hanson Brothers is associated.

Quebec Central Ry.—Gross earnings for May, $98,945.56; expenses, $64,907.50; net earnings, $34,038.06, against $85,612.49 gross earnings; $58,402.20 expenses; $27,210.29 net earnings for May, 1909. Aggregate gross earnings for 11 months ended May 31, $985,019.94; expenses, $677,443.14; net earnings, $307,576.80, against $929,555.20 aggregate gross earnings; $658,230.41 expenses; $271,324.79 net earnings for same period 1908-09.

Temiskaming and Northern Ontario Ry.—Total revenue for May, $113,926.43; expenditure, $83,704.50; balance, $30,221.93; less hire of equipment, $1,116.15; net earnings, $29,105.78; percentage of expenses to earnings, 73.4.

Canadian Freight Association.

The summer meetings were held at Penetanguishene, Ont., July 6 and 7. Most of those attending, a number of whom were accompanied by lady members of their families, left Toronto on July 6 by special G.T.R. train at 9 a.m., reaching Penetanguishene a little after noon. J. Pullen, Assistant Freight Traffic Manager G.T.R., who came through from Montreal to Toronto on a special car with a nmber of other eastern members, and J. D. McDonald, District Passenger Agent G.T.R., Toronto, were assiduous in their attentions to the party. Other members reached Penetanguishene by other routes and there were altogether about 100 in the party.

The freight, classification and executive committees met during the afternoon of July 6, the Association's general meeting being held the following morning. The summer meeting, is the only one at which there are any social features and these were very enjoyable. Sailing on the Penetanguishene bay was much enjoyed. On the morning of July 7 the ladies of the party and a number of men guests who had not to attend the general meeting were taken by the Penetanguishene town council on the steamboat John Lee, through the beautiful Georgian Bay islands to Honey Harbor and Minnicoganashene. In the afternoon there was a baseball match between teams composed of eastern and western members of the Association, the latter winning by a considerable score. On July 8 the party went to Minnicoganashene on the yachts of J. S. Playfair, of Midland, and P. Paton, of Collingwood, and were the guests of Mr. and Mrs. Playfair at a most enjoyable luncheon at the Minnicoganashene. There were dances at the Penetanguishene hotel both evenings.

The arrangements for the trip, including the location of the rooms at the Penetanguishene hotel, were admirably carried out by the Association's Secretary, T. Marshall.

The Northern Navigation Co. extended an invitation for a trip on the steamboat Wasaga from Penetanguishene to Parry Sound and return, of which a number of the party availed themselves.

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Thur., July 21	"Royal George"	Thur., Aug. 4	Thur., Sept. 1	"Royal Edward"	Thur., Sept. 15
Thur., Aug. 4	"Royal Edward"	Thur., Aug. 18	Thur. Sept. 15	"Royal George"	Thur., Sept. 29

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Railway Rolling Stock Notes.

The C.P.R. is reported to be in the market for one steam shovel.

The G.T.P.R. is reported to be in the market for one rotary snow plow.

The Intercolonial Ry. has received three postal cars from the Silliker Car Co., Halifax, N.S.

The G.T.P.R., has received 560 box cars, nos. 311325 to 311884, from the Canadian Car and Foundry Co., Montreal.

The Northern New Brunswick and Seaboard Ry., has received one consolidation locomotive from the Canadian Locomotive Co., Kingston, Ont.

Williard Kitchen Co., Ltd., National Transcontinental Ry. contractors, Grand Falls, N.B., has added to its equipment ten 12 yard air dump cars built in the U.S.

The seven Intercolonial Ry. locomotives which were in the recent fire at Campbellton, N.B., have been taken to the shops at Moncton, where they will be rebuilt.

The C.P.R., between June 26 and July 14, received the following additions to rolling stock,—six sleeping cars, five first class suburban cars, two first class cars, three baggage cars, one box baggage car, 45 freight refrigerator cars, 10 box cars, four vans and three D10 locomotives, all from its Angus shops, Montreal.

The Ha Ha Bay Ry., has three locomotives, 49 flat cars and one steam-shovel. One of the locomotives was purchased from the Montreal Locomotive Works, one, and the steam-shovel from Taylor and Arnold, Montreal, and the remaining locomotive from a railway contractor. It proposes to purchase one combined coach, eight or 10 box cars and two cabooses.

The C.P.R., between May 12 and June 25, received the following additions to rolling stock: 20 wooden box cars, one official car, three observation sleeping cars, five first-class cars, four second-class cars, 18 vans, eight baggage and express cars, seven G.2 locomotives, one D. 10 locomotive, two tank locomotives, from its Angus shops, Montreal; and 18 ballast cars and two steam shovels.

Following are the chief particulars of the 1,500 box cars, which the G.T.R. has ordered from the Canadian Car and Foundry Co., Montreal:—

Capacity	30 tons
Under frames	Steel
Length inside	36' 0"
Width inside	8' 6"
Height inside	8' 0"
Couplers	Janney
Air brakes	Westinghouse

The Canadian Northern Ry., between June 15 and July 15, received the following additions to rolling stock,—380 flat cars, 15 stock cars, four parlor cars, from the Crossen Car Mfg. Co., Cobourg, Ont.; 15 box cars from the Silliker Car Co., Halifax, N.S.; 115 box cars, 60 steel ore cars and one dining car from the Canadian Car and Foundry Co., Montreal.

N. Curry, President Canadian Car and Foundry Co., Montreal, said in a recent interview:—"So great is the railway development in the Dominion that the output of cars from the works of the various Canadian concerns this year will exceed that of any preceding year by fully 50%. During the present year we will turn out 12.000 cars, even if we should book no further orders. Of this number, 4,000 have already been delivered. The value of the Canadian Car & Foundry Co.'s output from its three plants, amounts to $1,200,000 a month."

Following are the chief details of the 300 flat cars nos. 361300 to 361599, which the G.T.P.R. is having built by the Canadian Car and Foundry Co., Montreal, as mentioned in our last issue:

Capacity	60,000 lbs.
Length over end sills	36' 9 3/4"
Width over side sills	9' 0 3/4"
Width over floor	9' 3 3/4"
Height top of rail to top of floor	4' 1 1/4"
Journal boxes	Grey iron.
Axles	Steel.
Wheels	M.C.B.
Brake beams and bolsters	Simplex.
Couplers	Janney.
Air brakes	Westinghouse.

The C.P.R., between May 12 and June 25, ordered the following rolling stock: 15 D.10 locomotives, five 280% Mallet locomotives, three first-class cars, one second-class car, one flanger, one pile driver, 1081 wooden box cars, one refrigerator car, three stock cars, 22 flat cars and 22 vans, from its Angus shops, Montreal; three steel coal cars and 100 steel automobile cars, from the Canadian Car and Foundry Co., Montreal; 10 consolidation locomotives, part of the 35 mentioned in our June issue, from the Montreal Locomotive Works, and one 70-ton steam shovel, one 90-ton steam shovel and one 60-ton-pull unloader.

Following are the chief details of the 200 box cars, nos. 312325 to 312524, which the G.T.P.R. is having built by the Canadian Car and Foundry Co., Montreal, as mentioned in our last issue:

Capacity	60,000 lbs.
Length inside	36' 0"
Width inside	8' 6"
Height inside, floor to carlin	8' 0"
Width at eaves	9' 7 1/8"
Height top of rail to running board	13' 5 1/2"
Centre to centre of trucks	26' 9 3/4"
Journal boxes	Grey iron.
Axles	Steel.
Wheels	Cast iron, M.C.B.
Brake beams and bolsters	Simplex.
Couplers	Janney.
Air brakes	Westinghouse.
Inside roof	Metal.

Following are the chief particulars of the 1,000 twin hopper coal cars, which the G.T.R. has ordered from the Canadian Car and Foundry Co., Montreal:—

Capacity	50 tons
Centre to centre of trucks	21' 9"
Height, top of rail to centre of coupler	2' 10 1/2"
Height, top of rail to top of body	10' 0"
Height, top of rail to top of brake mast	10' 6 11/16"
Length inside	30' 0 1/4"
Length over end sills	31' 6"
Width inside	9' 6"
Width over side stakes	10' 1 1/2"
Couplers	Janney
Air brakes	Westinghouse
Draft gear	M.C.B. twin spring
Axles	Steel
Truck bolsters	Simplex
Brake beams	Simplex

Following are the chief details of the double ended locomotive, 2-4-2-T-80 type, which the Ha Ha Bay Ry., has ordered from the American Locomotive Co., as mentioned in our last issue, and which will be built by the Montreal Locomotive Works:—

Cylinders	14"x22"
Driving wheels	44"
Boiler, diar	43 3/4"
Boiler pressure	165 lbs.
Firebox	44 3/16"x41 [illegible]"
Tubes, no. and diar	160—2"
Tubes, length	11' 8"
Wheel base, driving	7' 0"
Wheel base, total	22' 6"
Weight on driving wheels	58,000 lbs.
Weight on leading truck	9,000 lbs.
Weight on trailing truck	13,000 lbs.
Heating surface, tubes	643 sq. ft.
Heating surface, firebox	54 sq. ft.
Grate area	14.2 sq. ft.
Maximum tractive power	13,740 lbs
Factor of adhesion	4.22
Tanks	2 on each side
Capacity, water	1,200 gals.
Capacity, coal	2 tons

Following are the chief details of passenger equipment, which the G.T. Pacific Ry. has ordered from the Canadian Car and Foundry Co., Montreal, as mentioned in our last issue:—

12 FIRST CLASS CARS

Length over end sills	78' 0"
Length over buffers	81' 0 1/4"
Truck centres	57' 0"
Total wheel base	67' 6"
Width over all at eaves	10' 0 1/4"
Width between deck sills	5' 6"
Height top of sill to bottom of plate	6' 10"
Height over roof boards	14' 1 7/8"
Vestibules	Pullman wide type C, both ends.
Platforms	Standard steel.
Inside finish	Mahogany.
Deck	Full Empire.
Heating	Safety Car Heating and Lighting Co.'s combination steam and hot water.
Lighting	Pintsch gas.
Brakes	Westinghouse P1612.
Trucks	Standard.
Journals	5" x 9"
Journal boxes	Cast iron.
Wheels	38", steel tired.

THREE DINING CARS.

Length over end sills	74' 0"
Length over platforms	82' 0 1/4"
Width over side sills	9' 8"
Width over all at eaves	10' 0 1/4"
Width between deck sills	5' 6"
Height top of sill to bottom of plate	6' 10"
Height over roof boards	14' 1 7/8"
Vestibules	Pullman, wide.
Platforms	Standard steel.
Heating	Safety Car Htg. & Ltg. Co.'s combination steam and hot water.
Lighting	Electric and Pintsch gas.
Air brakes	Westinghouse P1612.
Trucks	Standard six wheel.
Wheels	38" steel tired.
Journal boxes	Cast iron.

23 COLONIST CARS.

Length over end sills	67' 6"
Length over buffers	75' 6 1/4"
Trucks centre to centre	51' 6"
Total wheel base	59' 6"
Width over sills	9' 8"
Width over all at eaves	10' 0 1/4"
Width between deck sills	5' 0"
Height top of sill to bottom of plate	6' 10"
Height over roof boards	14' 1 7/8"
Vestibules	Pullman wide type C.
Platforms	Standard steel.
Heating	Safety Car Htg. & Ltg. Co.
Lighting	Pintsch gas.
Brakes	Westinghouse P1612.
Trucks	Standard four wheel.
Wheels	38" steel tired.
Journals	5" x 9"
Journal boxes	Cast iron.

THREE SECOND CLASS CARS

Length over end sills	68' 0"
Length over platform	76' 0 1/4"
Truck centres	53' 8"
Total wheel base	61' 8"
Width over side sills	9' 8"
Width over all at eaves	10' 0 1/4"
Width between deck sills	5' 6"
Height top of sill to bottom of plate	6' 10"
Height over roof boards	14' 1 7/8"
Vestibules	Pullman wide type C, both ends.
Platforms	Standard steel.
Inside finish	Mahogany.
Lighting	Pintsch gas.
Brakes	Westinghouse P1612.
Trucks	Standard four wheel.
Journals	5" x 9"
Journal boxes	Cast iron.
Wheels	38" steel tired.

FIVE TOURIST CARS.

Length over end sills	67' 6"
Length over buffers	75' 6 1/4"
Truck centres	51' 6"
Total wheel base	59' 6"
Width over side sills	9' 8"
Width over all at eaves	10' 0 1/4"
Width between deck sills	5' 0"
Height top of sill to bottom of plate	6' 10"
Height over roof boards	14' 1 7/8"
Platforms	Standard steel.
Heating	Safety Car Htg. & Ltg. Co.
Lighting	Pintsch gas.
Brakes	Westinghouse P1612.
Trucks	Standard four wheel.
Journals	5" x 9"
Journal boxes	Cast iron.
Wheels	38" steel tired.

FOUR MAIL AND EXPRESS CARS.

Length over end sills	60' 0"
Length over buffers	63' 1 1/4"
Truck centres	44' 0"
Total wheel base	52' 0"
Width over side sills	9' 8"
Length inside express end	29' 5"
Length inside mail end	29' 6"
Width over all at eaves	10' 0 5/8"
Width between deck sills	5' 0"
Height top of sill to bottom of plate	6' 7"
Vestibules	Pullman dummy at both ends.
Platforms	Standard steel.
Inside finish	Poplar sheathed.
Heating	Safety Car Htg. & Ltg. Co.
Lighting	[illegible]
Brakes	[illegible]
Trucks	Standard [illegible]
Journals	[illegible]
Journal boxes	[illegible]
Wheels	38" steel tired.

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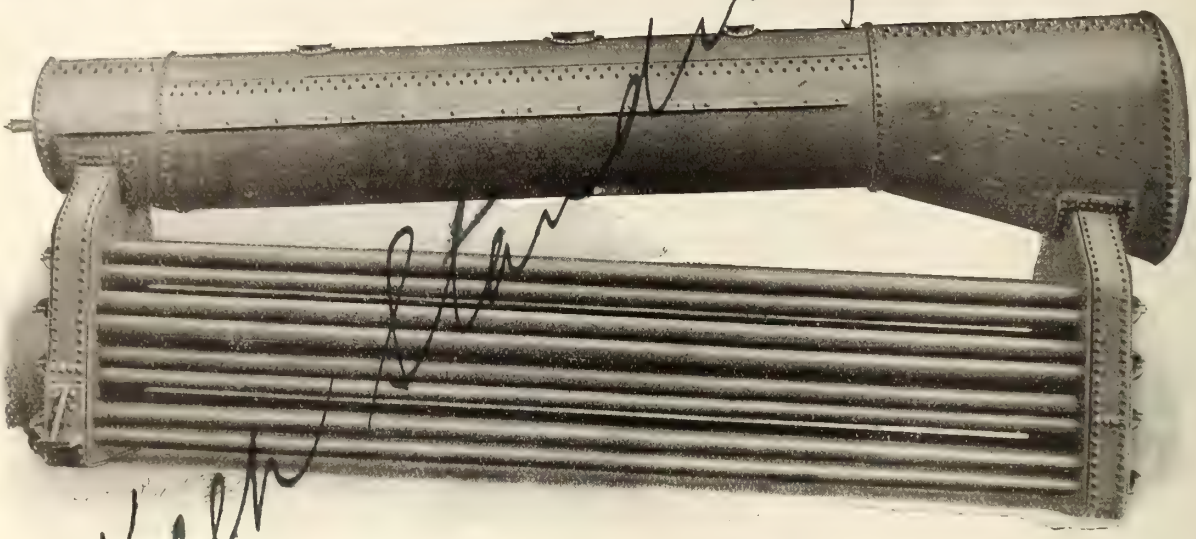

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Canadian Northern Ry. Construction, Etc.

Canadian Northern Quebec Ry.—W. Mackenzie, President, and D. B. Hanna, Third Vice President, C.N.R., were present at a private meeting of the Quebec city council, July 7, to discuss the question of the location of the company's shops there. The city has been threatening to sue for the recovery of the $200,000 bonus paid to secure the location of the shops in Quebec. Mr. Mackenzie stated that Quebec has always been held in view as the eastern terminus of the C.N.R., and when the line is in order this will be her destiny. The shops would have been built by this time had it not been for the entanglement of the affairs of the C.N.Q.R. and the Quebec and Lake St. John Ry. The latter company owned the land upon which it was proposed to build the shops, and until the existing trouble was got rid of no definite move towards the erection of shops could be made. In addition to building the shops in Quebec the company proposed to build a bridge across the St. Charles River so as to be independent of other companies, and to replace the burned grain elevator. As a result of the conference the city council decided to suspend action for some weeks.

The question of terminals in Montreal is still under consideration, and it is said that an official announcement as to the company's proposals will be laid before the city council at an early date. Local reports state that the property acquired embraces the area between St. Catherine and Sherbrooke streets, running west nearly as far as Aylmer St. and east to the property facing Bleury St.

Grading has been started on the new line from Hawkesbury, Ont., to Montreal, for which a contract has been let to J. P. Mullarkey, Montreal. As originally surveyed this line follows the Carillon and Grenville Ry., and from Grenville continues in an almost straight line to St. Eustache through St. Andrews and St. Benoit. The Cache river is to be crossed near Ste. Genevieve, but the route on Montreal Island has not been definitely settled.

Canadian Northern Ontario Ry.—W. Mackenzie, President, had a conference with the mayor of Ottawa, July 8, regarding the entrance of the company's Hawkesbury-Ottawa line into the city. The line at present stops just inside the city limits by reason of the refusal of the Board of Railway Commissioners to allow a level crossing of the Hurdman road. The matter was discussed in a general way and it is said that a proposal will be made for a slight diversion of the Hurdman road, so as to obviate the level crossing, and permit of a junction somewhere near Varsity oval with one of the existing lines by which entrance to the central station will be made, and that application will be made to the Board of Railway Commissioners in Sept. for approval of the route.

The question of the route of the Toronto-Ottawa line at Cobourg, was under consideration by the Board of Railway Commissioners' engineers, July 8. After a thorough examination of the whole matter and hearing what was said by the C.N.O.R., the G.T.R. and the town officials, the Board's Chief Engineer stated that it had been decided to recommend the following for the approval of the Commissioners: "That the changes proposed by the G.T.R., as per plan filed with the board and the town, be sanctioned with the exception of the spur track projecting northward from the north track, which would be disallowed so as to enable the C.N.O.R. to approach the Division street subway over the G.T.R. property close to the G.T.R. north track, as indicated on the C.N.O.R. plan presented."

Beyond Trenton, to which point construction is at present in progress, the final location of the route is being rapidly made. The question of the route to be followed in the vicinity of, and through Belleville is under the consideration of the Board of Railway Commissioners' engineers. The plans show that the route will cross the Brockville, Westport and Northwestern Ry., (which has been acquired by Mackenzie, Mann & Co., Ltd., in the interests of the company) near Newboro. The line would have been carried through Westport, but for engineering difficulties in the way at Crow Lake. A divisional point will be located at the point of crossing the B.W. and N. Ry.

In a recent interview W. Mackenzie, President, said:—"Forty miles of new track will be built this summer westerly from Selwood, and it is our present intention to begin building easterly from Port Arthur next spring, and keep the work up continuously until through connection is made.

Nepigon Ry.—We are advised that surveys are being made for this line from Nipigon Bay, crossing the C.P.R. transcontinental line near Nipigon station, northerly towards Lake Nipigon. It is not likely that construction will be started this year.

Duluth, Winnipeg and Pacific Ry.—We are officially advised that a contract has been let for the construction of a line from Duluth to Virginia, Minn., 75 miles, to Foley, Welch and Stewart, St. Paul, Minn. The contract covers the completion of the line, the company furnishing to the contractors the steel bridges and the track material. The work must be completed by Sept. 1, 1911. The line will pass through a rough country interspersed with a good deal of muskeg, necessitating a lot of rock blasting and filling. The right of way has been secured, and a good deal of the land required for terminals and wharfage accommodation in Duluth has been purchased. H. T. Hazen, Chief Engineer, returned to Duluth, from Toronto, July 11, in company with the contractor's representative. The work will be started at once. The location, said Mr. Hazen, of the passenger and terminal yards, roundhouse, repair shops, coal sheds, etc., will be in West Duluth, and arrangements will be made with some other roads for the use of trackage to the centre of the city. The location of docks is not yet determined, but an early settlement of this question is expected.

Canadian Northern Ry.—As a result of the recent inspection of the line by the President and the General Manager, orders have been given for extending the round house at Port Arthur, and it is said that an additional unit will be added to the railway plant there. The contract for the erection of the new shed, 600 by 40 ft. at the wharf has been let to Vigars & Co. A deputation representing the city asked the President as to the establishment of car shops, and Mr. Mackenzie said this would be taken into consideration just as soon as the eastern and western lines were linked up.

The extensive bush fires which raged along the Rainy River Valley early in July did considerable damage to the railway company's property. It is stated that 30 buildings, including stations, freight sheds, and water tanks were destroyed, besides $50,000 worth of yard material, and 125 box cars.

The betterments being made on the line between Winnipeg and Edmonton includes the fencing of all the lines in Alberta; the relaying of the track with 80 lb. rails, and reballasting the line. Twelve steam shovels are at work in the gravel pits west of Winnipeg getting out ballast. The 60 lbs. rails which are being released are being utilized on branch lines, and new lines in the west.

A contract is reported let to Jas. McRae, Gladstone, Man., for the grading of the extension of the Oakland branch, for about 12 miles. The grading is now completed to a short distance beyond Totogan, on the west side of Lake Manitoba, and it is intended to extend it so as to link up with the spur from Ochre River on the line to Rose du Lac. The completed portions of the line are being ballasted, but it is not yet known when the gap between Sandy Bay and Rose du Lac will be closed up.

We were advised July 18, that tenders are to be called for at once for the erection of a hotel and station building at Brandon, Man.

In connection with the press report referred to in our last issue that surveys were being made for a line to run from North Portal to Melville, and on to Hudson Bay Jct., Sask., we are advised that this is not a C.N.R. line.

Judgment was delivered June 30 upon the application of the C.N.R. to have the injunction, restraining it from trespassing on C.P.R. lands near Stettler, Alta., dissolved. The application was granted upon the C.N.R. undertaking to comply with all the statutory requirements and both companies must go to the Board of Railway Commissioners to have present and future difficulties as to crossing lands, irrigation ditches, etc., adjusted. It was expected that it would take about three weeks to adjust matters so as to enable construction to be proceeded with. The track laying gang reached Stettler at the end of June, and the work on the line is being pushed forward towards Calgary as fast as possible.

General Manager McLeod is quoted as having stated in a recent interview that engineers were engaged in surveying a proposed line from a point on the Vegreville-Calgary line, south of Stettler, parallel to the C.P.R. line, to cross the Calgary and Edmonton Ry. at Lacombe. This piece of line is evidently that intended to open up the Brazeau coal fields, as we were officially advised July 7, that the company's survey parties were then in the field locating a line from near Stettler to the Brazeau coal fields.

We were advised July 18, that a contract had been let for the construction of a line from a point about six miles south of Stettler westerly to Rocky Mountain House, and that it is expected to grade about 30 miles this year.

Canadian Northern Alberta Ry.—We are officially advised that the first section of the main line from Edmonton, Alta., is now under construction. It starts from St. Albert, a station on the Edmonton and Slave Lake Ry., 10 miles north of Edmonton, and proceeds westerly in the direction of the Yellowhead Pass. The work at present in hand is a 70 mile stretch extending to the Pembina River. The grading contract has been sub-let to McMillan Brothers, press reports state, and it is expected to have track laid by the end of the year.

Canadian Northern Pacific Ry.—The contract between the company and the British Columbia Government was formally completed June 24, at Victoria, when the Attorney General gave his certificate. A contract for grading the first 60 miles from Port Mann easterly has been let to the Northern Construction Co., of Winnipeg. A start was made clearing the right of way June 30, C. V. Cummings having charge of the work. For the first few miles the new line will parallel the Great Northern Ry. Co.'s line, on through the Chilliwack district to Matsqui Prairie, then on to Hope near where the present contract ends. The profile, plans and specifications for the route from Port Mann to Matsqui

THE ELECTRIC HEADLIGHT

The following letter was received under date of May 8, 1908, from Mr. J. W. Cleary, Travelling Engineer Pyle-National Electric Headlight Co.:

"I learn from_____the Master Mechanic here, that an engineer running between_____ and_____discovered a broken rail with the Pyle-National Electric Headlight and made the stop without ditching his train. One or two pairs of wheels got off, but that was a small affair to what it would have been where a foot of the rail was broken off. Also an engineer running east of here found some cars shoved out on the main line. He saw them with the 'Electric' and made the stop without hitting them."

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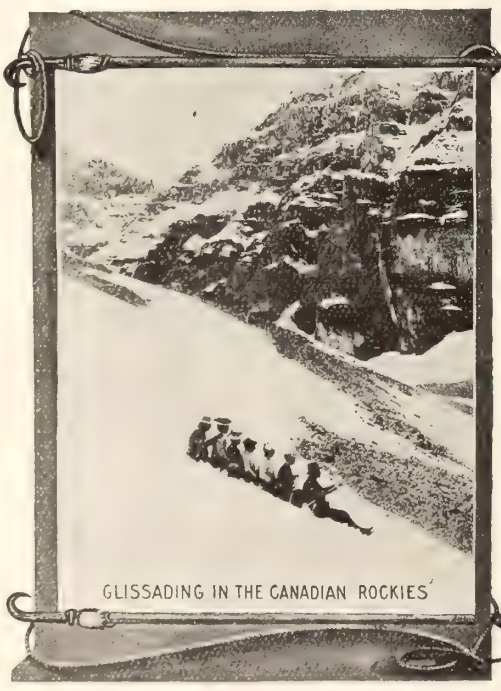
MONADNOCK, CHICAGO



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District Passenger Agent,
TORONTO

Or any agent of the company.

Prairie, described as mileage 59 to 91, were approved by the Government, July 4.

The plans for the Port Mann-Matsqui section of the line show that there will be four stations between the terminals, one midway between Bon Accord and Langley, the second outside the townsite of Langley, the third just east of Cromarty Slough, and the fourth near the Mission bridge. The line will be carried across the Government trestle to Bon Accord. Near Mount Lehman the line will leave the river, crossing the C.P.R. Sumas line about a mile-and-half from the Mission bridge.

Application has been made to the Kamloops council for a grant of land to secure the line entering the city. The company asks the city to give it the land lying between lot 8, block 2, and Ratchford's store, and a way out east of the town and in return the company would place its station and yards on this site; build a traffic and railway bridge across the South Thompson, immediately commence the line, yards and shops, and make Kamloops the centre of its construction operations in each direction. It might require certain yards on the Indian Reserve for its through freight in addition to this. The matter is under consideration.

An additional survey party has been sent out to locate a line in the north part of Vancouver Island. (July, pg. 553).

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers to distinctly understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

W. Chase Thomson, M.Can.Soc.C.E., resigned his position as assistant engineer of the Dominion Bridge Co., Montreal, at the end of June and assumed charge of the Canadian office of the Cleveland Bridge and Engineering Co., Ltd., of Darlington, Eng., in the Canadian Express Building, Montreal.

The Fairbanks-Morse Canadian Mfg. Co., Ltd., has completed a warehouse building 135 by 80 ft., basement and four stories, on Bloor St. West, Toronto, to store goods so that orders may be promptly filled from stock. It is intended to increase the machine shop output 75%, to double the foundry capacity and to install a brass foundry, for the purpose of manufacturing gas tractors.

The Silliker Car Co., Ltd., Halifax, N.S., is increasing its capital stock to $750,000 by the issue, at par, of $250,000 7% cumulative preference stock, one half of which has been offered to the public. The prospectus states that the company has on hand "large contracts for freight cars, first-class passenger cars and sleeping cars for the Canadian Northern, the Intercolonial and other railways, and is turning out an average of three freight cars daily." A car wheel moulding department has been added to the plant.

Cammell, Laird & Co., Ltd., Sheffield, Eng., which is represented in Canada by F. H. Hopkins & Co., Montreal, rolled recently at its Grimesthorpe Steel Works, what is claimed to be the largest mild steel plate ever produced in England. The ingot utilized weighed 120 tons, its dimensions being 9 ft. by 5 ft. 10 ins. by 18 ft. 1 in., and the charge was obtained from three furnaces. The ingot was stripped the following day after casting, taken from the casting pit, and within one hour charged into a horizontal re-heating furnace. The ingot was slabbed down under a 4,000-ton press to 12 ft. 9 ins. by 9 ft. by 40 ins., re-heated and rolled into a plate 18 ft. by 10 ft. 9 ins. by 25⅛ ins., the latter operation occupying 45 minutes. When the scrap was removed and the plate machined at Cyclops, the approximate finished weight was 65 tons. Transit between the two works was by road, three heavy traction engines being required for the purpose.

THE QUEBEC BRIDGE.

In speaking at Fort William, Ont., recently, Hon. G. P. Graham, Minister of Railways, gave the following facts:—

	Quebec Bridge.	Forth Bridge.
Total length of cantilevers	2,930 ft.	5,349.5 ft.
Number of channel spans	1	2
Length of longest channel span	1,758 ft.	1,710 ft.
Roadways on bridge	2 elec. railway tracks. 2 highways. 2 sidewalks.	2 ry. tracks.	2 railway tracks. ....
Load per lineal foot bridge is designed to carry exclusive of its own weight	13,340 lbs.	4,480 lbs.
Total weight of bridge	72,000 tons.	57,000 tons.
Weight per lineal foot for cantilever only	49,150 lbs.	21,360 lbs.
Greatest depth of piers below high water	93 ft.	87 ft.

The caisson for the north pier of the Quebec bridge is 180 by 56 ft. square, and over 60 ft. high, requiring approximately 3,000,000 ft. of timber, 90% of which is 12x12 in. Southern pine. Nearly 70 tons of bolts are required in its construction. At the lower depths to which the caisson will be sunk the men are working under a pressure of about four atmospheres. At this depth men can only work for about two one-hour shifts in the 24 hours, for which they receive a full day's pay. The north pier will be built entirely new and carried down some 60 ft. below the bed of the river to rock. For the south pier the old foundation will be utilized and enlarged, but will not rest on rock, as the present foundation has been found good. Work will go on night and day, and a force of about 2,000 men required. The caisson for the south pier will be built this winter and sunk next season. Between 40,000 and 50,000 barrels of cement will be required in the construction of the north pier alone, and about 125,000 barrels for the entire work.

The weight per lineal foot of steel in the Quebec bridge is 2.30 times as great as that of the Forth bridge.

The load for which the Quebec bridge is designed is 2.98 times as great as that for which the Forth bridge was designed.

The Forth bridge has 4.77 lbs. of carbon steel for every pound of live load it is designed to carry. The Quebec bridge has 3.90 lbs. of nickle steel for every pound of live load it is designed to carry.

The prescribed test load for the Quebec bridge is 4 1-3 times heavier than that used for the Forth bridge. Test pieces of the compression chord of the old Quebec bridge broke at 26,850 lbs. per square inch. Test pieces of similar chords for the new bridge broke at 56,800 lbs. per square inch. The new chords are therefore more than twice as strong per square inch as the old ones.

The maximum section of the compression chords of the old bridge was 843 square inches; in the new bridge the maximum section is 2,037 square inches. According to the tests the old chords would break under a pressure of 22,634,000 lbs., and the new ones under a pressure of 115,701,000 lbs. The new chords are therefore more than five times as strong as the old ones, although the live load of the new bridge is only about twice as heavy as the live load of the old bridge.

Dominion Subsidy Contract.—On July 5, a contract was entered into under the act granting subsidies in aid of the construction of certain railways, between the Dominion Government and the Kettle River Valley Ry., for the construction of a line from the company's existing line near Grand Forks, B.C., along the north fork, and the east and west fork of the north fork of the Kettle River, for 50 miles.

The Canadian Northern Ry., has acquired a third interest in the railway's building at the Toronto exhibition grounds.

The C.P.R. floral department, has offered a series of prizes for the best kept gardens at stations, roundhouses, etc., in each grand division, and special prizes for the best photographs of gardens at the stations.

The first daily passenger train of the G.T. Pacific Ry. reached Edmonton, Alta., July 4. The schedule time for the trip from Winnipeg is 30 hours. A fast freight service has also been inaugurated, the run occupying 60 hours.

Vancouver Island Logging Railway.—A 20,000 acre timber area near Port Renfrew, on Vancouver Island, B.C., has been purchased by St. Louis, Mo., parties. It is intended to build a logging railway in order to develop the property, Port San Juan being the point on the water front to which the line will be built. C. C. Michener, President of the Red Fir Lumber Co., Nanaimo, B.C., is interested in the new company.

The assessment of the Canadian Northern Ry. property at Port Arthur, Ont., has been fixed at $125,000, by the court of revision.

There has been listed on the New York stock exchange $2,510,000 additional first mortgage 5% 50-year bonds of the Cuba Rd., making the total amount now listed $11,310,000.

The motor car service which the C.P.R. recently inaugurated between Brandon and Minnedosa, Man., and other points has been abandoned, the power it is reported not being powerful enough to overcome the gradients.

The British Columbia courts have dismissed the action brought by M. Frewen and others against C. M. Hays and the G.T. Pacific Townsite and Development Co., for specific performance to sell 1,000 lots at Prince Rupert.

A. Labond, brought an action in the Quebec courts to recover $12,000 from the C.P.R., alleging that the value of his property on St. Paterick St., Montreal, had been depreciated to that extent, by the building of the C.P.R. branch to the Canada Sugar Refining Co.'s premises. The action was dismissed, the court holding that Labond had failed to prove any material damage.

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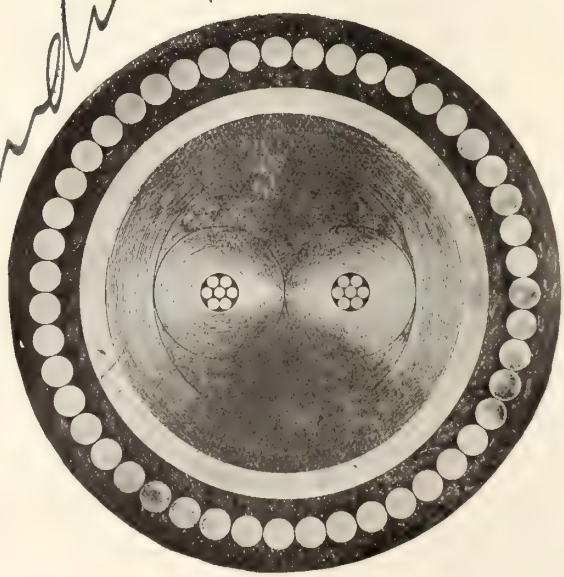

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The Ontario and Ottawa Ry. Co. was incorporated last session of the Dominion Parliament to construct a railway from the Canadian Northern Ry. near Lake Couchiching, easterly to Snowdon tp., Haliburton county, Ont., and from Herschell tp., Hastings county, easterly to Renfrew, thence crossing the Ottawa River and continuing generally southeasterly to Hull, Que., or recrossing the Ottawa River to Ottawa. The company is authorized to enter into agreements with the various Mackenzie, Mann & Co. lines, and also with the Central Ontario Ry., the Marmora Ry. and Mining Co., the Thousand Islands Ry., the Bay of Quinte Ry., the Brockville, Westport and North Western Ry., and the Bessemer and Barrys Bay Ry., and to issue consolidation stock in respect of the lines acquired.

As stated in our last issue, the Brockville, Westport and Northwestern Ry., extending from Brockville to Westport, Ont., 45 miles, has been secured by the Mackenzie & Mann interests for amalgamation with the Canadian Northern Ontario Ry.

The Ontario Legislature in 1870 incorporated the Brockville and Westport Ry. Co. to build a line between these two points, and the act was amended in 1873, but nothing appears to have been done under it. In 1884 the Brockville, Westport and Sault Ste. Marie Ry. Co., was incorporated by the Ontario Legislature and amending acts were passed in subsequent years. The Dominion Parliament in 1885 voted a subsidy for the construction of 45 miles from Brockville to Westport which was re-voted in 1889, and the unpaid balances were revoted in subsequent years, but were not paid, as the company never brought the line up to the standard. After some years the company got into difficulties, and the line was sold by the bondholders. The new owners secured a charter from the Dominion Parliament in 1903 for the Brockville, Westport and North Western Ry., and the line was brought up to the Government standard, an arrangement being made under which the new company paid about $200,000 to satisfy judgment creditors of the old company for construction supplies, before the balance of the subsidy was paid in 1906. The company has power to extend its line northerly, and to connect with U. S. lines at Morristown, N.Y., by means of a bridge or ferry.

The company owns 45 miles of single track main line laid with steel rails, with two miles of yard track and sidings. There is one steel bridge having a 69-foot span, 31 wooden bridges, the longest span being 65 feet; 19 short combination bridges, and two trestles, one of 575 feet and one of 700 feet, on the line. There are 35 level crossings, and the line is carried under one bridge which is 325 feet above rail level. The company's rolling stock at June 30, 1909, included four locomotives, 20 freight cars, one car in the company's service, and 10 passenger cars.

The capital outstanding, June 30, 1909, was: Common stock, $900,000; bonds, $450,000. The company has received by way of subsidies, $140,800 from the Dominion and $116,000 from municipalities.

A special meeting of shareholders has been called to be held at Brockville, Ont., Aug. 8, for the purpose of considering and, if thought fit, of accepting the resignation of some or all of the officers and directors of the company; of filling up any vacancies so created, and of transacting such other business as may be transacted at an annual general meeting.

At a meeting at Brockville, Ont., July 13, F. T. Lewis, C. Heilshorn, and A. P. Van Tuyl, of New York, resigned from the directorate and two other directors having disqualified themselves by the transfer of shares. D. B. Hanna, F. H. Phippen, J. D. Morton, G. G. Ruel, B. C. Vaughan, and R. P. Ormsby, were elected in their places. Subsequently D. B. Hanna was elected President; J. D. Morton, Vice President, R. P. Orsmby, Secretary, and L. Mitchell Treasurer. All the new directors and officers are connected with the Canadian Northern Ry. The old directors who remain on the board are W. H. Comstock, J. Cumming, R. Bowie, W. C. Fredenburg and W. S. Buell of Brockville.

The Irondale, Bancroft and Ottawa Ry. had been acquired at the time the act was passed, and since then the Brockville, Westport and North Western Ry., and the Central Ontario Ry., with its leased line—the Marmora Ry. and Mining Co.—have been acquired. These lines have a total length of 242.73 miles with legislative authority to extend, for which extensions there are subsidies available. The provisional directors of the company are:—G. G. Ruel, G. F. Macdonnell, R. H. M. Temple, A. J. Reid, R. P. Ormsby. Notice has been given that application will be made to the Board of Railway Commissioners by the companies named for a recommendation to the Governor-in-Council to sanction agreements for conveying to the Ontario and Ottawa Ry. Co. the four several railways. It is understood that the O. and O. Ry. Co. as soon as the amalgamations have been properly ratified, will issue consolidated stock in respect of the mileage, and that in time the lines will become part of the Canadian Northern Ontario Ry.

The Prince Edward County Ry. was incorporated by an act passed by the Ontario Legislature in 1873, and its name was changed to that of the Central Ontario Ry. in 1882. In 1884 the company's railway was declared to be a work for the general advantage of Canada. Various other acts have been passed by the Dominion Parliament, as well as by the Ontario Legislature,, granting various powers to the company, and extending the time within which it might construct its authorized lines. The lines constructed by the company extend from Pictou to Trenton Junction, 32.17 miles; from Trenton Junction to Coe Hill, 72.60 miles, and from Ormsby Jct. to Maynooth, 35.36 miles; total 140.13 miles. The company has under construction an extension from Maynooth northerly towards Whitney station, on the G.T.R. Canada Atlantic branch. The company also operates under lease the Marmora Ry. and Mining Co.'s line, 9.60 miles, to which reference is made further on. The whole of the 149.73 miles is laid with steel rails. It has 15.50 miles of yard track and sidings, and operates over half a mile of another company's yard tracks. There are 11 iron bridges aggregating 1,134 ft. in length, the longest being 490 ft., and the shortest 34 ft., and one wooden bridge of 45 ft. on the line; together with 116 unguarded level crossings, and one bridge carrying a highway over the track. The company owned June 30, 1909, one switching and 15 passenger locomotives; 12 passenger cars; 53 box cars, 181 flat cars, 11 stock cars, 10 coal cars, and four cars in the company's service. The amount of common stock outstanding June 30, 1909, was $3,340,000, and there were also $1,000,000 of bonds oustanding. During the construction period the company received aid as follows: Dominion, $179,466; Ontario, $263,000; municipal, $93,500.

The old Parliament of Upper Canada incorporated the Cobourg, Peterborough and Marmora Ry. Co. In 1868 the Ontario Legislature passed an act recognizing and extending the company's powers, and in the following year another act was passed legalizing the amalgamation of the railway company with the Marmora Iron Co., the title of the concern being the C., P. and M. Ry. and Mining Co. Other acts were passed and in 1887, after the sale of the company's bonds under an order of the chancery court, the Dominion Parliament incorporated the Cobourg, Blairton and Marmora Ry. and Mining Co. to take over the property, etc., acquired, and to build the railway, and in 1889 the town of Cobourg was authorized by the Ontario Legislature to aid the company in the construction of its railway. There was another re-arrangement of affairs and in 1891 the Ontario, Belmont and Northern Ry. was incorporated by the Ontario Legislature, and a line authorized to be built from Hastings to Marmora, about 31 miles. In 1900 the Legislature authorized the company to change its name to the Marmora Ry. and Mining Co. The line constructed and opened for traffic in 1896 extends from Central Ontario Jct., to Wanston, 9.60 miles, and when it has been operated it has been under lease by the Central Ontario Ry. It does not own any rolling stock, and no information is available as to its stock and bond indebtedness, or in regard to the result of its operations, the latter figures being included in those of the Central Ontario Ry. An old report places the capital stock at $250,000 of which there had been paid in $115,421 out of $130,000 subscribed, and $100,000 of 6% bonds; in addition to which there was a floating indebtedness of $4,218. The cost of the line was given as $265,291, towards which there had been bonuses as follows:—Dominion, $30,720; Ontario, $19,149. The same report gave the officers as follows: President, C. A. Masten, Toronto; Treasurer, C. A. Millener, Deseronto, Ont.: Trustee for the bondholders, J. A. McGillivray, Toronto.

The officers and directors of the Central Ontario Ry. are: President, C. E. Ritchie; Vice President, J. J. Warren, General Manager, G. Collins; other directors, J. H. Moss, E. B. Stockdale; Treasurer, J. D. Rowe; Chief Engineer, J. D. Evans; Superintendent, G. A. Hoag. The chief offices and operating headquarters are at Trenton, Ont.

The Irondale, Bancroft and Ottawa Ry., which has latterly been operated under a temporary lease by the Central Ontario Ry., by G. Collins, General Manager, was acquired by the Mackenzie, Mann interests some time ago, as detailed in our issue for Dec., 1909, pg. 897.

New York Central and Hudson River Rd.—An issue of $22,500,000 of 4½% equipment trust certificates has been sold in New York. A large amount of the long term notes were bought for London, Eng., and of the short term notes for Paris, France.

White Pass and Yukon Ry.—Gross earnings for May, $150,737, and for 11 months ended May 31, $1,098,475.

Sir John Murray, of deep sea exploration fame, who visited Canada recently, is a brother of the late James Murray at one time Superintendent C.P.R., at Winnipeg.

The Ontario courts have dismissed an action brought by the C.P.R. to recover money paid on account of the death of one man, and the injury of another in a railway accident. The men were travelling on passes at the time of the accident in charge of horses belonging to Burns & Sheppard of Toronto, and the company claimed that its contract protected it against damages. A settlement was expected at the time of the accident, and the company afterwards sought to recover from the men's employers the amount of money paid under the settlement.

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Kingsmill, Saunders, Torrance & Kingsmill.. 655

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Lewis, Rice & Son, Ltd. 656
London Guarantee & Accident Co., Ltd. 686
Long and Allstatter Co. 700
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Lumen Bearing Co. 690

M

McAvity, T. & Sons 636
McConway & Torley Co. 688
McCord & Co. 634
Males Co. 700
Marsh Co. 686
Matheson, I., & Co. 698
Metcalf, John S., Co., Ltd. 702
Midland Towing & Wrecking Co., Ltd. 698
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Montreal Locomotive Works, Ltd. 620
Montreal Rolling Mills Co., Ltd. 682
Montreal Steel Works Ltd. 622
Mussens Limited ..... Cover 1 and 614

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*Northern Electric & Mfg. Co., Ltd. 654
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Northern Navigation Co., Ltd. 670
Norton, A. O. 640
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Williams Mfg. Co., Ltd. 696
Wire & Cable Co. ..... Cover 1
Wood, Guilford S. 674

*Advertisements marked with an asterisk appear in alternate issues.

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MAINLY ABOUT PEOPLE.

H. J. Squier, Assistant Sales Agent Dominion Coal Co., died at Sherbrooke, Que., June 30, after a short illness.

Sir Wm. C. Van Horne, has been appointed a member of the Boulevard Commission for Montreal.

H. H. Morse, formerly Manager Levis County Ry., at Levis, died at Southbridge, Mass., July 4.

J. T. Arundel, General Superintendent Manitoba Division, C.P.R., returned to Winnipeg, July 11, from Great Britain.

H. R. Charlton, General Advertising Agent G.T.R. and G.T.P.R., is on a trip over the G.T.P.R., west of Edmonton.

A. D. Cartwright, Secretary Board of Railway Commissioners, and his family, are in Prince Edward Island for the holidays.

A. W. Smithers, Chairman G.T.R., London, Eng., has been elected a director of the South Eastern and Chatham Ry. there.

R. Forget, M. P., has given $25,000 towards the fund of $500,000 which it is proposed to raise for the Notre Dame Hospital, Montreal.

Mrs. C. Breithaupt, who died at Berlin, Ont., July 6, was mother of W. H. Breithaupt, President Berlin and Bridgeport Electric St. Ry.

Lady Shaughnessy and the Misses Shaughnessy arrived at their summer residence, St. Andrews-by-the-Sea, N.B., July 6, for the season.

A number of boy scouts sailed from England in July, for Canada, at the invitation of Sir Thos. G. Shaughnessy, for a few weeks camping tour.

Judge Leboeuf of the Montreal Circuit Court, is reported to have declined the offer of a membership of the Government Railways Managing Board.

J. W. Loud, Freight Traffic Manager G.T.R., who left May 28 with his wife and two daughters for a holiday trip to Europe, returned to Montreal July 1.

The Hudson Bay Co.'s shareholders at the recent annual meeting in London, Eng., decided to present to Lord Strathcona, a portrait of himself in oils.

L. A. Vallee, Chief Engineer of the Department of Public Works, Quebec, has also been appointed engineer of the Quebec Public Utilities Commission.

J. W. Morris, of the Reid Newfoundland Co.'s electrical department, St. Johns, Nfld., was married to Miss M. T. Robeley, at Truro, N.S., July 11.

Miss F. M. Stephens, daughter of C. E. Stephens, secretary-treasurer Northern Navigation Co., was married at Collingwood, Ont., recently, to R. P. Findlay.

Lord Strathcona has given £300,000 to the Barnardo Homes for Destitute Children, London, Eng., the interest of which is to be used in bringing children to Canada.

Jas. Ross, Montreal, ex-President Dominion Coal Co., and his family, are spending the summer at his seaside residence, Sydney, N.S., having left Montreal July 4, on his yacht, Sheelah.

Hon. L. J. Forget, C.P.R. director, was taken seriously ill while on a holiday trip on the Bonaventure River, July 4, and was removed to his summer residence at Senneville, Que.

S. Shackell, who was in the G.T.R. executive office for a number of years, and since his retirement has been engaged in the real estate business, died in Lachine, Que., July 7.

F. C. Meyers, local agent Great Northern Ry., at New Westminster, B.C., disappeared June 27. His books have been audited and found correct. No apparent cause exists for his disappearance.

J. D. Landers, who was appointed Trainmaster for the C.P.R. at Brandon, Man., in 1882, and for many years has been a conductor in the company's service, died at Hot Springs, Ark., June 28.

Hon. H. R. Emmerson, ex-Minister of Railways and Canals, has been appointed trustee under the will of Mrs. J. de W. Spurr, St. John, N.B., of which he and each of his four children are beneficiaries.

J. A. McKinnon, who has been appointed Superintendent of the Wilmar Division of the Great Northern Ry., at Wilmar, Minn., is a native of Pictou, N.S., and was at one time in the Intercolonial Ry. service.

R. H. Munns, for over 20 years in the I.C.R. storekeeper's office at Moncton, N.B., was presented with an address, suit case and umbrella, by the staff, recently, on leaving the service, to take up his residence in Vancouver, B.C.

Frank Smith, for many years a resident of Sarnia, Ont., who died there June 30 after being ill for nearly a year, had been a director of the Sarnia St. Ry. for the past 10 years and was largely instrumental in securing its success.

A London cablegram says that the Chapter of the General Order of St. John of Jerusalem has awarded C.P.R. Conductor T. Reynolds a silver medal for his bravery in the Spanish River disaster last winter.

An incendiary, who has been giving some little trouble in the neighborhood of Midland, Ont., attempted to set fire to the residence of Jas. Playfair, President Inland Lines, Ltd., there, July 9.

L. Black, assistant resident engineer National Transcontinental Ry., Barrington, N.S., who was seriously injured by falling from a locomotive, as mentioned in our last issue, died July 14, at Moncton hospital, aged 23.

J. A. Grant, of Grant Bros., railway contractors, Los Angeles, Cal., and Mrs. Grant, after spending some time in their native place in Glengarry county, Ont., sailed from New York, July 20, for a European tour.

Lord Strathcona has subscribed $1,000 to the fund for the erection of a South African memorial at Toronto, which contribution will enable the committee to complete the monument on the lines originally outlined.

C. L. Wellington, Traffic Manager Colorado and Southern Rd., Denver, Col., who died there, July 8, was for some time in the late seventies, in the service of the Chicago and Grand Trunk Ry., now part of the G.T.R. system.

J. Loomis, roundhouse foreman Michigan Central Rd., St. Thomas, Ont., was presented with a set of carvers and some pieces of silver, by the company's employes, at St. Thomas, on the occasion of his marriage, recently.

J. F. Richey, who died at Mount Clemens, Mich., recently, was for some years connected with the C.P.R. fuel department, but since 1907 has been associated with the Hosmer Mines, Hosmer, B.C.

The firm of Reid Brothers has been constituted with head office in Montreal. It comprises W. D., H. D. and R. G. Reid, sons of the late Sir R. G. Reid, and controls the Reid Newfoundland Co., and looks after the varied Reid estates and interests.

A. Allan, Master Mechanic Temiskaming and Northern Ontario Ry., was presented with a cabinet of silver by the locomotive drivers at a dinner at North Bay, July 1, on his leaving the service. He was also presented with a grandfather's clock by the office staff.

R. W. Leonard, C.E., who had charge of a good deal of construction work on the C.P.R. between Montreal and Ottawa, and Toronto and Ottawa, has been appointed a member of the Board of Governors of Toronto University, Vice Goldwin Smith deceased.

S. H. Chapman, President and General Manager Ontario Wind Engine and Pump Co., Toronto, was presented with a silver service recently, by the directors and office staff, on the occasion of his fiftieth birthday, and the completion of his twenty-fifth year of service with the company.

Hon. Maurice Gifford, C.M.G., director B.C. Electric Ry., British Empire Trust Co., and Canadian Northern Prairie Lands Co., died at Hoddesdon, Eng., recently. He served with the French scouts in the Riel rebellion and also with distinction in the last Matabele rising, where he lost an arm.

S. O. Greening, President of the B. Greening Wire Co., Hamilton, Ont., who was some time ago operated on at the Mayo Hospital, in Rochester, Minn., for internal trouble, returned home recently. He is considerably improved in health, but will spend the balance of the summer recuperating in Muskoka.

As a memorial to the late E. Fisher, Superintendent, the Toronto, Hamilton and Buffalo Ry. Co. is furnishing a ward to be called the Fisher ward, in Hamilton City Hospital. The Governors, while accepting the gift, stated that they could not reserve the beds in the ward specially for the use of the company's employes.

G. I. Evans, whose appointment as Mechanical Engineer C.P.R., is mentioned on another page, entered C.P.R. service Apr. 1, 1900, since when he has been, to Mar., 1902, draughtsman; Mar., 1902, to Jan., 1907, Assistant Chief Draughtsman; Feb. to Aug., 1907, Locomotive Inspector; Sept., 1907, to June 30, 1910, Chief Draughtsman.

H. Croft, who built the Lenore and Mount Sicker Ry., and who married a daughter of the late Robt. Dunsmuir, of Victoria, B.C., has entered an action against Jas. Dunsmuir, and the other heirs of the Dunsmuir estates to recover $4,600,000, for damages arising out of dealings with certain mineral lands in the Esquimalt and Nanaimo Ry. land belt.

C. Forrester, who has been appointed Trainmaster Buffalo and Goderich District G.T.R., was born Mar. 5, 1876, at Wanstead, Ont., and entered G.T.R. service June 20, 1891, since when he has been, to Aug. 20, 1899, operator; Aug. 20, 1899 to Aug. 20, 1906, train dispatcher, London, Ont.; Aug. 20, 1906 to Oct. 1, 1907, Night Chief Dispatcher, London, Ont.; Oct. 1, 1907 to July 1, 1910, Chief Dispatcher, London, Ont.

Andrew Halkett, who has been appointed Assistant Trainmaster District 2, British Columbia Division, Kamloops was born at Ottawa, Nov. 11, 1876, and entered C.P.R. service Nov. 21, 1897, since when he has been, to Jan. 13, 1902, brakeman, Cascade Section, Pacific Division, Vancouver, B.C.; Jan. 13, to Apr. 4, 1902, brakeman, District 3, Pacific Division, Nelson, B.C.; Apr. 4, 1902, to June 1, 1910, conductor, Nelson, B.C.

C. E. Friend, who has been appointed General Auditor Canadian Northern Ry., Winnipeg, was born at Brighton, Eng., Oct. 12, 1871, and entered Canadian railway service Jan., 1894, since when he has been, to Oct., 1896, private secretary to Traffic Manager C.P.R., Winnipeg; Oct., 1896, to June 1, 1901, assistant to Superintendent Canadian Northern Ry., Winnipeg; June 1, 1901, to July, 1910, Auditor Canadian Northern Ry., Winnipeg.

J. Irwin, whose appointment as Superintendent District 5 Canadian Northern Ry., Saskatoon, Sask., was announced in our last issue, was born at Clinton, Ont.,

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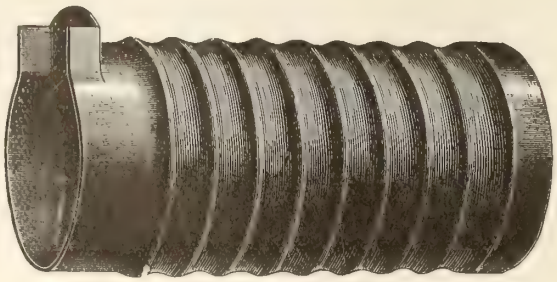

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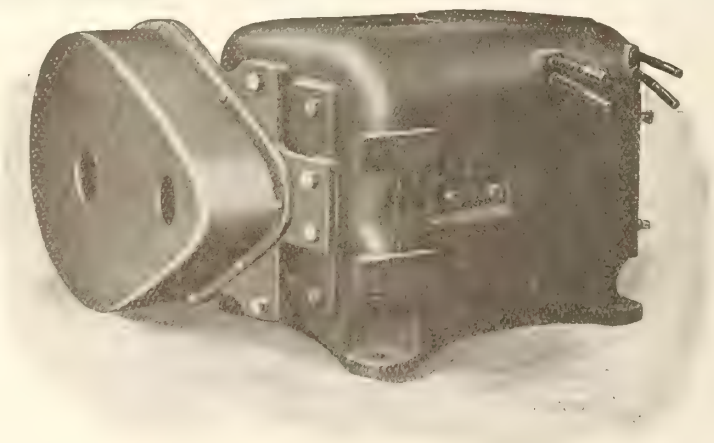

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May 28, 1866, and educated at Clinton public and high schools, Pickering college and Galt Collegiate Institute. He entered railway service, Jan. 1, 1883, since when he has been, to 1884, clerk G.T.R., Clinton, Ont.; 1884 to 1885, clerk in Audit Office Missouri Pacific Ry., St. Louis, Mo.; 1885 to 1886, brakeman Wabash Rd., St. Louis, Mo.; 1886 to 1896, conductor, same road; 1896 to 1901, Trainmaster, G.T.R., at Belleville, Ont., Richmond, Que., Detroit and Durand, Mich., consecutively; 1901 to 1902, Trainmaster Southern Pacific Ry., Truckee, Cal., and Assistant Superintendent Denver and Rio Grande Rd., Salida, Cal., consecutively; 1902 to 1903, Trainmaster G.T.R., Stratford, Ont.; 1903 to May 31, 1910, Trainmaster G.T.R., Lindsay, Ont.

Ernest Walton, who has been appointed Master of Transportation Eastern Division G.T.R., Montreal, was born at London, Ont., Sept. 29, 1878, and entered G.T.R. service as messenger at Stratford, Ont., July 1, 1891, since when he has been from Mar., 1893, to July, 1896, stenographer to Master Mechanic, London, Ont.; July, 1896, to May, 1899, stenographer to Superintendent, Toronto; May, 1899, to Mar., 1901, secretary to Vice President and General Manager Central Vermont Ry., St. Albans, Vt.; Mar., 1901, to Feb., 1902, secretary and assistant to President Southern Pacific Rd., San Francisco, Cal.; Feb., 1902, to July, 1903, secretary to Vice President and General Manager Central Vermont Ry., St. Albans, Vt.; July, 1903, to Jan., 1905, chief clerk to Vice President and General Manager Central Vermont Ry., St. Albans, Vt.; Jan., 1905, to Sept. 30, 1909, chief clerk to Third Vice President G.T.R., Montreal; Sept. 30, 1909, to July 16, 1910, Travelling Car Service Agent Eastern Division - G.T.R., Montreal.

G. W. Babbitt, Chief Train Dispatcher Michigan Central Rd., St. Thomas, Ont., died somewhat suddenly at his summer residence Port Stanley, Ont., July 12, aged 67. He was engaged in telegraph work during the U.S. civil war, and subsequently entered railway service with the Chicago, Burlington and Quincy Ry., leaving that company for the Michigan Central Rd. After becoming Chief Dispatcher at Jackson, Mich., he spent some time in Mexico, but returned to the Michigan Central Ry. in the early eighties, and was made Chief Train Dispatcher on the Canada Southern Ry., when it was taken over by the M.C.R., in Nov., 1883. He was one of those engaged in drawing up the standard operating rules which have just been put in force in Canada by the Board of Railway Commissioners; and a few days previous to his death received notification from the Commission that he was about to be appointed an examiner in the train rules for the Board. He was President of the Railroad Hospital Association, and a director of the Railway Y.M.C.A. at St. Thomas.

R. S. McCormick, whose appointment as Chief Engineer Algoma Central and Hudson Bay Ry., and Manitoulin and North Shore Ry., we announced in our last issue, was born at Quaker City, Guernsey co., Ohio, June 22, 1873, and entered Flint and Pere Marquette Ry., service at Saginaw, Mich., in 1890, since when, he has been, to Oct. 1894, chainman, rodman and general assistant to the Chief Engineer, consecutively, F. & P.M.R., Saginaw, Mich.; Oct. 1894 to May 1897, assistant and draughtsman, Division Engineer's office, G.T.R., Battle Creek, Mich.; May 1897 to Feb. 1900, Assistant Engineer Maintenance of Way G.T.R., Detroit, Mich.; Feb. 1900 to Apr. 1903, locating engineer Algoma Central and Hudson Bay Ry., Sault Ste. Marie, Ont.; Apr. 1903 to Jan. 1904, Assistant Engineer Maintenance of Way, Pere Marquette Rd., Saginaw, Mich.; June to Aug. 1906, engineer on barge canal construction, Rochester, N.Y.; Oct. 1906 to June 1909, Assistant Engineer in charge of construction of 50 miles G.T.P.R. Lake Superior branch and Locating Engineer G.T.P.R. Regina north branch; July 1909 to May 1, 1910, Division Engineer in charge of surveys Algoma Central and Hudson Bay Ry., Sault Ste. Marie, Ont.

P. G. Flaherty, who has been appointed Trainmaster District 3, Eastern Division G.T.R., Richmond, Que., was born in Newberry county, Va., in 1866, and entered railway service in 1881, since when he has been, to Dec., 1883, operator Allegheny Valley Rd., New Bethlehem, Pa.; 1883 to 1886, dispatcher Buffalo, Rochester and Pittsburg Ry., Buffalo, N.Y.; 1886 to 1891, dispatcher Union Pacific Ry., Evanston, Wyo.; and subsequently dispatcher at different points in Mexico on the Mexican International and Mexican Central Rds.; 1891 to 1898, dispatcher G.N.R. Kalispiel, Mont., and West Superior, Wis.; 1898 to 1899, dispatcher G.T.R., Battle Creek, Mich.; 1899 to 1901, dispatcher G.N.R., West Superior, Wis.; 1901 to Feb., 1903, dispatcher G.T.R., Island Pond, Vt.; Feb. to Sept., 1903, dispatcher Pere Marquette Rd., Grand Rapids, Mich.; Sept., 1903, to Oct., 1905, dispatcher G.N.R., White Fish, Mont.; Oct. to Dec., 1905, Night Chief Train Dispatcher Oregon Rd. and Navigation Co., Tekoa, Wash.; Jan., 1906, to Feb., 1908, Chief Dispatcher G.N.R., Spokane, Wash.; Feb., 1908, to 1909, Chief Dispatcher G.T.R., Montreal; 1909 to July 16, 1910, Acting Master of Transportation G.T.R. Eastern Division, Montreal.

H. B. Sims, whose appointment as Assistant Division Engineer C.P.R., Moose Jaw, Sask., was announced in our last issue, was born at Philadelphia, Pa., Nov. 19, 1871, educated at Upper Canada College and School of Practical Science, Toronto, and entered railway service May, 1895, since when he has been, to June, 1896, rodman Toronto, Hamilton and Buffalo Ry.; June to Sept., 1896, draughtsman, Chief Engineer's office C.P.R.; Sept. to Dec., 1896, Masonry Inspector C.P.R.; Dec., 1896, to Oct., 1897, draughtsman, Chief Engineer's office C.P.R.; Oct. to Dec., 1897, Bridge Inspector C.P.R.; Dec., 1897, to Mar., 1898, draughtsman Chief Engineer's office C.P.R.; Mar. to Nov., 1898, leveller, Toronto - Sudbury location, C.P.R.; Nov., 1898, to Sept., 1899, in Chief Engineer's office C.P.R.; Sept. to Oct., 1899, Bridge Inspector C.P.R.; Oct. to Dec., 1899, in charge of repairs to Sault Ste. Marie bridge, C.P.R.; Dec., 1899, to Apr., 1900, instrument man, Construction Department Abbotsford to Hope, B.C. location; Apr. to Oct., 1900, in Chief Engineer's office, C.P.R.; Oct., 1900, to May, 1902, Bridge Inspector C.P.R.; May, 1902, to Dec., 1903, Assistant Engineer Ottawa Northern and Western Ry.; Dec., 1903, to Apr., 1904, Resident Engineer District 5, Central Division C.P.R.; Apr., 1904, to Mar., 1907, Resident Engineer District 4, Central Division C.P.R.; Mar. to Dec., 1907, Resident Engineer District 5, Central Division C.P.R.; Dec., 1907, to July 1, 1910, Resident Engineer District 1, Western Division C.P.R.

Inverness Railway and Coal Co.

Following are extracts from the report for the year ended June 30, 1909, and submitted under the signature of Wm. Mackenzie, President, at the annual meeting in Toronto recently.

"For the year the output of your colliery was 277,394 tons, compared with 282,639 tons in the previous year. Your directors regret to report that labor conditions in Nova Scotia were during the year and still are, far from satisfactory. The difficulties which your company has had to face in common with the other great coal companies in Nova Scotia, and which culminated in the strike declared in June 1909, brought about largely increased costs, although the output of the mines has not for some months been interferred with. The operations of your colliery show a surplus for the year of only $4.324.49. The gross earnings of your railway show a decrease as a result of the falling off in coal shipments. To efficiently maintain the physical condition of your railway it required somewhat heavier disbursements on account of rolling stock, track, structures, etc., and in consequence the net revenue of your railway shows a material decrease. During the year various accounts of the company have been closely scrutinized, and in order to make allowance for the conditions and bad debts, the full amount of the contingency account provided a year ago has been absorbed. The underground workings of the mines have, as usual, been regularly inspected by the Provincial Government Inspector, and are in good condition. The physical condition of your railway is being fully maintained.

ASSETS.

Railway and railway equipment		
Mines, mining plant, development, etc.		$10,591,701.36
Sinking fund, to redeem first mortgage bonds		56,889.12
Operating Assets.—		
Colliery and railway stores on hand	$50,614.72	
Colliery accounts and agents' and conductors' balances due	$37,224.68	
		87,839.40
Income account		461,756.43
		$11,198,186.31

LIABILITIES.

Capital stock		$7,500,000.00
First mortgage gold bonds	$3,000,000.00	
Less held in treasury	885,000.00	
		2,115,000.00
Loans applied in developing property, secured by treasury bonds		986,474.85
Other advances to company		411,302.70
CURRENT LIABILITIES		
Unpaid bills	161,902.01	
Accrued interest on bonds, etc.	23,502.75	
		185,404.76
		$11,198,186.31

INCOME ACCOUNT.

Balance at June, 30, 1908,		$352,894.46
Interest on bonds, etc.—		
First mortgage bonds	$105,750.00	
Bank advances	61,368.77	
Sundry creditors	17,246.79	
Interest accrued to June 30, 1909,	$19,227.75	
Less accrued at June 30, 1908, paid during current year	19,227.75	
	$184,365.56	
Hire of equipment	1,570.14	
		185,935.70
		[illegible]
Colliery—Gross earnings	$490,394.61	
Operating expenses	486,070.12	
		4,324.49
Railway—Gross earnings	[illegible]	
Operation, loads, etc.	[illegible]	
Miscellaneous		26.75
Debit Balance June 30, 1909		$461,756.43

By an arrangement between the Alberta and Saskatchewan Governments two actions have been brought against the C.P.R. to test the right of the provinces to tax the C.P.R. lands. The [illegible] on the list to be disposed of speedily.

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National Transcontinental Railway.

In the course of an interview at Quebec recently, S. N. Parent, chairman of the Commissioners, said the line between Moncton and Winnipeg would be completed by the end of 1912, and that while waiting for the completion of the Quebec bridge a car ferry would be used to take trains across the river. The plans for the construction of terminals in Quebec would be prepared as soon as the contract with the city for the purchase of the Champlain market site had been signed. A Quebec dispatch says that the deeds transferring this property will be signed Sept. 1. Mr. Parent, further stated in his interview that Cap Blanc and all the houses along the river front between Champlain market and Sillery would have to disappear; the marine department shops would also have to go, and these would probably be rebuilt at Sillery. If the plan is at all feasible the union station will be so built that it will connect by the roof with Dufferin Terrace.

Referring to the work done on Division B, which extends from the New Brunswick boundary to 330 miles west of Quebec, a total of 507 miles, A. E. Doucet, Division Engineer, said July 6, that with the exception of a few breaks, such as the bridge over the Jacques Cartier River, and the yards at Cap Rouge, track has been laid for 188 miles from west of the Quebec bridge site to the St. Maurice River; and from eight miles east of Waymontachene as far west as the Hudson's Bay post. Grading has been completed for 78 miles west of that point, and it is expected that by the end of the season track will be laid to the crossing of the Gatineau River, about 235 miles west of Quebec. All grading has been completed south of the St. Lawrence to the New Brunswick boundary, and a considerable mileage of track has been laid. The work of bridge construction and filling is being proceeded with, and as soon as this is finished track laying will be completed. Of the total of 507 miles in the division there are only 60 miles upon which grading has not been done.

Tenders will be received by the Department of Railways to Sept. 1, for the superstructure of a bridge across the St. Lawrence River at Quebec. The tenders must be accompanied by a certified bank cheque for $100.000 as security that a contract will be entered into if the tender be accepted. The firms tendering are to accept the fair wage schedule prepared or to be prepared by the Department of Labor, and to state when they can complete the work. The total length of the bridge will be 3,232 ft., with a main span of 175 ft., against a length of 3,220 ft., and a main span of 1,800 ft. in the bridge which collapsed; while the width of the floor will be 88 ft. against 63 ft. The floor will provide for two railway tracks, two electric railway tracks, a highway, and a sidewalk. The steam railway tracks will be laid in the middle of the bridge, and on either side will be a highway, single electric railway track and sidewalk. While the cantilever plan of construction is favored by the Commissioners, the firms tendering can submit a price for a suspension bridge. A Montreal dispatch of July 13 stated that M. Fitzmaurice, of London, Eng., and R. Modjeska, Chicago, Ill., had resigned from the Commission on account of friction between the members, but the Deputy Minister of Railways, the same day, gave the story an emphatic denial.

The work of demolishing the approach spans of the collapsed bridge is being proceeded with, and the steelwork being taken out is being tested to determine its suitability for use in bridges elsewhere. The removal of the debris of the collapsed span is also going on, over 4,000 tons of steel having already been handled by the contractor.

The caisson for the main pier of the new bridge was launched at Point Pizeau, July 7. It is 180 by 55 ft., and weighs about 1.800 tons. It was subsequently towed to position and sunk.

Sir Wilfrid Laurier, on the occasion of his present trip to Western Canada travelled from Fort William, Ont., over the Lake Superior Branch of the G.T.P. Ry., and thence to Winnipeg over the completed section of the National Transcontinental Ry. The special train carrying the party is stated to have been the first passenger train over the line. A regular passenger service is to be put on early in August. The divisional point on the line between Lake Superior Jct. and Winnipeg is seven miles west of the junction, which has been named Graham, after the Minister of Railways. The town is situated on the shore of Pelican Lake, and the terminal yards cover an area of 100 acres, upon which it is proposed to lay out 17 miles of tracks. In an interview the Minister of Railways said:

"There seems to be no reason why the line cannot be used for hauling the grain crop of this season. Moreover, the line from Quebec east will practically be open for traffic, and possibly portions of it in Quebec. We find this portion of the roadway in better condition and nearer completion than anticipated. There is no difficulty in travelling 35 miles an hour. A good deal of track is absolutely completed. Parts will need another lift of ballast for the alignment of the track. Contractor McArthur will be finished in September. A permanent bridge has to be built over the Sturgeon River, but a substantial trestle bridge is doing service now. We further expect to effect arrangements by which trains will be hauled into St. John and Halifax this autumn. No one who has not travelled over this line has any idea of the difficulties which have been met and conquered. There are huge rock cuts, bridge construction and tunneling. Ballast had to be hauled great distances. One sink hole required vast supplies of dirt at a cost of $200,000."

Referring to the arbitration as to classification on this section of the line, the preliminary report presented to the Government, June 29, shows that in section E, the overclassification amount is less than $25,000, and on section F, to about $200,000, against which it is claimed the Government is protected by the percentage of the amount of the contracts held back.

In the course of this recent visit to Winnipeg C. A. Young, a member of the Commission, met the Winnipeg Electric Ry. directors and discussed the diversion of their power line near Lac du Bonnet where it comes in connection with the National Transcontinental Ry. right of way.

Tenders have been received by the Commissioners for the supply of air, steam, water and oil piping system; the yard water system and pipe tunnels and wiring ducts required in connection with the shops near Winnipeg; and also for the construction of a sewer from the pump house and terminal yards there to the Seine River.

The substructure for the bridge over the Red River at Winnipeg has been completed, and the Dominion Bridge Co. is preparing to put up the superstructure, which is expected to be completed by Sept. The substructure consists of two abutments and six piers. These piers are 72 by 22 ft. at the foundation, resting on solid rock, and are 65 ft. high, the dimensions at the top being 40 by 12 ft. The shore span, over navigable water, is to consist of a lift span. A piece of line is being constructed from the river to the Canadian Northern Ry. freight shed on Water St. where the G.T. Pacific Ry. and the National Transcontinental Ry. lines meet. The method of building this piece of road bed is to go down 10 ft. and drive 45 ft. piles. The wide excavation is then filled with concrete, and high retaining walls are built to an elevation of approximately 20 rt. These walls are reinforced with steel, and are filled with gravel and concrete. The finished roadway has the appearance of a line of solid concrete 20 ft. high and 38 ft. wide. On this the G.T. P. Ry. trains will be carried from the river to the union station, which they will enter at the second floor. Over the city streets the trains will be carried on steel trusses, which will be supported by steel arches in the centre of the streets. For some distance from the river there will also be steel trestles to carry the trains.

GRAND TRUNK PACIFIC RY.

President Hays returned to Montreal, July 6, from a trip to the West, and in an interview said: "The General Manager is of opinion that the line will be completed through to Prince Rupert by the end of 1912. It is all a matter of labor. It is a matter of astonishment to see how quickly all the newcomers disappear. Trainload after trainload of immigrants are continually arriving in Winnipeg, yet within 48 hours they are all swallowed up, and what is more their coming does not appear to affect the labor market. When I was in Vancouver we wanted 100 laborers and offered 27½c. an hour, but I found that 30c. an hour was the lowest that would be considered."

A round house is to be built at the Mission, Fort William, Ont. Peare Bros. have the contract for the piling.

A train service has been put on the branch line from Melville to Yorkton, Sask.

The bridge over the McLeod River, west of Edmonton, was expected to be completed July 15, and it is hoped that track laying will be completed to Prairie Creek, if not to the crossing of the Athabasca River, this year.

A supplement to the deed of trust of June 24, 1909, dated June 30, 1910, made by the Grand Trunk Pacific Branch Line Co. to the Royal Trust Co., as trustee, and the Saskatchewan Government, as guarantors, securing 4% first mortgage sterling bonds share 1939, issued and to be issued under chap. 5 of the provincial statutes of 1909, was deposited with the Dominion Secretary of State, July 5.

G. C. Emerson, a G.T.P.R. engineer from Prince Rupert, B.C., is reported to have stated in Toronto, July 12, that the construction gangs had reached 100 miles east from Prince Rupert, when he left, and it was expected that a train service would be placed in operation over it this year.

President Hays, during his recent visit to Vancouver, said several sites had been offered for terminals in that city, but nothing definite had been done nor had anything definite been done in regard to the negotiations for property at North Vancouver, or the Hastings Mill site. It was reported that the company had acquired a block of property in Vancouver for office and terminal purposes, but Mr. Hays said in Montreal, July 6, that the company had not acquired any property for terminals there. All the energies of the company were being centred on the completion of the line to Prince Rupert. Wharves were, however, being built at Seattle and Victoria for the steamship traffic. It was also the company's intention to build hotels at the principal points on the line, but nothing had been done in regard to one for Vancouver.

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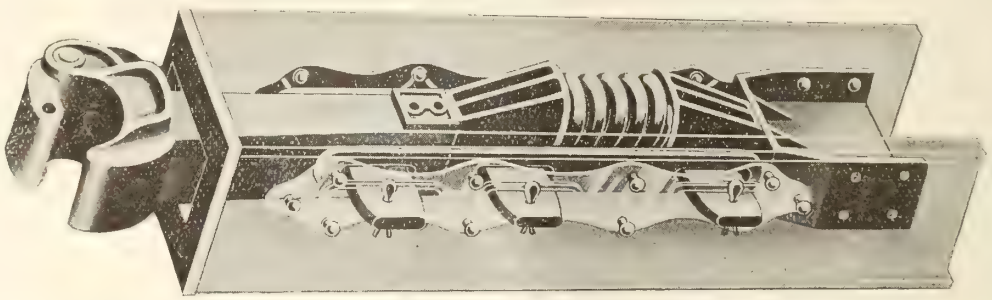

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the construction of the branch line from Tofield to Calgary, Alta. Several grading outfits are at work between the crossing of the C.P.R. Langdon branch near Irricana, and Calgary; and the whole of the grading has been completed between the Battle and the Red Deer rivers. The high level bridge across the Battle River was reported to be practicaly completed July 16. The only other bridge of any size on the route is that over the Red Deer river south of Alix. It is expected that by the time this bridge is completed grading will have been finished right into Calgary. The branch it is expected will be completed and in operation by the end of the year.

Quebec Public Utilities Commission.

This Commission has recently had several cases affecting railways before it and has given the following decisions:

COMMUTATION OF FARES ON Q. & L. ST. J. RY.

Re T. Hamel vs. Quebec and Lake St. John Ry. and Canadian Northern Quebec Ry. Following is the decision: Complaint is made that the Q. & L. St. J. Ry. has unwarrantably increased the price of commutation tickets between Quebec and Lorette, from $3.30 for 55 trips in 1909 to $6, the tickets being only good for one month, and without any order by the Lieutenant-Governor-in-Council permitting of such increase. It is also incidentally urged that the freight rates charged are too high. In this complaint the Canadian Northern Quebec Co. is impleaded as ostensibly operating the railway in question. The complainant asks for reimbursement of the excess paid by him and for enforcement of penalties. The Q. & L. St. J. Ry. in effect answers that the increased rate was necessary to prevent loss, and in the course of the proof endeavors to show it was practically agreed upon for the sake of an extra train leaving Quebec at 6.15 p.m. and returning the following morning. The C.N.Q. Ry. objects to the Commission's jurisdiction upon the ground that it comes under the jurisdiction of the Dominion Parliament. There being no evidence that the railway in question is owned, operated, or in any wise controlled by the C.N.Q. Ry. Co., no order will go as to that company.

From the proof made it appears that the present or summer schedule of trains is as follows:

QUEBEC AND LAKE ST. JOHN RAILWAY.

9.10 a.m.—Daily except Sunday for La Tuque, Roberval, Chicoutimi, etc.
11.45 a.m.—Daily except Saturday and Sunday for Lake St. Joseph, La Tuque, Roberval, Chicoutimi, etc.
9.15 a.m.—Sunday only for St. Raymond.
1.45 p.m.—Saturday only for St. Raymond.
1.45 p.m.—Sunday only for Lake St. Joseph.
5.10 p.m.—Daily except Sunday for St. Raymond.
6.15 p.m.—Daily except Saturday and Sunday for St. Raymond.
10.00 p.m.—Saturday only for Roberval, Chicoutimi, etc., with sleeping car for Chicoutimi.

The conditions of number of trains, times of arrival and departure, are in general satisfactory, and no complaint is in evidence as to the tolls charged, except for fifty-five trip, monthly commutation tickets. Lorette is only some 8½ miles from Quebec, while the above trains are run through to St. Raymond, 35 miles from Quebec, although from 70 to 90% of the passengers are not carried further than Lorette. The running of other than through trains beyond Lorette is contended by the railway to be justified upon the ground of want of terminal facilities at Lorette and the accommodation of passengers going to points beyond. The publication of a proposed schedule of trains in April last, from which the second evening train at 6.20 or 6.15 was omitted, caused a protest from summer residents, and a delegation of them went to complain. At the interview it was understood with the railway management an increased rate would be charged if the second train was put on. As a result an increase of from $3.30 to $6 went into effect from May, while the extra train only commenced running from June 27. While a receiver has been appointed to the railway and its financial condition cannot be declared to be satisfactory, it is by no means in evidence that this state of affairs is materially attributable to the prices charged for commutation tickets in the past or would be seriously affected by the increase from $3.30 to $6. The statements submitted showing general loss from the operation of the suburban trains in question is very far from attributable to the service to and from Lorette. Considering that all tolls are subject to the Commission's approval and that it has authority to alter, fix and revise such tolls, R.S.Q. 6607 & 740d, and the question of their having been approved or otherwise by other authority is not now material to the matter. Considering that a suburban service such as provided by the railway is a reasonable and proper one under the circumstances, such as is customary and habitual, and to be expected of a railway enjoying the charter privileges of the Q. & L. St. J. Ry., and to the building of which the public money has been largely contributed. Considering that no sufficient cause has been shown for the increase to $6 as above, nor that under the circumstances the expiry period of such 55 trip commutation tickets should be extended. Considering that for the service as rendered, and under all the circumstances of the case the following schedule of rates for 55 trip commutation tickets, good for one month from date of issue, would be reasonable and proper, and is directed to go into effect from the present date and continue until further order is made for cause shown, and in any case such tickets not to be good after Nov. 1, at the company's option, to wit:

Miles.	
3.0—Charlesbourg	$2.75
5.9—Charlesbourg Ouest	3.75
8.5—Lorette	4.50
16.5—Valcartier	7.00
21.0—Ste. Catherine	8.40
22.8—Lac St. Joseph	8.40
27.7—Lac Sargent	9.50
30.2—Bourg Louis	10.50
34.3—St. Raymond	11.55

As to the remainder of the complaint respecting freight rates and charges, no order is presently made, but the same is reserved for further consideration.

Re A. Boissonneault & al vs. Quebec & Lake St. John Ry. Co. The following is the decision: Complaint is made that the Q. & L. St. J. Ry. sells books containing 10 tickets each for all points on its line from Quebec to St. Raymond, which tickets are good for the whole year except those for Lac Sargent and St. Raymond which are good only from May 1 to Oct. 31. The complaint sets forth that this is an unjust discrimination and asks that the books issued and sold for Lac Sargent be good from Jan. 1 to Dec. 31. Considering that the said application appears reasonable and well founded and that further it was agreed to at this sitting by the Q. & L. St. J. Ry., through its representatives. The Commission orders that the books of 10 tickets issued by the Q. & L. St. J. Ry. from Quebec to Lac Sargent be good from Jan. 1 to Dec. 31 of each year. As to the remainder of the complaint no order is presently made, as it has been decided in the case of Hamel vs. the Q. & L. St. J. Ry. Co.

Train Dispatching by Telephone.

The following information relating to the mileage over which trains are operated by telephone on Canadian railways, Canadian owned or controlled railways operating in the U.S., and U.S. railways operating in Canada, is taken from a table containing similar details in regard to American railways generally, compiled by the Telegraph and Telephone Age:—

Canadian Northern Ry.	[illegible]	[illegible]	[illegible]	[illegible]
Canadian Pacific Ry.	9,608	633	.....	8,963
Central Vermont Ry.	586	....	.....	586
Delaware and Hudson Co.	845	....	.....	845
Duluth, South Shore and Atlantic Ry.	714	....	.....	714
Grand Trunk Ry.	4,745	310	.....	4,435
Great Northern Ry.	7,100	1,835	35	5,230
Intercolonial Ry.	1,448	....	.....	1,448
Maine Central Rd.	925	....	.....	925
Minneapolis, St. Paul and Sault Ste. Marie Ry.	2,451	....	.....	2,451
Pere Marquette Rd.	2,356	....	.....	2,356
Wabash Rd.	2,515	....	.....	2,141

Of the companies mentioned, the C.N.R., C.P.R., D. and H. Co., G.T.R., G.N.R., M.C.R. and W.R., contemplate further extensions of the system.

Quebec and Lake St. John Ry.—Total earnings for June, $54,295.83, against $51,991 for June, 1909. Aggregate total earnings for six months ended June 30, $267,370.67, against $278,021.56 for same period 1909.

The Intercolonial Ry. telegraphers have applied for the appointment of a board of conciliation, to deal with the questions of wages and hours.

W. Z. Earle, who resigned the managership of the St. John, N.B., Railway, a short time ago, has been appointed District Engineer Dominion Public Works Department, Winnipeg, succeeding A. R. Dufresne, who has been appointed Assistant Engineer in place of Gillmor Brown, deceased.

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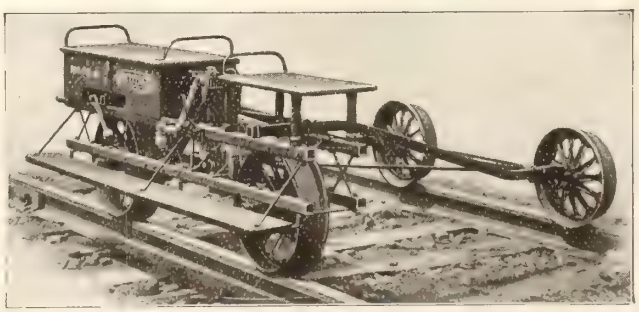

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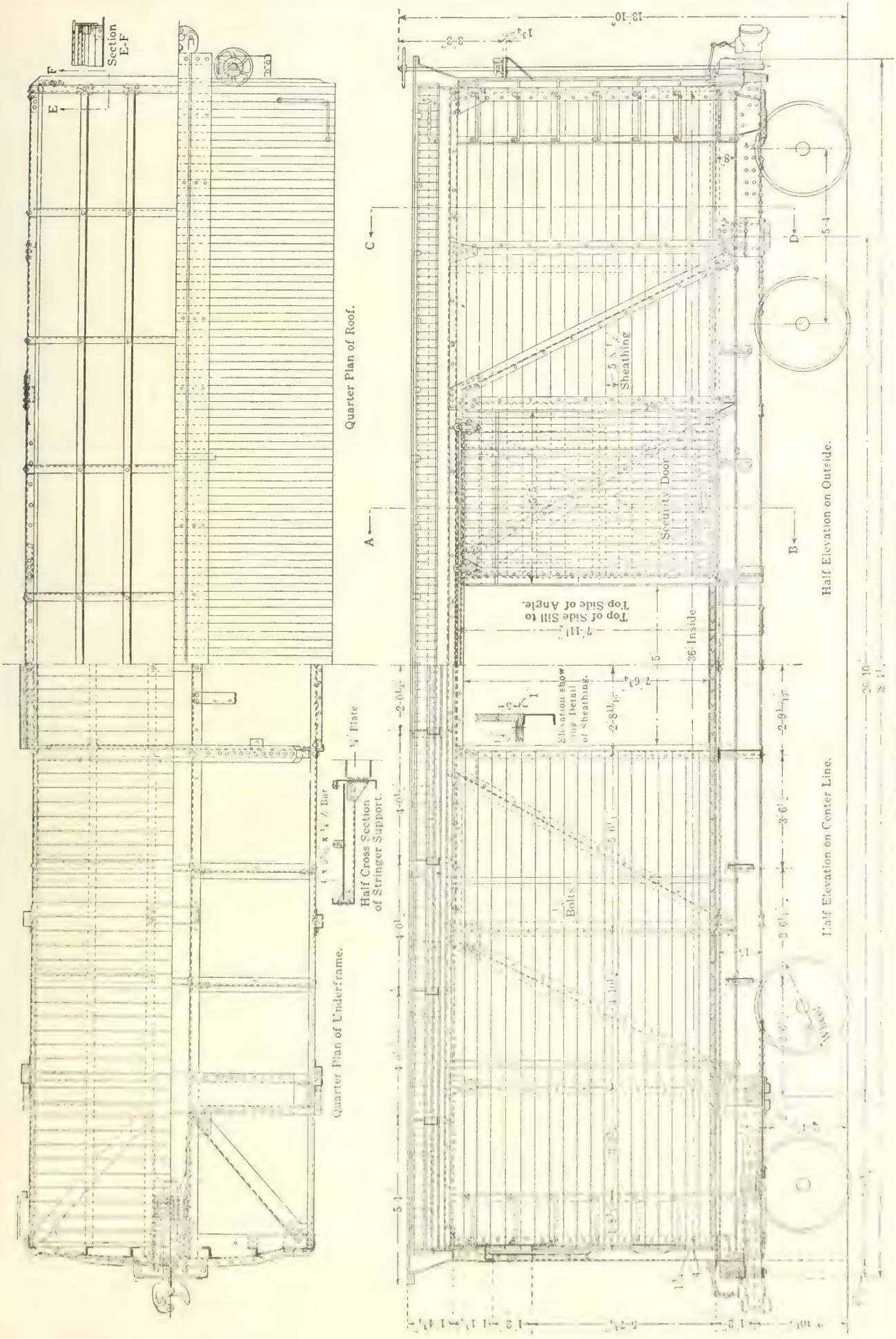
Section E-F
E
F
Quarter Plan of Roof.
Quarter Plan of Underframe.
Half Cross Section of Stringer Support.
Half Elevation on Outside.
Half Elevation on Center Line.
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Sheathing
Security Door
Top of Side Sill to Top Side of Angle.
36 Inside
Bolts
A
B
C
D

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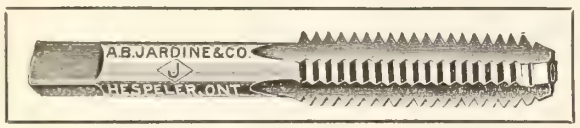

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C.P.R. Steel Frame Box Cars.

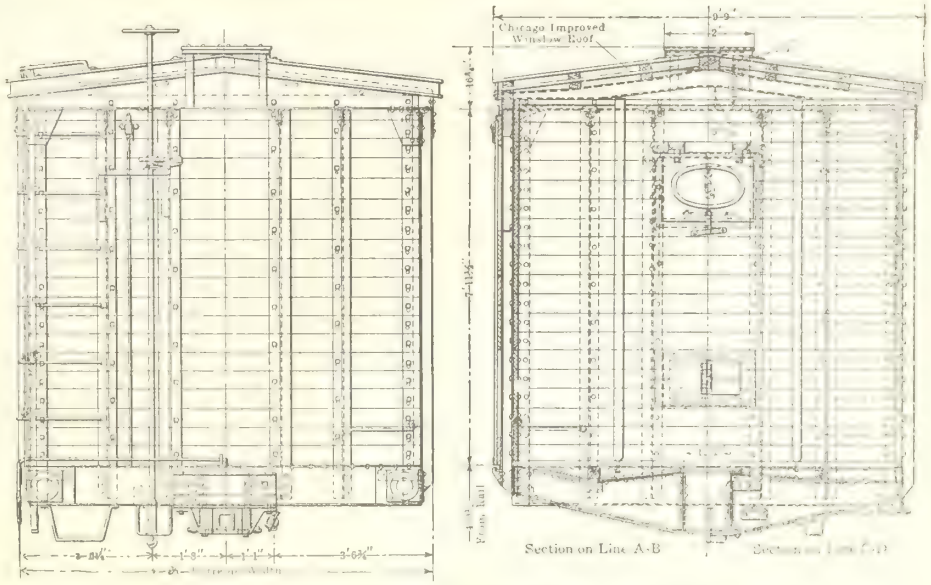
In our issue of January last, we published a description of 500 steel frame box cars built for the C.P.R. by the Dominion Car and Foundry Co. Subsequent orders have increased the number to 2,500, and the following additional information is now available in regard to them.

They are 36 ft. inside length and have a steel underframing and steel side and roof framing, the floor, side sheathing and roof covering being of wood. They weigh 36,700 lbs. Two 15 in. channels set 12⅞ in. apart and continuing from end sill to end sill, form the centre sills. The side sills are 8 in. channels and are set with their top face 1½ in. above the level of the top flange of the centre sills. The other longitudinal sills in the first order of 500 cars were 4 in. Z bars located mid-way between the side and centre sills and resting on top of the bolsters and cross bearers. In the next 1,000 cars, a 3 x 4 in. wooden stringer was substituted and in the 1,000 now being built the Z bar has again been used

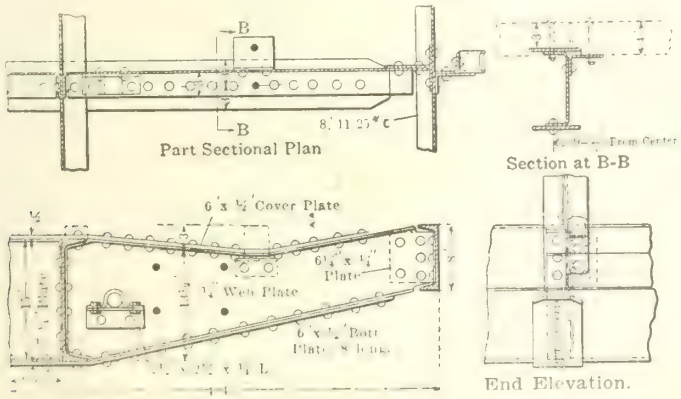
The bolster, which is shown in one of the illustrations, is of the pressed steel diaphragm built up type, having ½ in. cover plates top and bottom. The bolsters extend below and beyond the side sills, which are connected to them by angles and corner brackets, as shown in the illustration. Near the centre of the underframe just below the door posts are two built up cross bearers composed of a pressed steel diaphragm with a 6 x ½ in. cover and bottom plates, neither of which extends all the way to the side sill connection. Both the bolsters and cross bearers are constructed to permit the intermediate sills, 4 in. in depth, to rest upon them. The end sill is a channel pressed out so as to permit the Z bar end post being secured back of it. Between the bolsters and cross bearers are two cross braces consisting of channels secured between the side and centre sills. There is also a diagonal brace from the corner of the car to the connection between the centre sills and bolster.

The wooden floor is nailed to 1 in. wooden stringers secured on top of the centre sill channels and bolted or nailed to the intermediate longitudinal sills. It is not fastened directly to the side sills, but is held down by the side sheathing, the connection at this point being shown in the small detail given in the illustration of general elevation. The side framing is composed of 3 in. standard Z bars secured outside of the side sills and to an angle iron plate, the top connection being reinforced with a gusset plate. The corner posts are 5 x 5 in. angles and the two centre end posts are 4 in. Z's, the intermediate end posts being 3 in. Z bars. These are secured to the steel end carlin, which is of the Z section. The carlins are of pressed steel in U section, being arranged to lip over the side plate and are secured by a rivet through the vertical flange of the plate.

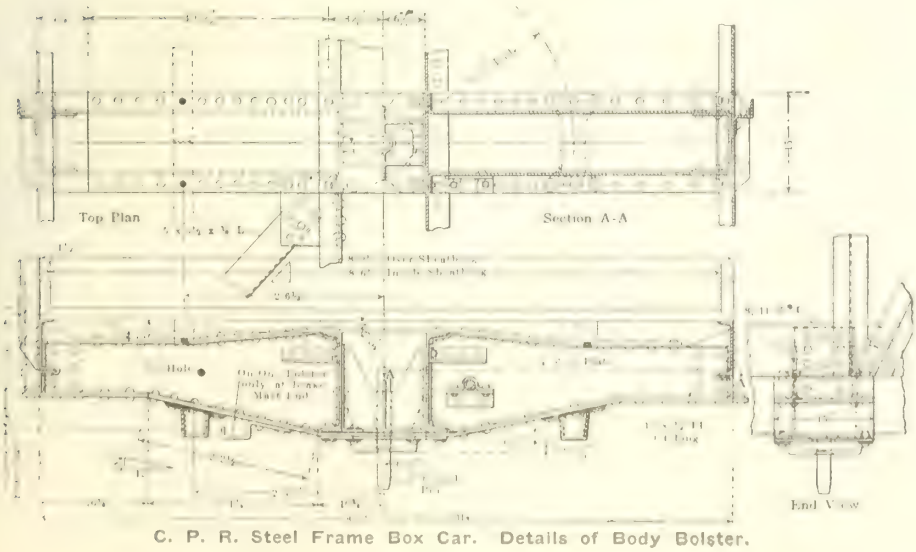
The inside sheathing is tongued and grooved, 1½ in. x 5 in. pine being bolted to the framing. The holes in the steel parts are slotted, and there are tie straps hooked over the top of the sheathing, carried down inside through the side sills and secured with nuts. The inside sheathing extends 3 in. above the bottom of the plates, and as it dries out or loosens up the bolts are slacked off and the nuts on the bottom of the tie bars being drawn up will permit the tightening of the sides and ends of the car to the total of 3 in., without leaving an opening at the top. There are two of these tie bars at each end and four on either side. The trucks are of the standard C.P.R. type, equipped with 750 lb. wheels. They have McCord malleable iron journal boxes; Susemihl frictionless side bearings; Simplex bolsters and brake beams, and American Steel Foundries steel back brake shoe. The specialties on the car body are Westinghouse air brakes and Simplex couplers.—American Engineer and Railroad Journal.



C. P. R. Steel Frame Box Car, End Elevation and Cross Section.



C. P. R. Steel Frame Box Car. Details of Cross Bearer.



C. P. R. Steel Frame Box Car. Details of Body Bolster.

Dominion Atlantic Ry.—Gross earnings for May $85,800, against $91,628 for May, 1909. Aggregate gross earnings for 11 months ended May 31, $1,076,550, against $1,045,605 for same period 1908-09.

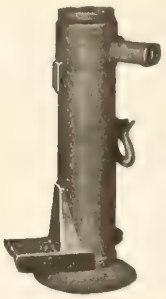
It is said that the "interests friendly to the C.P.R." which have acquired the D.A.R., paid 60 for the preference stock and 20 for the common, which were quoted in the English market at 44 and [illegible] stock is about £250,000 and the preference about £270,000, to that only a little over £200,000 would be required to secure the whole of both issues.

Temiscouata Ry.—[illegible] for May $5,732, and for five months ended May 31, $15,378.

H & E Patent Ball-Bearing Lifting Jacks

For Railway and Bridge Work, Contractors' and Builders' Use

Foot-Lift



For Convenience, Speed and General Efficiency these Jacks are Unequalled. Are fully guaranteed. Being made of the best grades of Malleable Iron and Steel are strong and durable. Working parts entirely protected insure long wearing qualities. Sizes from 8 to 50 tons now complete. Send for prices and discounts.

MANUFACTURED BY

Square Base

Journal Jack

Plain

H & E LIFTING JACK COMPANY = = WATERVILLE, QUE.

Stock carried by F. H. Hopkins & Co., Montreal

A HISTORY OF THE PAY-AS-YOU-ENTER CAR

AND ITS LESSON

The following cities are using Pay-As-You-Enter Cars: Chicago City Railway, 839 cars; Chicago Railways, 1,328; Public Service Corporation of New Jersey, 466; New York City Railway, 555; Third Avenue Railroad, New York, 550; International Railway, Buffalo, 200; Buffalo & Lake Erie Traction Co., 10; Washington Ry. & Elec. Co., Washington, D.C., 100; Capital Traction Co., Washington, D.C., 51; Municipal Traction Co., Cleveland, Ohio, 180; United Rys. Co. of St. Louis, Missouri, 310; Portland Ry., Lt. & Pwr. Co., Portland, Ore., 25; Columbus Ry. & Lt. Co., Columbus, Ohio, 10; Wichita R.R. & Lt. Co., Wichita, Kan., 14; Jacksonville Elec. Co., Jacksonville, Fla., 5; Dallas Elec. Co., Dallas, Texas, 20; Houston Elec. Co., Houston, Tex., 41; Northern Texas Trac. Co., Ft. Worth, Texas, 25; Ithaca Street Ry., Ithaca, N.Y., 2; Peoria Street Ry., Peoria, Ill., 13; Urbana & Champaign Ry., Champaign, Ill., 3; Mutual Lt. & Water Co., Brunswick, Ga., 4; Rochester Ry. Co., Rochester, N.Y., 25; Ft. Dodge, Des Moines & So. R.R. Co., 2; Muskogee Elec. Trac., Muskogee, Okla., 6; Union Traction Co., Dubuque, Ia., 4; Topeka Ry. Co., Topeka, Kas., 12; United Rys. & Elec. Co., Baltimore, Md., 32; Detroit United Ry., Detroit, Mich., 225; Cincinnati Traction Co., Ohio, 50; Montreal Street Railway, 400; British Columbia Elec. Ry., 30; Calgary Street Railway, 18; Metropolitan Street Ry., Kansas City, Mo., 50; Edmonton Radial Ry., 4; San Antonio Traction Co., San Antonio, Tex., 6; Rockford & Int. Ry., Rockford, Ill.; Cairo Street Ry. & Lt. System, 6; Des Moines City Railway, Iowa, 12; Macon Ry. & Lt. Co., Macon, Ga.; Virginia Ry. & Power Co.; Columbia Elec. St. Ry. & Lt. & Power Co., Columbia, S.C.; Aurora, Elgin & Chicago Ry., Chicago, Ill.; Wichita Falls Traction Co., Wichita Falls, Tex.; Ottawa Electric Ry. Co., Ottawa; Bloomington & Normal Ry. & Lt. Co., Bloomington, Ill.; Corsicana Transit Co., Corsicana, Tex.; Compania Electrica y de Ferrocarriles, Mexico; The Milwaukee Elec. Ry. & Lt. Co., Milwaukee, Wis.; Springfield Street Ry. Co., Springfield, Mass.; Lynchburg Traction Co., Lynchburg, Va.; Chicago & Southern Traction Co., Chicago, Ill.; Calumet & South Chicago Ry. Co., Chicago, Ill.

THE LESSON

taught by this widespread use of Pay-As-You-Enter Cars is obvious. Increased Revenue, Accident Elimination and Schedule Improvement have been demonstrated in every case. Isn't all this sufficient to show that it always pays to operate the Pay-As-You-Enter Car? Why not remodel some of your present cars?

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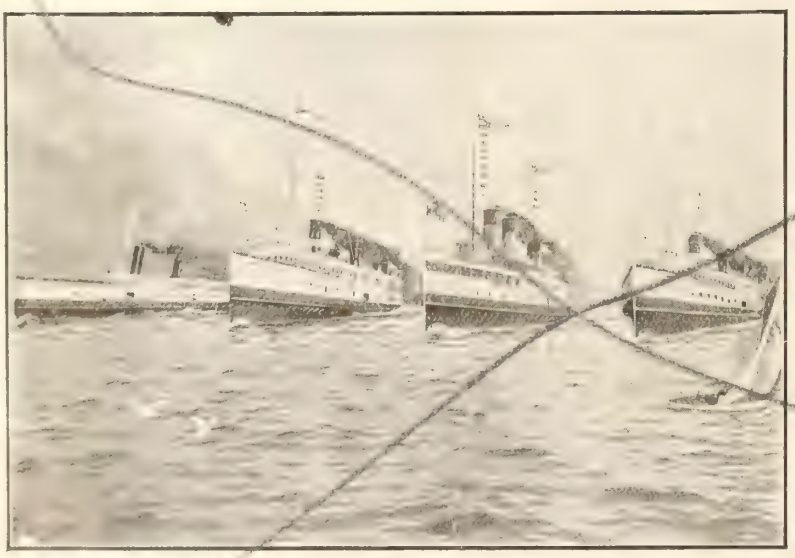


Niagara River Line Steamers

Buffalo - Niagara Falls - Toronto

Route

The Gateway to Canada

Niagara Navigation Co., Limited

Toronto, Canada

TRACTION STRESSES.

By S. Blumenthal, A.M. Can. Soc. C.E.

In the design of bridge piers, trestle towers, and other similar structures, the effect of traction is an important consideration. Traction may be defined as the force parallel to the centre line of track produced by the live load, and acts at the level of the top of rail. Hence, in order to get structures that will be safe for the forces they have to resist, and that will be at the same time economically designed, it is essential that the actual conditions producing these forces be considered. There are two conditions where stresses due to traction would occur:—

1. When a train is being hauled over the structure by a locomotive, with brakes off. In this case there would be a pull on the rails from the driving wheels of the locomotive, and an equal and opposite force due to the rolling and journal friction and atmospheric resistance in the rest of the train. On a structure of any length these would tend to neutralize one another, and on a span long enough to take the whole train, would obviously produce no traction stresses in the piers.

2. The second and most important case is the one where the brakes are applied to the wheels of a moving train. In this case, as long as the wheels revolve, the pull of the rails on the wheel = the pull exerted by the brakes on the wheels = pressure of the brakeshoes, multiplied by the coefficient of brakeshoe friction. When this latter force becomes equal to the pull of the rail, the wheel will slide on the rail.

In nearly all of the existing specifications the traction force is taken as 20% of the total live load on the span considered. This condition assumes that enough pressure is applied by the brakes to skid all the wheels of a loaded train, with a coefficient of friction between wheel and rail of .20. The standard American practice is to make the efficiencies of the brakes on the various classes of equipment as follows:

Passenger cars ....90% of light weight.
Freight cars .....70% of light weight.
Tenders .....100% of light weight.
Locomotive driving wheels .....75% of the loaded weight.
Locomotive truck wheels ....75% of the loaded weight.

By efficiency of the brakes is meant the ratio of the total maximum pressure exerted by the brake shoes on the wheels to the vertical pressure of the wheels on the rails.

Canadian Pacific Railway Steel Frame Box Car.

These percentages have been determined and adopted by the American Air Brake Association as best suited to actual service conditions, and are designed to prevent skidding and consequent flattening of wheels when the brakes are applied. The comparatively high ratio of 90% of the light weight is used on passenger cars because there is small variation between the light and loaded weights, and it has been found that at the comparatively high speeds at which these cars run, the coefficient of the brakeshoe friction is lower than that of freight cars which run at lower speeds.

The experiments of Capt. D. Galton and Geo. Westinghouse, Jr., made in 1878, show that the coefficient of friction between the cast-iron brakeshoes and steel-tired wheels varies from 5% at a speed of 60 miles an hour, to 25% at zero speed. The coefficients for locomotive driving wheels and trucks are based on the loaded weights, since for these the loaded weight is the working weight, which does not vary much.

Assuming the value of 25% and Cooper's E/50 loading, a formula giving the coefficient of traction on spans of various lengths may be obtained.

A locomotive, of this size would carry 12½ tons of coal, say	25,000 lbs.
And 5,000 gals. of water ..	50,000 "
	75,000 lbs.
Working weight of tender	130,000 "
Light weight of tender	55,000 "
Per axle	13,750 "

Taking a span of 109 ft., the distance covered by two locomotives, the sum of the pressure exerted by the brakes on the wheels would be as follows:

75% of working load on 2 trucks=2 × .75 × 25,000 lbs. = ...	37,500 lbs.
75% of working load on 8 driving axles = 8 × .75 × 50,000 lbs. = ...	300,000 "
100% of light load on 8 tender axles = 8 × 1 × 13.750 lbs. =.....	110,000 "
Total brake pressure..	447,500 "

Total longitudinal force or traction = 447,500 × .25 = 111,875 lbs.

Total vertical force = weight of 2 locomotives with tenders at 355,000 lbs. = 710,000 lbs.

Coefficient of traction for this span (109 ft.) =

$$\frac{111,875}{710,000} = 15.75 \text{ per cent.}$$

The heaviest class of steel freight car in use at present, the short base 50-ton steel ore car, has an unloaded weight of about 1,500 lbs. per lin. ft. and a loaded weight of 5,000 lbs. per lin. ft., corresponding to the uniform load of 5,000 lbs. per lin. ft. behind the engines for Cooper's E/50 loading. For every foot of train load there would be added a vertical force of 5,000 lbs., and a horizontal force of 1,500 × .70 (the efficiency of the brakes) × .25 (the coefficient of the brakeshoe friction) = 262.5 lbs. From this the following formula has been derived:

Where T = the coefficient of traction or the ratio between the horizontal and vertical forces.

L = Length of span covered by the live load.

$$T = \frac{111,875 + 262.5\ L}{710,000 + 5,000\ L}$$

simplified:

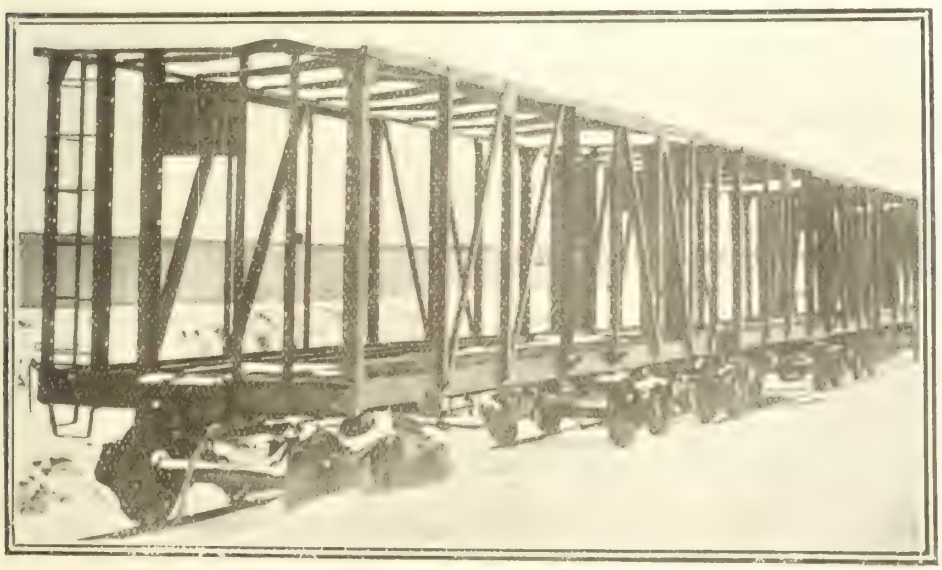
$$T = \frac{82,263 + 262.5\ L}{165,000 + 5,000\ L}$$

Or, in round figures:

$$T = \frac{82,000 + 265\ L}{165,000 + 5,000\ L}$$

From consideration of the above it will be seen that the coefficient of traction [illegible] maximum of [illegible] = 18.75 per cent. for spans of from 0 to [illegible] ft., to $.7 \times .25 \times \frac{1,500}{5,000} = 5.25$ per cent. for a span of infinite length.

There is a possibility of the driving wheels of a locomotive [illegible] the brakes are applied and the engine



Canadian Pacific Railway Steel Frame Box Cars.
Photographed before the [illegible]

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"A FRESH WATER SEA VOYAGE"
Between Sarnia, S. S. Marie, Port Arthur, Fort William and Duluth. Through Lake Huron, St. Mary's River and Lake Superior.

"THAT GEORGIAN BAY TRIP"
Between Parry Sound, Collingwood, Owen Sound, S. S. Marie and Mackinac Island. Through the North Channel of the Georgian Bay.

"AMONGST THE 30,000 ISLANDS"
Between Midland, Penetang and Parry Sound, through the finest scenic route in America.

Rates and Full Information from all Railway Agents, or

C. A. Macdonald,
Ass't Manager,
Collingwood, Ont.

E. W. Holton,
Eastern Passenger Agent,
Sarnia, Ont.

reversed. This would increase the coefficient slightly, and the effect would, of course, be greatest on the shorter spans. It would therefore seem reasonable to take a coefficient of 20% for spans up to about 60 ft., reduced for spans above this in accordance with the formula given above and as shown on the accompanying diagram.

The assumed maximum value of 25% for the coefficient of brakeshoe friction was obtained in the experiments of Westinghouse and Galton for very low speeds (about 1½ miles an hour) immediately after the application of the brakes. The value decreased to about .17 five seconds after the brakes were applied, and to about .12 fifteen seconds afterwards. The values given by the formula are therefore maximum values and would only be obtained for an instant after the maximum brake pressure had suddenly been applied to a train which is moving very slowly, a condition which seldom occurs in actual practice.

Since the efficiency of the brakes is based on the unloaded or tare weight of the car, with a given tare weight per lin. ft. of car, it follows that the total tractive force on any given span will be the same, whether the cars are unloaded or loaded.

The full line on the accompanying diagram shows the coefficients for spans from 60 to 500 ft., computed from the formula derived above, the dotted lines representing values for spans under 109 ft., calculated from the brake efficiencies and weights given in the beginning of the paper.

The foregoing paper was written for presentation before the Canadian Society of Civil Engineers.

TRANSPORTATION APPOINTMENTS.

The information under this head, which is almost entirely gathered from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian Northern Express Co., Canadian Northern Telegraph Co.—Scott Griffin, heretofore Manager C.N.E. Co., and C.N.T. Co., having been appointed Manager Canadian Northern Steamships Ltd., the position of Manager C.N.E. Co., and C.N.T. Co., has been abolished.

W. C. Muir, heretofore Superintendent has been appointed General Superintendent. Office. Winnipeg.

C. A. Cunningham has been appointed Superintendent of Western Lines. Office, Winnipeg.

Canadian Northern Ontario Ry.—L. W. Mitchell, recently promoted from acting Treasurer to Treasurer Canadian Northern Ry., has also been appointed Treasurer C.N.O.R. Office, Toronto.

R. S. Gosset, Auditor Canadian Northern Steamships Ltd., and heretofore chief clerk Accountant's Department C.N.R., has also been appointed Auditor of Disbursements C.N.O.R. Office, Toronto.

Canadian Northern Quebec Ry.—L. W. Mitchell, recently promoted from acting Treasurer to Treasurer Canadian Northern Ry., has also been appointed Treasurer C.N.Q.R. Office, Toronto.

R. S. Gosset, Auditor Canadian Northern Steamships Ltd., and heretofore chief clerk Accountant's Department C.N.R., has also been appointed Auditor of Disbursements C.N.Q.R. Office, Toronto.

Canadian Northern Quebec Ry.—Quebec & Lake St. John Ry.—T. C. Hudson, Master Mechanic of both lines is also acting as General Car Foreman, A. R. Holtby having resigned to enter another company's service.

Canadian Northern Ry.—L. W. Mitchell, heretofore acting Treasurer, has been appointed Treasurer. Office, Toronto.

R. C. Vaughan, heretofore chief clerk to Third Vice President, has been appointed Assistant to Third Vice President. Office, Toronto.

J. D. Morton, heretofore General Accountant, has been appointed Assistant Comptroller. Office, Toronto.

R. S. Gosset, Auditor Canadian Northern Steamships Ltd., and heretofore chief clerk Accountant's Department C.N.R., has also been appointed Auditor of Disbursements C.N.R. Office, Toronto.

C. E. Friend, heretofore Auditor, has been appointed General Auditor. Office, Winnipeg.

Canadian Northern Steamships Ltd.—R. C. Vaughan. Assistant to Third Vice President Canadian Northern Ry., has also been appointed Assistant to Second Vice President C.N.S. Ltd. Office, Toronto.

Scott Griffin, heretofore Manager Canadian Northern Express and Telegraph Cos., Toronto, has been appointed Manager Canadian Northern Steamships. Office, Bond Court House, Walbrook St., London, Eng.

Canadian Pacific Ry.—John Morrow has been appointed Real Estate Agent for Eastern Lines, with charge of the purchase, sale and renting of property for the company. Office, Montreal.

G. I. Evans, heretofore Chief Draughtsman Locomotive Department, Angus shops, Montreal, has been appointed Mechanical Engineer. Office, Montreal.

With reference to the recent change in the designations of the Second, Third and Fourth Vice Presidents, to Vice Presidents, as announced in our last issue, we are officially advised that F. W. Peters of Winnipeg, and J. S. Dennis of Calgary, heretofore Assistants to the Second Vice President, will, in future, each be recognized as Assistant to the Vice President.

Referring to the creation of four grand divisions under Provincial designations, instead of three divisions, Central, Western and Pacific, as announced in our last issue, we are officially advised that the Manitoba Division consists of the territory formerly known as the Central Division, with the exception of District 5; the Alberta Division of territory covered by Districts 2, 3 and 4, of the former Western Division, the numbers of which were changed to 1, 2 and 3, respectively; while the Saskatchewan Division is formed by District 5, of the former Central Division, and District 1, of the former Western Division, becoming Districts 2 and 1, respectively.

J. A. Douglas, heretofore electrical foreman locomotive shops, has been appointed Electrical Engineer Western Lines, vice H. H. Boyd transferred. Office, Winnipeg.

A. L. Powell, has been appointed Travelling Passenger Agent, Brandon, Man., vice W. J. Wells transferred.

R. W. Young has been appointed Superintendent of Telegraphs Saskatchewan Division. Office, Moose Jaw.

R. C. Harris, heretofore transitman at Calgary, Alta., has been appointed Resident Engineer, Medicine Hat, Alta., vice J. Robertson transferred.

J. McAnany has been appointed Travelling Engineer, District 3, Alberta Division, vice F. G. Rutley assigned to other duties.

F. W. Alexander, heretofore Resident Engineer at Cranbrook, B.C., has been appointed Assistant Division Engineer, Alberta Division, vice T. Martin transferred. Office, Calgary, Alta.

J. Robertson, heretofore Resident Engineer, Medicine Hat, Alta., has been appointed Resident Engineer, Cranbrook, B.C., vice F. W. Alexander promoted.

H. H. Boyd, heretofore Electrical Engineer Western Lines, Winnipeg, has been appointed District Master Mechanic at Cranbrook, B.C., vice A. T. Shortt promoted.

A. N. McIntyre, heretofore yardmaster at Revelstoke, B.C., has been appointed Trainmaster at Field, B.C., vice T. H. Crump promoted.

T. Hope, heretofore yard foreman at Field, B.C., has been appointed yardmaster there, vice A. N. McIntyre promoted.

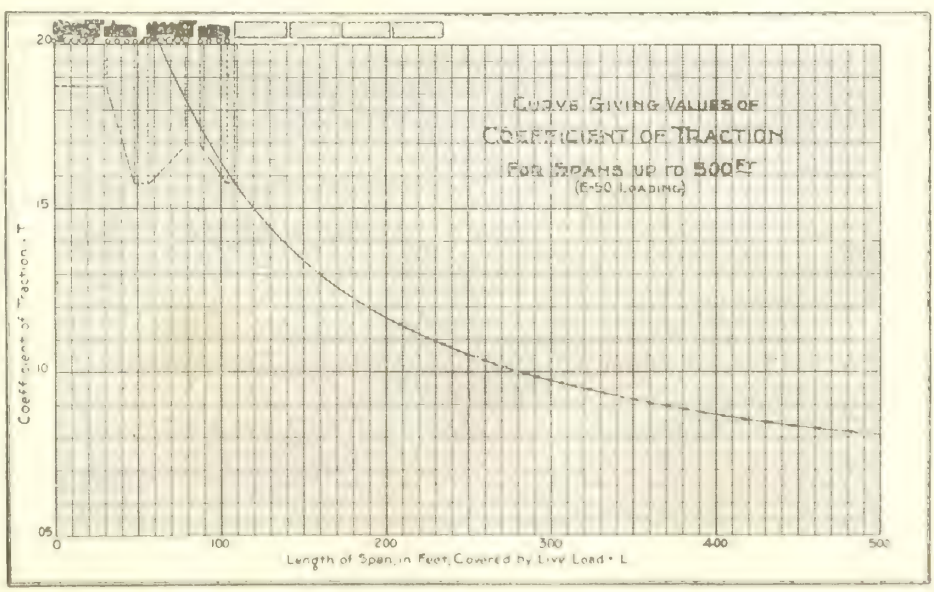
A. Halkett, heretofore conductor at Nelson, B.C., has been appointed Assistant Trainmaster, District 2, British Columbia Division. Office, Kamloops.

T. H. Crump, heretofore Trainmaster at Field, B.C., has been appointed Trainmaster District 2. British Columbia Division, vice J. M. Cameron promoted. Office, Vancouver.

J. Fletcher has been appointed Superintendent of Telegraphs British Columbia Division, vice J. Wilson retired. Office, Vancouver.

W. H. Snell, heretofore Travelling Passenger Agent, Boston, Mass., has been appointed Eastern Passenger Agent of New York territory, vice F. W. Dudley resigned. Office, New York City.

A. A. Polhamus, heretofore Travelling Passenger Agent, has been appointed General Agent Passenger Department, with district comprising Southern California, Bakersfield, Santa Barbara and south. Office, Los Angeles, Cal.



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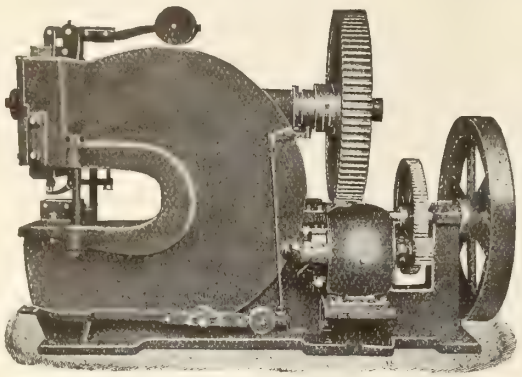

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Centrally located. Near-by cars for all Stations. All rooms are outside rooms. Baths Connecting. Restaurant. Grill Room. Buffet. Unsurpassed in Appointments and Decorations. Table Unexcelled. Prices Moderate.

A. D. HANNAH & D. HOGG,
PROPRIETORS

ARTHUR M. GRANT,
MANAGER

Grand Trunk Pacific Ry.—F. R. Porter, heretofore Assistant Foreign Freight Agent, Toronto, has been appointed Division Freight Agent in charge of territory Watrous, Sask., and west. Office, 153 Jasper Ave. E., Edmonton, Alta.

G. A. McNicholl, heretofore Pacific Coast Purchasing Agent, Vancouver, B.C., has been appointed Superintendent at Prince Rupert, B.C. The office of Pacific Coast Purchasing Agent has been abolished. All communications heretofore addressed to him at Vancouver, should be sent to Prince Rupert, as he will attend to any matters necessary pertaining to the purchasing department's work at Prince Rupert until further notice.

A. R. Holtby, heretofore General Car Foreman Canadian Northern Quebec and Quebec and Lake St. John Rys., Quebec, has been appointed Master of Bridges and Buildings, Mountain Division, G.T.P.R. Office, Prince Rupert, B.C.

The following agents have been appointed:—Ingelow, Man., A. Fullum; Waldron, Sask., C. W. Hemsworth; Fenwood, Sask., F. E. Carriveau; Punnichy, Sask., H. Wolfe: Raymore, Sask., P. W. Kenefick; Semans, Sask., A. Donnelly; Unity, Sask., A. E. Hill; Chauvin, Alta., W. E. D. McTaggart; Wainwright, Alta., W. H. Oliver.

Grand Trunk Ry.—E. Brazeau, heretofore acting Roadmaster District 2, Eastern Division, Richmond, Que., has been appointed Roadmaster.

E. Walton, heretofore Travelling Car Service Agent Eastern Division, Montreal, has been appointed Master of Transportation Eastern Division, vice P. G. Flaherty, acting Master of Transportation transferred. Office, Montreal.

P. G. Flaherty, heretofore acting Master of Transportation Eastern Division, Montreal, has been appointed Trainmaster District 3, Eastern Division, Richmond, Que.

H. A. Carson, heretofore in the division freight office, Toronto, has been appointed Soliciting Freight Agent there, vice G. A. Fernley resigned to enter I.C.R. service.

W. C. Starke, has been appointed Travelling Car Service Agent, Eastern, Ottawa and Northern Divisions, vice E. Walton promoted. He will investigate and report upon car service conditions generally at all stations and perform such other duties as may be assigned to him from time to time. Office, Montreal.

G. Pepall, heretofore Agent National Despatch Great Eastern Line, Toronto, has been appointed Assistant Foreign Freight Agent, vice F. R. Porter, transferred to G.T.P.R. service. He will continue to represent the National Despatch-Great Eastern Line in connection with export traffic via that route. Office, Toronto.

C. W. Power, hertofore Assistant Engineer, has been appointed Resident Engineer, Toronto, vice E. L. Cousins, resigned to enter Toronto city service.

C. Forrester, heretofore Chief Dispatcher at London, Ont., has been appointed Trainmaster Districts 15, 20 and 21 (Buffalo and Goderich), Middle Division, vice J. A. McLardy resigned. Headquarters, Stratfrod, Ont.

W. S. Wilson, heretofore Chief Dispatcher at Stratford, Ont., has been appointed Trainmaster Districts 22 and 23, Middle Division. Headquarters, Stratford.

W. Jackson, A. Muir, G. Cooper, R. Bennett, W. White, J. H. Gordon and F. A. Rutherford have been appointed Assistant Trainmasters Districts 16, 17 and 24, District 18 Komoka to Glencoe, District 19 Glencoe to Kingscourt Jct., Port Colborne to Welland Jct., Port Robinson to Port Dalhousie, District 20 Tillsonburg Jct. to Harrisburg, receiving their instructions from C. G. Bowker, Assistant Superintendent, London, Ont.

W. Hall, T. Wheatley, W. R. Kloephel, G. Black, R. Fish, C. H. Brown and D. W. Hayes have been appointed Assistant Trainmasters Districts 15, 20 and 21, receiving their instructions from C. Forrester, Trainmaster, Stratford, Ont.

Jas. Lavelley and R. Shea have been appointed Assistant Trainmasters Districts 22 and 23, receiving their instructions from W. S. Wilson, Trainmaster, Stratford, Ont.

Halifax and South Western Ry.—L. W. Mitchell, recently promoted from acting Treasurer to Treasurer Canadian Northern Ry., has also been appointed Treasurer H. & S.W.R. Office, Toronto.

R. S. Gosset, Auditor Canadian Northern Steamships Ltd., Auditor Disbursements Canadian Northern Ry., has also been appointed Auditor of Disbursements H. & S.W.R. Office, Toronto.

H. H. Melanson, formerly chief clerk General Passenger Agent's office, has been appointed Assistant General Passenger Agent. The circular, which only reached us recently, is dated Nov. 1, 1909. Office, Moncton, N.B.

G. A. Fernley, heretofore Soliciting Freight Agent G.T.R., Toronto, has been appointed Soliciting Agent I.C.R., Toronto.

New York Central and Hudson River Rd.—W. K. Vanderbilt, Jr., has been appointed Assistant to the President, and will also be appointed to a similar position in regard to the affiliated lines.

Quebec and Lake St. John Ry.—See Canadian Northern Quebec Ry. and H. & S. W. R.

Reid Newfoundland Co.—A. Spence has been appointed Chief Dispatcher, St. John's, vice A. Pretty deceased.

S. Walsh has been appointed Roadmaster Division 4, between Bishop's Falls and Bay of Islands, vice J. Peddle transferred.

The First Canadian Railway.

What is said to have been the first railway in Canada was built between Lapairie and St. Johns, Que., to replace the stage coach in carying passengers between Montreal and the waterway which reached to New York. The charter was obtained in 1832 and it provided for a line of 16 miles. The authorized capital of the company, known as The Champlain and St. Lawrence Rd Co., was £50,000, divided into 1,000 shares of £50 each, a capitalization of a little over £3,000 a mile. Work was commenced in April 1835 and the line was opened in July 1836, horses at first being used to haul the cars. The first rails were what were known as "straprails," strips of wood covered with a thin plate of metal, but these were soon replaced with iron T-shaped rails.

In writing of this earliest of Canadian railways, the late J. J. Lanning, for some time Assistant General Manager of the G.T.R., said: "The line was opened for traffic in 1836, being laid with wooden rails and worked by horse power during the first year of it existence." In this latter statement, Mr. Lanning was evidently in error, for in The Montreal Transcript, of Oct. 27, 1836, appeared the advertisement of this railway service, giving the time table and fare, and it is stated there that the trains were hauled "by locomotive."

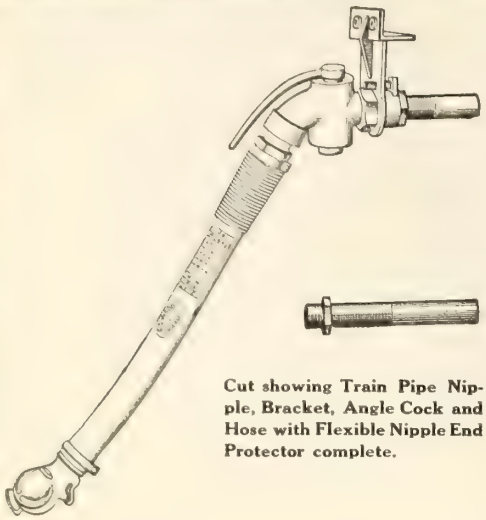
What the early passenger trains were like is best told by the accompanying illustration, which is a reproduction of a picture now hanging in the G.T.R. board room in Montreal.

The advertisement in The Montreal Transcript anounced that "The Champlain and St. Lawrence Rd. Co., in connection with the steamboat Princess Victoria, will continue to run as follows. Steamer from Montreal precisely; 9.30 a.m., 3 p.m. Cars from Laprairie, 10.30 a.m., 4 p.m., by locomotive." Then followed the time of the return trips and the times of the Sunday service. The fare for the return trip on the same day was 7s 6d; single fare. 5s; children half price.

This advertisement appeared after the railway had been in operation only a few months. In the same issue of The Transcript appeared the following news paragraph which shows how early the new line developed freight traffic: "A number of American speculators have been engaged in this city for the last two weeks in buying up wheat and salt for the American market. The steamer Princess Victoria has already brought 35,000 bushels of wheat and 20,000 bushels of salt to Laprairie to be taken to St. Johns via the said road. What does this portend?"

The political troubles of 1837-38 arrested railway expansion and not much more was done until 1845, when a charter was granted to the St. Lawrence and Atlantic Ry. Co. authorizing it to build a line from the St. Lawrence, opposite Montreal, to the U.S. frontier, there to connect with a line running to Portland, Me. In 1847, the line from Montreal to Lachine was opened; in 1850, the line to Portland was opened as far as Richmond, Que., and a charter was granted to build a branch from Richmond to Levis, opposite Quebec. In 1852, the St. Johns-Laprairie line was brought down to St. Lambert, which became the general junction point, and eight years later the southern terminus of the Victoria Bridge. These early railways are today parts of the G.T.R. system.

The First Railway Train in Canada, which began running between Laprairie and St. John, Que., in the Summer of 1836.



Cut showing Train Pipe Nipple, Bracket, Angle Cock and Hose with Flexible Nipple End Protector complete.

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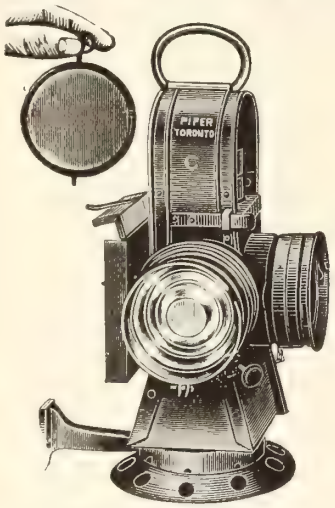

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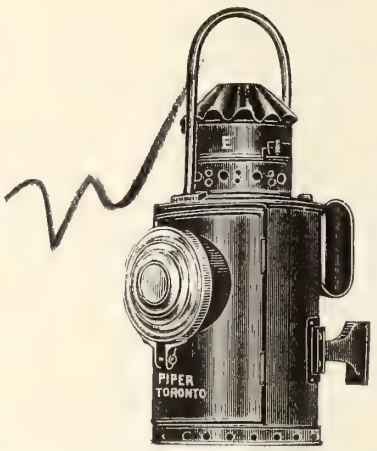

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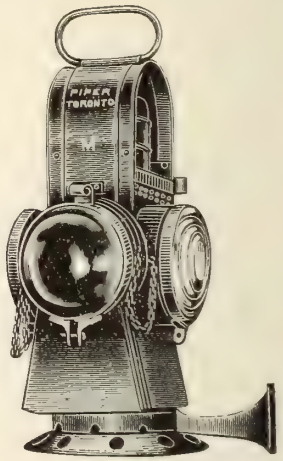

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Grain Elevator Notes.

The Alberta Pacific Elevator Co. is arranging, according to a recent statement of the manager, to erect a number of elevators in the province, in order to deal with the expected large crop.

D. W. McCuaig, who was recently appointed chairman of the Manitoba Elevator Commission, announced, July 7, that he would resign the presidency of the Manitoba Grain Growers' Association.

A special meeting of the Montreal Grain Elevating Co. stockholders was held recently, when the resolution passed by the directors, May 30, that it was in the interests of the company that it be wound up voluntarily, was confirmed. A. MacDougall, Managing Director, T. A. Crane, R. Reford, B. McLennan and A. G. Thomson were appointed liquidators.

The Sovereign Grain Co., Ltd., has been incorporated under the Manitoba Companies' Act, with a capital of $300,000, and office at Winnipeg, to carry on a general grain, grain elevator and warehouse business. The provisional directors are, B. McBean, A. Johnson, H. Metcalf, H. McBean and D. Richardson, Winnipeg.

E. H. Heaps, President A.B.C. Elevator Co., is reported to have stated, recently, that the company would commence construction, at an early date, of a large elevator at Vancouver, B. C., provided a satisfactory arrangement could be made with the city. Failing this, it would probably erect the elevator at New Westminster.

Press reports from Winnipeg, recently stated that C. C. Castle, Government Inspector of Elevators, had sealed up a number of bins in the terminal elevators at Port Arthur, with a view to prosecutions for manipulation of grades. He subsequently denied that anything of the sort had taken place, but stated that investigations were being made in the ordinary way.

The commission, consisting of Prof. McGill, J. R. Green and G. Langley, appointed by the Saskatchewan Government to enquire into all questions relating to the grain trade, elevators, etc., has held a number of sittings in various parts of the province, hearing evidence. The enquiry is taking a wide scope, and will be of considerable assistance in arranging the system of operation and control which the Government will adopt.

Over 50 applications have been made to the Manitoba Grain Elevator Commission, under the recent act, for the erection of elevators. On receipt of an application, the Commission dispatches agents to investigate the desirability of such construction, and view possible sites. E. P. Estier is reported to have been appointed Chief Engineer to the Commission, and to be engaged in drawing up a new elevator system for the province.

The Maple Leaf Milling Co. is reported to have given contracts for the erection of 17 elevators at various points in Saskatchewan, to the W. A. Harper Construction Co., Winnipeg. These elevators will, it is said, be erected along the Pheasant Hills, Sheho-Lanigan and Arcola branches of the C.P.R., each having a capacity of 30,000 bush., with flour house attached. In addition to this, it is reported that the company intends erecting a 1,000,000 bush. elevator at Port Colborne, Ont.

The Western Farmers' Milling and Elevator Co., which was to have erected elevators at Bow Island, Winnifred, Burdett, Chinn and Seven Persons, Alta., has decided, in view of the defalcation of its secretary-treasurer, mentioned in a recent issue, not to proceed. The materials which had been accumulated at these points had been taken over by the Alberta-Pacific Elevator Co., which will carry out the work intended as soon as deliveries can be completed.

The Governor-General in-Council has approved the Montreal Harbor Commissioners' bylaw, providing that the commissioners will unload grain from vessels in the harbor, and load it into steamships by floating elevators for sixtenths of one cent. a bush., half of which will be payable by the vessel out of which the grain is loaded, and the other half by the vessel into which it is loaded, and, for the shovelling in vessels unloading, such vessels shall pay $1.75 per 1,000 bush.

The Great West Milling Co. of Canada, Ltd., has been incorporated under the Dominion Companies Act, with a capital of $1,000,000 and office at Kenora, Ont., to manufacture and deal in all kinds of grain and its products, and in connection therewith to own and operate elevators, warehouses, steam and other vessels, wharves, docks, etc. The provisional directors are, T. Walsh, J. T. Brett, A. Shragge, W. G. Cameron, G. M. Rioch, J. P. Earngey, W. J. Chapman, J. C. Baxter, J. Brenchley and G. A. Toole, Kenora, Ont.

Among the Express Companies.

The Dominion Ex. Co., has opened offices at Aldersyde and Redcliffe, Alta.

G. C. Taylor, heretofore Manager Pacific Division American Ex. Co., has been appointed Vice President and General Manager, with office at Chicago, Ill.

In connection with the relief fund for those who suffered in the fire, which practically desolated Campbellton, N.B., in the early part of July, the Canadian Ex. Co., transmitted donations free of charge from all points within Canada.

The Dominion Ex. Co. has moved its money order department from St. Lawrence Hall to temporary offices in St. James St., Montreal, until the company's new office building on the St. Lawrence Hall site is completed.

Express companies operating in Canada, in accordance with an order issued by the Board of Railway Commissioners, are preparing a directory containing the delivery limits in all centres having a population of 10,000 and over.

In our last issue, we announced the appointment of V. G. R. Vickers, as Manager Dominion Ex. Co.'s Foreign Department, Montreal. We are officially advised that he assumed this position in connection with his duties as Superintendent of the Atlantic Division.

It has been held in U.S. courts, that an express company is not liable for the depreciation of millinery due to change of fashion, on its failure to give notice of the refusal of goods by consignee and their return, when it had no notice that delay would result in such depreciation.

The express companies have agreed to carry horses for show purposes, on a similar basis to race horses, so far as the number of attendants travelling with them is concerned, but reserve the right to apply later to the Board of Railway Commissioners for an increase in the rate.

The contract for the building of the Dominion Ex. Co.'s offices on the St. Lawrence Hall site, Montreal, has been awarded to P. Lyall and Sons, the contract price being quoted as about $700,000. The demolition of the old premises has commenced, and it is expected that the structural steel work, and the granite construction of the first story will be completed this year.

The Dominion Ex. Co., by arrangement with the Upper Ontario Steamboat Co., now accepts c.o.d. shipments for Elk Lake City, via Latchford, Ont., the charge for collection and return being governed by Classification 16. In all cases the charge for each company must be shown on the c.o.d. wrapper, with instructions as to whether such charges be collected from the consignee or not.

S. G. Tate, who has recently sentenced to nine months imprisonment at Liverpool, for defrauding the White Star Steamship Co., by means of false bills of lading, was, from Mar., 1902, to Mar., 1907, Travelling Freight Agent M.C.R., St. Thomas, Ont.; Mar. to Dec., 1907, Contracting Freight Agent G.T.R., Liverpool, Eng.; Dec., 1907, to May, 1910, Traffic Agent United States Ex. Co., Liverpool, Eng.

Proceedings are reported to have been commenced against local officials of the Canadian Northern Ex. Co., at Beautiful Plains, Man., for alleged contempt of court, in connection with the recent elections in Manitoba. It is stated that the returning officer delivered his return to the company, as his agent, for dispatch to the Government, and it was so delivered, notwithstanding the fact that an injunction had been obtained to prevent it.

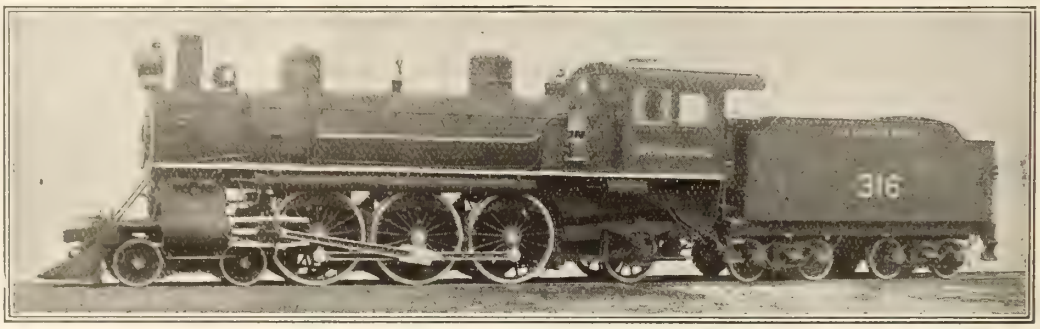
U.S. courts have decided that where a package is delivered to an express company, where the shipper was not asked to declare the value, and where the value is not given in the receipt, the evidence is insufficient to show that there was fraud in attempting to get the goods carried for less than the established rate. The limitation of liability to $50, at which sum the property is valued, contained in the receipt, is void, and the company cannot escape liability on the theory that if it pays the entire value it will be liable to prosecution for discrimination in rates.

The Dominion Ex. Co. has opened an office at Stewart, B.C., at the head of the Portland Canal. Shipments should be billed through to destination and charged regular tariff rates to Vancouver, and in addition a separate graduate from Vancouver to Stewart, of $3.25 per 100 lbs. on merchandise, or $5.50 per $1,000 on money. When the value of any merchandise shipped c.o.d. or otherwise, exceeds $50, a charge for value, of 25c. for each $100 value, or fraction thereof, is made, in addition to the valuation charged to Vancouver. Marine insurance, if desired, from Vancouver, on merchandise, 35c. per $100, or $2.50 per $1,000 value, with a minimum charge of 25c.; on money, 20c. per $100, or $1 per $1,000, with a minimum charge of 25c.

J. Richardson and Sons, Ltd., elevator and ship owners, etc., Kingston, Ont., has been licensed, under the Companies Act respecting extra-provincial companies, to carry on business in British Columbia. A. F. Macnee, Vancouver, is its attorney.

The Great Northern Ry. is assembling material for the installation of a system of telephone train dispatching on a number of its divisions, including that from Everett, Wash., to Vancouver, B.C., 265 miles. The whole work, which will involve the erecting of about 4,600 miles of wire and the installation of 726 telephone stations, will, it is expected, be completed by Jan. 1, 1911.

A large delegation of the Grain Growers Association of Manitoba which waited on Sir Wilfrid Laurier at Brandon, July 18, urged the appointment of Andrew Graham, of Pomeroy, to succeed the late T. Greenway as a member of the Board of Railway Commissioners. He is [illegible] the Minister of Railways. The Premier replied that the person to be appointed to the vacancy would be a western man and a representative of the farming community.



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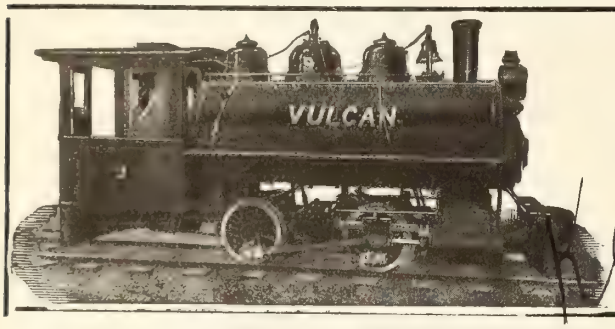

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Notes on Electric Freight and Express Traffic.

By H. D. W. Miller.

The subject of freight and express business, as handled by electric lines, is one of such varied phases and conditions that any hard and fast methods of procedure are difficult of arranging without detailed knowledge of conditions which obtain on the particular system under consideration. However, there are certain general methods of organizing and successfully operating a freight and express business, which will be found necessary to any conditions, physical, competitive or otherwise, and it is with these conditions that this paper deals.

The ideal conditions for a large and lucrative freight and express business for an electric road are: A large wholesale and manufacturing centre which originates a great amount of staple articles in grocery, dry goods, hardware and manufactured lines, and, in turn, consumes the products of the farm; a rich surrounding country, with many thriving country towns and moderately-sized cities, which consume the products of the larger city and supply to the city its necessities. The interurban operating under such conditions need have no difficulty in establishing a freight or express business which will well repay the money invested if the business is handled on the right basis.

TERMINALS.—The location of freight terminals in large towns and cities presents many questions which must be handled in line with local conditions. There should be one general terminal as conveniently located as possible to the wholesale and manufacturing districts. A site so located is expensive, and difficulty of acquirement. However, in the end a few thousand dollars more expended in the procurement of such a site is money invested to best advantage, as it places the company in a secure and favorable position for getting and retaining the business, and business is what the company is after—not idle cars and unused tracks. This site should also be so located that there will be little interference with the regular passenger equipment of the line, either by trucks and teams which deliver and receive freight at the terminal or by the freight cars using lines already heavily congested with passenger traffic.

The use of the heavy lines is unavoidable in many cases, but in the selection of a terminal site a careful inspection of all territory should be made and consideration given to this feature as well as to cost of site. Freight and express traffic should all be handled through one terminal. A series of pick-up and delivery stations throughout a city can only result in confusion to the public, delay to both outbound and inbound business, and a consequent accumulation of claims for loss and damage. By the concentration at one well-equipped and well-managed terminal the traffic is handled at far less cost per ton, the public quickly learns where to deliver and receive freight, confusion of traffic accounts is avoided and, as goods are beter housed, stored and handled, there is a minimum of delay, loss and damage and consequently a substantial reduction in the claims account. Such a terminal as the writer has in mind should be constructed of wood or steel with corrugated iron sides and sheet metal roof with plenty of skylights arranged for proper lighting. A frostproof compartment of sufficient dimensions should be provided wherein to store perishable products in winter and this might also be used as a coal room during the heated term, if much business requiring such a convenience is handled. This idea of a terminal is only advisable or desirable in large places where it is necessary to handle a large amount of traffic promptly. It may be greatly modified to suit varying needs and conditions, especially in the smaller places, where, indeed, nothing approaching the above is necessary. However in all cases plenty of room for proper storage and handling of traffic should be provided and the obstruction of sidewalks and streets be avoided as far as possible.

THE ROLLING EQUIPMENT used in freight traffic should be fully up to the best passenger equipment in power, etc., to insure getting over the road. By all means do not operate small freight cars. The operation of small cars results in more loss and damage claims than any other one thing on the list. All kinds of freight are presented for shipment and with small cars and loaded to their capacity it would mean a mixture which would result in goods spoiled and refused at destination, claims presented for value of same, both shipper and consignee displeased and future business gone to a competing line. Good roomy cars will go far towards reducing the claim account and also towards retaining old and acquiring new business.

SOLICITING.—In the large cities a live solicitor should be constantly at work. Not the freight agent who has enough to do keeping things going at his office, but a good live man who has nothing else to do but to keep in touch, not only with the outbound shipper, but also with those who are handling the product of the surrounding towns and country. He should devote the greater share of his time to the city but also should make regular visits to every town or village on the system, put the local agents next to possible business, and, in turn, exact from them all the information possible as to prospects for business from their stations and keep them on the alert for all items which will affect the company's business. The solicitor should be fully informed as to competitive lines, steam road, boat, old line express or electric companies. He should be thoroughly familiar with their rates, schedules, and form of service and every other item which will in any way affect his company's business or suggest some improvement thereto. He should inform himself of the details of all claims and endeavor to secure prompt and equitable adjustments thereof. He is the one who comes in contact with the public and he should ever be ready to listen to complaints and have them adjusted to the interests of both the patrons and the company. Nothing tends more to cordial relations between the company and its patrons than for the latter to feel that they are dealing with a company which is ready and anxious to give them a square deal. The solicitor is the one on whom considerable depends for the establishment and continuance of this cordial feeling.

ORGANIZATION OF STAFF.—It is of the utmost importance that the traffic offering be taken care of promptly and efficiently, otherwise all previous trouble and expense go for naught. The right kind of men must be employed to secure the desired results. Pay them as good salaries as they could get from steam roads and you are then in a position to exact the best of service and when such is not rendered dispense with them and get men who will render such service. Cheap wages make cheap men, but cheap men are a costly proposition in the claims account alone, laying aside the loss of business sure to result from a cheap and inefficient service. The writer advocates the employment of steam road men, as far as possible, in the electric freight and express service for these reasons: Railways accounting and the handling of freight are in a class by themselves. An experienced commercial accountant would be wholly out of his element in a freight or express office. He would require coaching before making an entry and as for going ahead with his work he simply could not do it until he obtained months of experience in all the varied methods and forms of handling railway accounts. From the very nature of the business it is absolutely indispensable that electric freight accounts be handled after the approved forms of steam road or old line express accounts. Electric freight or express accounting is simpler than steamroad accounting, in that, for the most part, the business is of a strictly local character, therefore fewer men will handle the same amount of business to better advantage than in a steam road office. A sufficient force should always be employed to keep accounts strictly up-to-date and traffic moving promptly.

STORAGE, HANDLING AND LOADING.—Freight should always be loaded on cars in station order, goods for station farthest away in first and to the ends, and loading in order to the doors where the freight for the first stations out should be placed. Too much care cannot be taken in properly storing freight in cars and warehouses. If possible, oil and other liquid or dirty freight should be entirely removed from eatables or anything else liable to become soiled or tainted therefrom. Care in loading mirrors, furniture and other freight of a fragile nature will result in material reductions in the claims account and greater attention should be paid to this feature of the business. One careless freight handler will cost the company more in loss and damage claims than the extra wages necessary to secure a careful and reliable man. Claims for loss and damage arise from many different causes, but a large percentage of them are due to careless and indifferent employes and cramped space in warerooms and in cars.

THE FREIGHT CLAIMS DEPARTMENT is of the utmost importance. The transportation of freight and express is to-day largely a local business, and through business, in which two or more distinct companies participate, is the exception. The mileage of the electric lines is short and stations few as compared with most steam roads. As a result it is much easier to locate the cause of delay or damage from which a claim arises. A large percentage of claims for loss, delay and damage may be entirely abated by proper terminals, roomy equipment, careful storage, loading, and handling as explained in detail previously. Claims are bound to be incurred and on the average electric line of to-day there is no excuse for delay in making a thorough investigation and prompt adjustment of same. Any other course simply means a dissatisfied shipper, or consignee, and loss of business. A policy of prompt adjustment of legitimate claims not only hold business already secured but is also an important factor in making new business. In connection with claims the subject of O. S. & D.

cover, short and damage) reports should be considered and every local freight agent should be required to issue these reports as necessary. If issued promptly they greatly assist the claims department in adjusting claims for damage and in placing responsibility for same. Without such a system of O. S. & D. reports the company lays itself liable for many claims which it is not in position to handle with any degree of justice to itself.

SERVICE AND SCHEDULES.—The service must be of such a nature as to fully meet all competition. Frequency of service will depend on competition and demands of traffic peculiar to the territory operated in. The schedule should be fast and reliable, but it is better to have a reliable service, with cars always on time, than to promise a schedule which cannot be maintained. The business man wants what he wants when he wants it, and he usually knows how to get it. If you cannot satisfy him he goes elsewhere. Make the service fully as good if not better than the other fellow's and the business is yours.

THE ACCOUNTING is a matter of so much detail that space will not permit of treating it, except in a general way. The electric transportation of freight and express is so nearly identical with the same business as handled by steam roads that it is essential that the general form of steam road accounting be adopted. With the latter there are varying details in method, but the same general principles apply throughout the country. By the application of the steam road system and with competent men this feature of the business becomes greatly simplified. The experience of the writer has been that with electric freight accounting, the systems in use have been totally inadequate in some few instances. Through lack of a thorough system of accounts and through lack of men at local stations and in audit office experienced in handling such accounts, it has simply been impossible to keep check of the business with any degree of satisfaction. With the system the writer has in mind the auditor is enabled at any time to ascertain the exact standing of any or all stations and to satisfy himself of any possible collusion between local agents or between agents and conductors on the runs.

PICKUP AND DELIVERY.—Except where absolutely necessary by reason of wagon express or old line express, competition, the store door pickup and delivery is unadvisable and should not be necessary. Where such competition is encountered, careful consideration of possible earnings, expense of wagon service, etc., should be given and there would have to be an especially bright outlook to invite the entrance of an electric line into the freight and express business under these conditions.

CLASSIFICATION AND RATES.—The standard official steam road classification usually governs in electric transportation, especially in less than carload business, and this classification may be safely adopted with some exceptions due to difference in equipment and operation. Rates must be made to meet competition in all cases, but where no competition exists care should be taken to conserve the interests of the company without exacting too much from the shipping public, otherwise the public will be content with the old methods of transportation and the company will suffer as a result.

THE MILK BUSINESS can be made a source of revenue to the electric lines and can be handled in a simple way as to accounting and return of empties. Rates will depend on local conditions, length of haul, etc. By careful and energetic solicitation of the dealer and producer, a good volume of business may usually be secured at satisfactory

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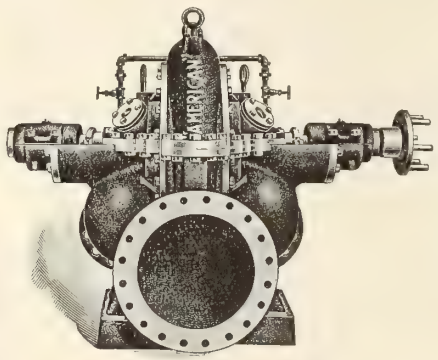

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Ask for Information about Six Other Styles.

rates. Issue coupon tickets in denominations of five and ten gallon cans. These should be consecutively numbered, issued and charged to the local agents. The shipper buys these coupons in lots to suit his convenience. The tickets are attached to the cans in denominations according to the capacity of the can. The conductor detaches the coupon from the can and turns it in to the audit office, the stub remains on the can to serve as a direction for return of empty to shipper. As the coupons are issued to the local agent and sold by him for cash the accounting is a simple matter.

THE HANDLING OF BAGGAGE on electric roads is a troublesome problem and to attempt to do it on the present steam road basis is out of the question. Interurban passenger rates are lower, the service more frequent, and equipment not of sufficient capacity to encourage the handling of baggage on any other basis than that of revenue. When the day shall have arrived in which electric roads operate a train service, as the steam roads do now, then the free transportation of baggage may receive consideration. As generally handled to-day by the interurbans a flat rate per piece is usually charged, the rate varying only as the length of haul. Thus a sample trunk, in which may be samples to the value of several hundreds of dollars, goes for the same charge as a small or inexpensive piece. Considering the greater risk incurred, weight carried, and space occupied, the company is clearly entitled to a greater revenue for the sample trunk than for the small piece. However, to adopt a system of classifying, rating, and billing baggage is so cumbersome and slow of execution that the game is not worth the candle. Baggage usually accompanies a passenger. Little time is given for loading, quick delivery must be made, and ready means of identification employed. On a revenue basis, therefore the flat rate per piece and a simple form of way billing must be used. A form of check which serves as a quick means of identification and delivery of property the same having spaces to designate the amount of charges and whether prepaid or collect should be used. The agent uses a manifold baggage way bill book. All baggage for the same station, forwarded on the same car is entered on the same way bill in indelible pencil. This way bill shows date, way bill number, check number, station from, destination and also the amount of charges and whether prepaid or collect. When the car is ready to leave the station, the agent tears out and hands to the conductor the original way bill, covering baggage for the various towns, taking the conductor's receipt on the duplicate remaining in his books. The conductor in turn delivers the baggage and way bills at the various towns. The passenger presents his duplicate check and receives his baggage promptly, paying charges if way bill and check indicate the charges are to be collected. The forwarding agent takes to account the prepaid charges on the manifold copies of way bills and the receiving agent takes to account the original way bills received with the baggage, charging himself with all collect items appearing thereon. Weekly abstracts are made by each station of both forwarded and received way bills. These abstracts go to the audit office and are checked, one against the other, and the accuracy of the accounts established. This system entails but little more detail than the steam road system where baggage is handled on a free basis and, at the same time, absolute accuracy of accounting is secured and collusion between agents is impossible as all checks are numbered consecutively and every check must be accounted for as well as the way bill. If any checks are missing or unaccounted for they are easily traced to the agent responsible for them and settlement made.

INTERCHANGE OF BUSINESS with steam roads and old line express companies is receiving much attention. The general interchange of such business is bound to come with the rapid extension of interurbans into new territory, and the matter of appealing to the government to compel steam roads and old line express companies to interchange business with the interurbans on an equitable basis is being agitated. With such an arrangement there is no doubt that the interurbans would originate much new business for distant points and also participate in much business from a distance and from which they would be entirely barred if the interchange arrangements were not in effect. Where would the steam road be to-day which refused to interchange business with other steam roads? In fact, but for the interchange policy, with through rates and traffic arrangements, we would be to-day where we were 50 years ago. Certainly the steam roads have greatly benefited by this policy and the writer believes it a matter of vital importance to the interurbans to go deeply into the matter of interchange with all transportation companies with a view to working out satisfactory plans for the closest traffic relations. The Brooklyn Rapid Transit (electric) is interchanging both carload and less than carload traffic with several of the eastern trunk lines, with through tariffs and divisions in effect, and carrying an immense amount of business on an extremely satisfactory basis. Several other electric lines in the west and middle western states have such arrangements and are also netting a nice revenue. The policy of interchange with all transportation lines opens up an almost illimitable field to the electric lines which it is not wise for them to neglect. In the writer's opinion it is not a wise policy for the electric lines to enter into contracts or leases with the old line express companies on any other than an interchange basis. At least one instance can be cited where an electric line will refuse to renew a lease to an old line express company on expiration of the present contract, taking the ground that the old line company is now receiving considerably more than the lion's share of the profits on a fixed payment basis.

PERISHABLE PRODUCTS.—By careful attention to the handling and quick delivery of fresh meats, fruit and other perishable products a large business may be created and satisfactory revenue derived therefrom. It is a class of business however that must be handled with greatest promptness and care to protect against loss through delay and consequent spoiling of shipments. Local agents should get in touch with growers and shippers of berries, vegetables and other produce and should keep the soliciting department informed so that the shipper and consumer or dealer may be put in touch with a view to securing a large portion of this business from the country towns.

CITY MATERIAL AND REFUSE.—One of the best paying propositions for the city electric lines is the handling of city paving and building material, ashes and refuse in car lots. This business is usually handled from railway stations or docks to the points where material is required, storage yards, or to city dumping grounds. It is usually handled during the night or after the passenger cars have pulled in, thus avoiding delay to schedules and complaints from the public. The revenue is on a satisfactory basis to the company and at the same time the city effects great saving over what the same service would cost if handled by teams. As this business is handled in carloads and at carload rates, terminal and handling expenses are at a minimum and where it is shown that a substantial saving is made to a city this fact tends greatly toward kindly feelings between the city officials, the general public and the company. Suitable cars should be provided for this business.

LEGAL DIFFICULTIES.—Much trouble has been encountered in various sections of the country because of legal restrictions placed in the way of handling freight and express by the interurbans. This is a serious handicap and, in some instances, shuts out the interurbans entirely. The steam roads are in a great degree responsible for this state of affairs. The trend of public sentiment should be distinctly on the side of the electric lines in this matter and the writer believes that this can be brought about by properly placing the facts before the government and the people. With the universal complaints relative to steam road rates, shortage of equipment, and many other unsatisfactory conditions, it seems a case of "biting one's nose off to spite one's face" when the people of a community will deliberately turn down the electric lines in their efforts to give a service which will greatly ameliorate the present conditions of freight transportation and it should be the policy of the electric lines desiring to engage in this business to go fairly before the public and make plain the advantages to be derived from such a service.

EARNINGS.—The writer recently had occasion to canvas the electric freight and express situation in certain territories as to whether or not the business was profitable to those engaged in the same and the following statement will enable those lines contemplating the installing of such service to judge as to its merits. One of the largest systems in the United States with a total mileage of 575, and operating 57 express and box cars, together with a number of gondolas and flat cars, all of which are equipped with motors, had for nine months of a fiscal year ended recently, gross receipts $205,715, expense for operating $123,560, net earnings $82,155 or $9,130 per month. The expense for operation mentioned above includes repair and renewal of track, buildings and cars, electrical equipment of cars, miscellaneous shop expense, power, operation of cars (superintendence) other car service, motorman and labor, car house employes, car house supplies, other car expenses, etc. Another line with 160 miles of track and serving 20 towns with a total population of 60,000 and operating 10 express cars with a number of flat cars is doing a freight and express business, had net earnings of $12,000 per month with capital invested $150,000, cost of operation, per car mile 10c., net earnings per car mile for the year vary from 35 to 60c., according to length of haul. The capital invested includes all terminals on the system together with equipment, etc. There has been a decided yearly increase in the business since its inception. Another line with 60 miles of track and serving 12 towns with a total population of 85,000, and operating three express cars with capital invested $30,000, is doing a business of $2,000 a month net earnings, net earnings per car mile 23.11c., net earnings per car hour $2.31. This line is also showing a decided increase each year. Another line with 18 miles of track and two cars and serving seven towns has a business of $175 net earnings per month. Another line with 56 miles of track and operating 3 cars and serving 13 towns is doing a business of $950 net earnings per month. Another line with 27 miles of track, operating 2 cars and serving 3 towns has a business of $700 per month net earnings or $1.47 per car hour. Another line with 12 miles of track operating one car and serving 3 towns is do-

ing a business of $110 net earnings per month. The expense of operation on the above lines include repairs to equipment, power, salary agents and clerks, light, heat, water, stationery, platform expense, miscellaneous car service, etc., rent, track and terminal. Since the inception of freight and express business on each of the systems referred to above a decided increase in revenue has been shown each year over the previous one. These increases range from 40 to 90%, and the results of this department are highly satisfactory to the management.

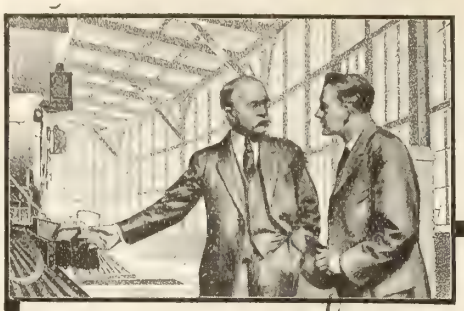
IN CONCLUSION; the transportation of freight and express by the electric lines is bound to become of as much, if not of more importance than the passenger business. The experience of the steam roads teaches that the ones who look to the future will surely reap the benefit. Now is the time to provide for and build up a great transportation business. Thoroughly organize your men to handle the traffic in a business-like manner. Keep ever abreast or a little ahead of the times. Reach out for new business and create it along your line, but while striving for new friends and new business don't let the old get away from you. Keep what you've got and get all you can by fair and business-like treatment of the public.

Sherbrooke Railway & Power Co.

This company, which was incorporated last session of the Quebec Legislature, has power to issue $1,500,000 of ordinary shares, and $1.500,000 of 5% thirty year bonds. There has been issued $700,000 of common stock, and $700,000 of 5% consolidated first mortgage sinking fund bonds, of which bonds there is held in escrow $100,000 to retire an outstanding issue of $100,000 of Sherbrooke St. Ry. Co. bonds due in 1927, the balance of the common stock and bonds being held in the treasury to be sold as required to meet the cost of developing the company's power plant and extension plans. Of the bonds $600,000 were sold at 95 and accrued interest, at 40% stock bonus being added. The bonds and stock bonus were to be delivered on the completion of payments.

The company has acquired the property and franchises of the Sherbrooke Street Ry. Co., which has been operating under a charter granted by the Quebec Legislature in 1895. At that time Sherbrooke's city population was about 9,000, now it is over 17,000 and still increasing. The gross earning for 1909 were $31,222, on a small mileage and limited rolling stock. When the line is complete and the changes proposed there will be about 15 miles of track, 12 of which will be in Sherbrooke city and three outside. A five miles extension to Brompton, with 12,000 population, and a further eight miles extension to Windsor Mills, with about 4,000 population, are under consideration, but are not included in the present plan. Other extensions are also proposed in several directions, but these are all matters of the future.

The main feature of the company's plans is the power development. There is an old company, the British American Land Co., a concern which, under an English charter, about 75 years ago acquired most of the Eastern Townships. It owned vast tracks of land and all the water powers, as well as those which flow down upon the Magog River through the centre of Sherbrooke. The land company is being wound up and the S. Ry. and P. Co. has acquired the water powers on the Magog River in Sherbrooke. It is proposed to develop about 3,500 horse power and have about 3,000 for sale when the development is complete. The power department will, of course, be the chief profitable revenue producer.



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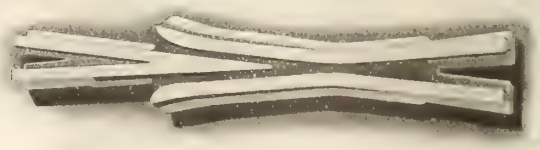

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The company intend purchasing another power, but this has not been decided upon definitely.

Sherbrooke is the centre of the Eastern Townships which forms one of the most prosperous sections of Canada. Besides this Sherbrooke is a manufacturing place and a railway centre, but the electric railway has not been extended or improved to meet the requirements of the increase of the population. On the contrary it lapsed into a state of decay. The new company is proceeding with the reconstruction of the line and the development of the water power. The contracts are all let, both hydraulic and electric, and it is expected to have the new work in operation by Nov. 1. The directors and officers are: President, C. J. McCuaig, Montreal; Secreary-Treasurer, F. Thompson, Montreal; other directors: W. Farwell, Sherbrooke, Que.; E. T. Hopper, Montreal; W. H. Brouse, Toronto. F. Thompson, of F. Thompson & Co., Montreal, is at present acting as secretary-treasurer, and his firm together with that of McCuaig Bros., are jointly interested in the project. The officials of the company are: Acting general manager, C. B. Hibbard; Superintendent J. C. Goodwin; controlling engineers, Ross & Holgate.

Montreal Street Railway Steel Cars.

The M.S.R. is adding to its equipment fifty steel pay-as-you-enter cars of its regular semi-convertible monitor roof type with an extreme length of 46½ ft. They are built of steel, with the exception of floor, roof, doors, windows and interior finish. The sides of the car are vertical from sill to belt rail with a 2½ in. cut in from belt rail to roof and are composed of 3-16 in. plate reinforced at the bottom edge with a 6 in. channel and the top edge with a steel belt rail 3 in. by ⅝ in. The main body is 32 ft. long over corner posts with an extreme height of 8 ft. 7 ins. and an extreme width of 8 ft. 4 ins. The arrangement of body is in accordance with the standard P.A.Y.E. system, one swing entrance door on the left looking forward and one double sliding exit door of the M.S.R. type on the right. The front end has one single sliding exit door in the centre of bulkhead, and the motorman controls the outside vestibule door by means of a lever. The rear platform is 7 ft. long and fitted with brass railings to divide the incoming from the outgoing passengers, and also from the people standing on the platform. The front platform has one lateral rail, which with the vestibule exit door when open completely divides the motorman from outgoing passengers. Both platforms are supported by 7 ft. x 3½ x ⅝ in. angles reinforced on their bottom edges with 3 x 2½ x ⅜ in. angles, and secured to the end sills with a heavy steel casting. On the step side these angles are offset that they may clear the wheels when taking curves. The side posts are all of steel T shape 2½ x 2½ ins. covered with wood to take windows, and are riveted at their top ends to an angle iron runner 4 x 2½ x ⅜ ins. These posts are also riveted to the 3/16 in. side plate, giving this plate the required vertical stiffening. All the corner posts for body and vestibule have large round corner and are pressed from 3/16 in. plate. The interior framing and cross sills are made from 6 ins. channel. End sills of 6 ins. ship building channel with a 3½ in. flange and are connected by a heavy steel angle casting with side sills. The bolster is of the regular open diamond pattern with a top plate of ¾ x 10 ins. and bottom plate 1 x 10 ins., the two brought together at their ends, riveted and bent to form an L shape upon which the side sill rests. The side sill channels at this point are filled with a steel casting through which the rivet headed bolts securing the bolster pass from the outside face of side plate.

The roof is of the usual wooden construction reinforced with 1½ x ⅝ in. steel rafters at each post which are connected directly to the 4 x 2½ x ⅜ in. angle iron runner by a malleable iron casting. The lower or main roof in this car, instead of being rounded, as is usual in most cars of the type which have been made so far, is made flat and given a pitch of about 1 in 12 ins. in order to give sufficient height for the window used, most of the older windows being of a drop type. The floor is made of 1¼ in. Georgia pine nailed to pine filler pieces in cross still channels. The aisle and standing space at both ends is covered with ⅜ in. interlocking rubber tiling in two colors, let flush into wooden floor. The motor traps and openings are edged with brass to preserve the rubber.

All of the 24 windows in the body of the car are made in two pieces, the smaller upper part remaining stationary and the unusually large lower portion is arranged to rise and lock in any position up to full opening. When opened to the fullest dimension, the bottom of window is well above the passenger's head, thus giving a large free opening for observation and circulation of air. Front and rear vestibule windows are arranged to drop into wall pockets for about two-thirds of their lengths and the panelling in front of these is secured with screws to facilitate removal for cleaning and repairs. Four of the monitor deck sashes at each end on both sides are hinged at their rear ends to swing outwards for ventilating purposes. The front and rear steps of the car are made of oak covered with checked tread plates of hard lead.

The seating capacity of this car is 42, and somewhat changed from the ordinary seating arrangement heretofore followed. Longitudinal seats are used in front and rear, and 12 cross seats are placed in the centre of the car. These seats are all covered with rattan with brass trimmings, and there is a brass hand grip in the top corner of seat back at aisle end.

Electric lighting is done by four clusters of two lights each set in the monitor roof and five lights on each side set on main roof at edge of clearstory. The rear platform has one cluster of three lights and two lights are placed on the roof of such vestibule for illuminated signs. The electric signal bell is operated by a push button in each post, placed within easy reach for signalling conductor.

The car is heated with electric heaters distributed throughout the car body beneath the seats, and two in addition are placed in the motorman's vestibule, thus affording an easily regulated and well distributed heat. These are controlled by a locked iron case at the rear of the car. Air brake compressor and governor are placed in the front vestibule, together with the front end sand box. The rear end sand box is placed beneath the longitudinal seat.

All window openings in car body are guarded with brass rod guards. The guard on the outside or step side of car is three bars high while the guard on the inside of the car is six bars high. Emergency hand-brake of a folding type is placed in rear vestibule and regular ratchet brake in usual position in front vestibule.

The painting of the car is the standard M.S.R. type and the usual warning of P.A.Y.E. is given by having the number in large figures on front vestibule. The front, rear and side signs are of the standard illuminated roller type.

ELECTRIC RAILWAYS.
Projects, Construction, Betterments, Etc.

Brantford and Hamilton Ry.—The Board of Railway Commissioners has passed an order dividing the cost of the reconstruction of the Market Street bridge at Brantford, Ont., between the B. & H.R. and the T., Niagara, St. Catharines and Toronto Ry., provided it did not withdraw its plans. If the plans be withdrawn the cost of reconstruction will be divided among other parties. Application has been made for permission to build a wooden foot bridge across the canal level and the B. & H.R. at Mary St., Brantford. The matter was referred to the Board's engineer. (July, 1909, pg. 521).

British Columbia Electric Ry.—The Vancouver, Fraser Valley and Southern Ry. Co., a subsidiary of the B.C.E. Ry., was incorporated by the Dominion Parliament, to build a line from near the south-east portion of False Creek, easterly through Hastings and Burnaby to the south of Burnaby Lake, and entering New Westminster by way of Sapperton. The company may extend its lines south of the Fraser Valley, but at present no plans for such extensions have been made. The line which will be built to the standard of the steam railways, will be on its own right-of-way, and will be operated by electricity. The right-of-way for the line from False Creek to New Westminster has already been acquired; construction has been started and the line will be completed within a year. There are three construction camps on the route one at Hastings townsite, one at Burnaby Lake, and the third at Cumberland St. The work to be done is not heavy, but there are a good many culverts to be built, the largest being at Burnaby.

A contract is reported let to McAlpine, Roberts & Co., for the grading of 1.66 miles of line from the end of the present Lynn Valley line to the school house on the Pipe Line road near the Capilano Canyon. The route is along the Mackay road, and it is expected that the line will be completed and put in operation this season.

A regular car service was put in operation on the New Westminster-Chilliwack line as far as Milner, July 1. The line has been completed so as to enable a car to be run into Abbotsford, and it is expected that a regular service will shortly be installed. Track has been laid to about a mile on the Chilliwack side of Huntingdon, and ballasting is being gone on with. It was expected that the wiring which is being gone on with ahead of the tracklaying would be completed July 15, and that the whole line would be completed so as to be put in operation Oct. 1. Plans for the station at Chilliwack have been prepared and tenders for its construction are under consideration.

A bylaw has been passed by the Point Grey council, and was submitted to the ratepayers July 23, providing, among other things, for a 40-year contract between the municipality and the company. The contract authorizes the building of certain lines within the municipality, and sets out the terms upon which they are to be operated. The municipality may upon giving notice take over the lines at the end of 40 years, otherwise under the provisions of clause 34, the contract is to run for 99 years, upon terms to be mutually agreed upon at that time.

At a meeting of the South Vancouver council, July 6, the company was given permission to build a second track on Westminster Ave., between [illegible] Ave. and Bodwell road.

The B.C.E. Ry. through the Vancouver Power Co. is preparing to start

work upon the development of the water power at the outlets of the Chilliwack and Jones lakes, about 60 miles east of Vancouver. It is estimated that 110,000 continuous h.p. will be developed, at an approximate cost of $9,354,000. The work is expected to be completed in about five years. Under the terms of the order-in-council the company has five years to complete the work at Jones Lake, which will give 30,000 h.p., and 10 years that at Chilliwack Lake, which will give 80,000 h.p. The water in the lakes will be controlled by dams 50 ft. high, and will be carried in a flume and pipe lines to the power house, with a total fall of 1,800 ft. It will be possible to utilize a considerable quantity of water from the flume for irrigation purposes.

Grand Valley Ry.—The Brantford, Ont., city council has directed the company to resume the service to West Brantford according to the terms of the franchise; and agreed to support the company's application to the Board of Railway Commissioners for permission to build a siding along the front of Jubilee Park to connect Holmedale with the G.T.R., and the Toronto, Hamilton and Buffalo Ry. This application has been refused by the Commissioners. A contract is reported to have been let for the construction of 11 miles of track in the city. The track, it is said, will be laid on oak ties embedded in 12 inches of concrete, 80 lb. steel to be used. (June, pg. 495).

Hamilton, Waterloo and Guelph Ry.—A report was current in Hamilton, Ont., July 9, that the proposal to build this electric railway was likely to be abandoned, but those who are in touch with J. Patterson, who is promoting the company, discredit the report. He went to London, Eng., about a month ago, to arrange for the financing of construction, and nothing definite will be known as to construction prospects until his return. The project had been favorably reported upon by the Westinghouse Church-Kerr Co. The cost of the entrance into Toronto, and of the terminals was expected to be high; owing to the fact that a tunnel, two miles long might have to be built. The cost of the entrance into Hamilton was also expected to be high, and some authorities think it is altogether prohibitive. (June, pg. 495).

Hull Electric Co.—In connection with the extension of the line along Brewery St., from Main St., out to the first toll-gate on the Chelsea road, an agreement has been reached by which the company will repair the street between these two points, the city supplying rough stone free, and crushed stone at 50 cents a yard at the crusher. (July, pg. 584).

Kingston, Portsmouth and Cataraqui Ry.—The Kingston, Ont., board of works, has decided to ask the company if it will pay a share of the cost of new rails and ties and a concrete foundation, should Princess and King Streets be relaid. It was stated at the meeting of the board, July 8, when this decision was reached, that the President of the company had stated that it would not pay anything. (June, pg. 495).

Monarch Radial Ry.—At a meeting of the Barrie, Ont., town council, July 6, consideration was given to a proposed agreement with this company for the construction of an electric railway through the town. The company desired to purchase its own right of way from Toronto to Barrie, and from Barrie to Owen Sound, but it desired to run over Allandale and Barrie streets, using the main line as the basis of a local system. A provisional arrangement has been made for a 25 year franchise, and the town solicitor is drawing up a by-law for submission to the electors. Franchises are reported to have been granted to the company in several rural municipalties, and Orillia Town Council is now being approached. (Mar., pg. 231).

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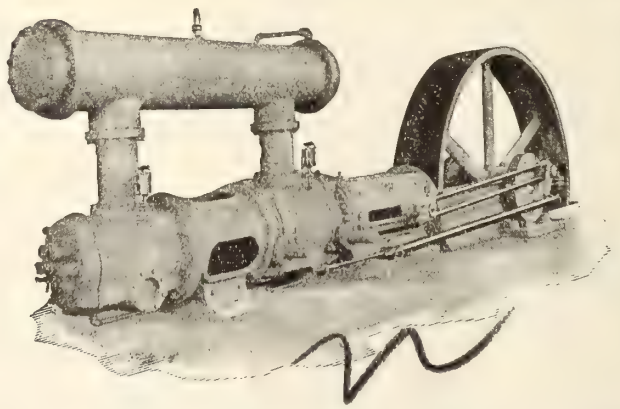

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Montreal Street Ry.—The Montreal city council has under consideration a proposal for the erection of poles in the city sufficient to carry all the electrical wires, now carried by the street railway company's poles, and other electrical companies having independent pole lines.

The question of additional lines is being considered by the city council and considerable opposition is being made to the company's application for permission to build on Dorchester and Sherbourne streets.

Plans for new car barns have been prepared, the estimated cost being put at $1,000,000. (June, pg. 495).

Moose Jaw Electric Ry.—We are officially advised that the title of the company with which an agreement has been made for the construction of an electric railway in Moose Jaw, Sask., is the Moose Jaw Electric Ry. Co., and that the officers and directors are as follows:—President, A. A. Dion; Vice President, N. J. Ker; directors: J. D. Cashman, E. J. Daly, P. D. Mellon, D. O'Connor, Jr., E. M. Saunders, D. R. Street. Messrs. Cashman and Saunders reside in Moose Jaw, the others in Ottawa, Ont., and D. R. Street is Secretary. It was expected that construction would be started under the agreement by the end of July, and it is hoped to have six miles of track laid during the present season.

J. McRae, Consulting Engineer, with H. A. Dion, as Assistant Engineer, arrived in Moose Jaw from Ottawa, July 16, to supervise the construction of the line.

The M.J.E.R. Co. has been incorporated under the British Columbia Companies Act with a capital of $400,000 in $50 shares, to construct electric railways, etc., in British Columbia and Saskatchewan, and elsewhere. (See Moose Jaw, Sask., July, pg. 585).

Nanaimo, B.C.—The Dominion Stock and Bond Corporation, through G. H. Salmon, Vancouver, has submitted an offer to the city council of Nanaimo, B.C., to build and operate an electric railway there. The proposal is to build altogether 20 miles of single and double track lines, to serve Nanaimo, Wellington and Ladysmith, provided the city guarantee the company's bonds to $15,000 a mile, or a total of $300,000, the city taking a first mortgage on the line and rolling stock. An arrangement was made by which the project will be discussed at a public meeting.

Nelson Electric Street Ry.—The work of overhauling the old electric railway line has been practically completed. The overhead work has been renewed, and a new switchboard has been installed in the sub-station. The electric work has been done under the charge of R. A. Brown, city electrician. The line was expected to be re-opened for traffic July 30. (July, pg. 585).

Ontario West Shore Ry.—The point in dispute between the company and the Colborne township council, as to the crossing at Dunlop, is just what a crossing is. Instead of making the shortest possible crossing of the public road, the company laid its track along the highway for a short distance in order to avoid having to purchase and take down a building. The settlement made upon the Ontario Railway and Municipal Board's advice involves the abandonment of all proceedings, each party paying its own cost, the Board to decide whether a by-law will be necessary in order to permit the track to remain—and the company to protect the crossing and to be liable for damages through accidents caused at it. The company has purchased a locomotive and is using it upon construction. (July, pg. 585).

Owen Sound, Ont.—Dr. C. S. Fenton, and T. Fleming, of Cleveland, Ohio, recently visited Owen Sound, Ont., and looked over the situation with a view of submitting a proposition for the building of an electric railway there, and taking up the project for the construction of the Owen Sound and Meaford Ry. R. M. McDowell, C.E., gave them all information available as to routes, etc., and E. Lemon, chairman of the local railway committee discussed the possible details of a franchise.

Peoples Ry.—We were advised July 13, that work had been started by the company itself on the grading of this projected electric railway between Berlin and Guelph, Ont., and it was intended to let a contract for grading between Berlin and New Hamburg in about 10 days thereafter. It is hoped to have this grading completed by Dec. 1. This covers the 29 miles for which tenders were recently asked. The work includes the building of five piers in the Grand River to carry four steel spans of 100 ft. each. It is expected to have the piers completed by Dec. 1, to have the steel work in place during the winter; and to have track laid between New Hamburg and Guelph by June or July, 1911, and the line in operation in Aug., 1911. The track will be laid with 70 lbs. T rails; and the tenders under consideration provide for the fencing of the line, and the overhead work. A grading outfit was being delivered at Berlin, July 5, and teams and men were engaged by A. U. Warfield, July 6, and following days.

The agreement with the city of Guelph has been drawn up and is before the city council for final approval. The agreement calls for the purchase by the city of $85,000 of cumulative 6% preference stock. The grading for the line from Floomingdale to Guelph must be done by Dec. 31, 1910, and the line from Berlin to Guelph completed and cars running by Oct., 1911. Construction on the Guelph to Arthur line must be commenced by April 1, 1911, and the line from Arthur to Fergus and Elora must be completed and in operation by June, 1912, and the line to Arthur by Dec. 30, 1912. The company must apply for legislative authority to construct the Guelph-Puslinch Lake line, and shall commence construction by April 1, 1911, the line to be in operation by June 15, 1912. An allowance of six months will be made to the company in case of delays occasioned by default other than its own; the company must not issue bonds to the amount of more than $16,000 a mile; any extra cost on paved streets is to be paid by the company, and if the bylaw, to be submitted, fails to carry, the company is to pay the entire cost of its submission.

The ratepayers of New Hamburg, Ont., have passed a bylaw granting a franchise through the village to the People's Ry., and the ratepayers of Wilmot tp. have passed a bylaw authorizing the township to subscribe for $30,000 of stock in the company.

Port Arthur and Fort William Electric Ry.—The manager has been instructed by the joint board to complete the Arthur St. extension as quickly as the time at his disposal will permit. The Ontario Railway and Municipal Board has reserved judgment on an application to compel the joint board to operate what is known as the Montreal St. extension at West Fort William. The reason why it has not been operated up to the present is that it crosses 12 railway tracks on the level and it is claimed that Fort William should have built a subway at the crossing according to the terms of an award of the Ontario Railway and Municipal Board.

The question of the operation of the line on Montreal St., Fort William, Ont., is still under consideration by the Commissioners. The line across a number of steam railway tracks, under which the Port Arthur people say the Fort William people should build a subway, or undertake to pay the damages arising out of any accident if the cars be operated on the level across these tracks. (May, pg. 399).

Toronto's Tube Ry. Proposals.—The New York Engineers, Messrs. Jacobs and Davis, who were engaged by the Toronto city council to make a report as to the construction of a tube system of railways in the city, have been supplied with all the information available. Some members of their staff spent some days in the city looking over the proposed routes, borings to show the strata were made and other information collected. An interim report is expected at an early date. (June, pg. 497.)

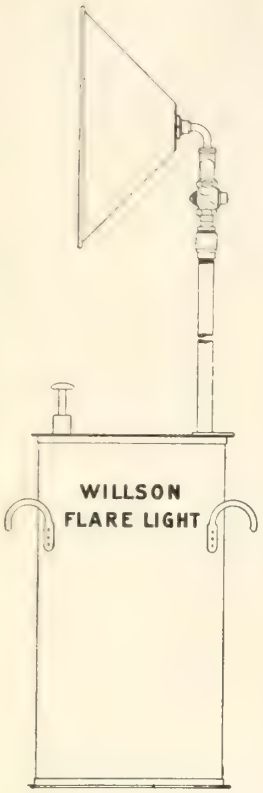
Quebec Ry., Light, Heat and Power Co.—We are officially advised that the company filed plans July 11 for the building of an upper level railway to the Montmorency Fall's part. The line will branch off from the present main line just east of Beauport station, 2.5 miles east of Quebec, and follow south of the main road to within 150 ft. of the park, when it will cross the road to the north and loop round in a lot owned by the company. The length of the new line will be 3.3 miles. It will be double track, and its construction will obviate the very tedious delays at present experienced by passengers to the park having to take the elevator, which is not of sufficient capacity. The right-of-way is being acquired, for the line for which a very good location has been secured, the gradient not exceeding 3% at any one point. It is intended to proceed with construction at once and it is hoped to have the line in operation by Sept. 1.

At a meeting of the city council, June 30, the plans for the new building on the site of the Jacques Cartier market were considered, and the company was given permission to build out under the sidewalks, on all four sides, the roadway to be restored to its present condition. The council also discussed the question of an extension of the line to St. Valier tollgate and up Lesage Ave., and the construction of bridges over the St. Charles River. This question subsequently had been before the Board of Railway Commissioners, so far as the crossing of the C.P.R. at two points was concerned the city's application being thrown out on the grounds that it had no power to act. The matter was discussed by the directors June 30, when it was stated that an arrangement might be made with the city by crossing the C.P.R. once instead of twice. As to the building of bridges across the St. Charles River the directors favored the policy of building in conjunction with the city.

The matter of the extension of the line in St. Saveun and Limoilon was discussed with the city council privately July 7, but nothing definite resulted. The suggestion is that the line should be extended from its present terminus at the exhibition grounds as far as Charlesbourg road which the directors were in favor of doing at as early a date as possible, to take care of the largely increasing business.

The arrangements for the extension of the line to Sillery, which is to be built under the Quebec County Ry.'s charter are being completed. An agreement has been made with the Montcalm town council, by which a 30-year franchise has been granted for the line along St. Cyrille road, from Maple Ave. to Belvedere road, about half the length of the proposed line. The opening of St. Cyrille road to Sillery is being arranged with the land owners. The plans were ratified by the directors July 11, and the building of the line is expected to be put in hand at once. (July, pg. 585).

Regina, Sask.—[illegible]



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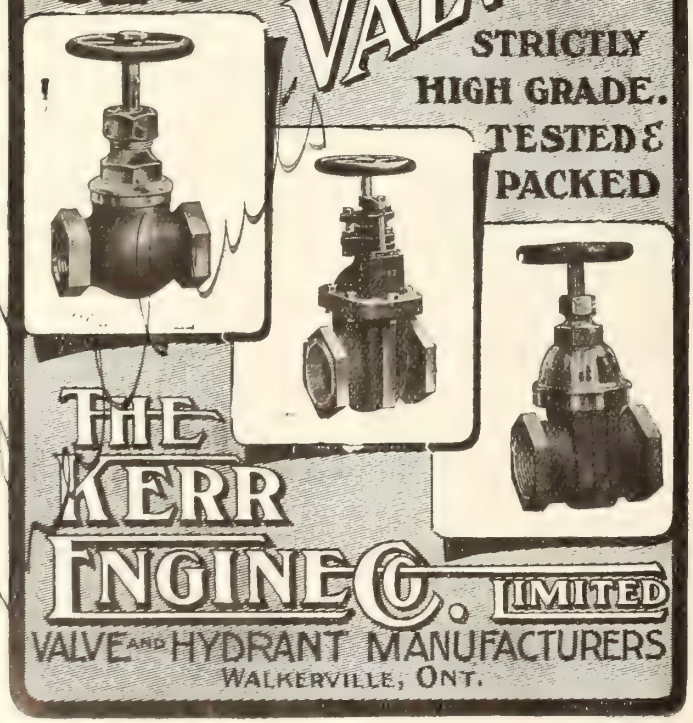

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in the city, an estimate of the cost of miles of line has been submitted to a committee of the city council. The estimate provides for a double track on paved streets and single track on unpaved streets; and all necessary overhead work, but excluding cost of cars, car barns or power plant. Double track on Albert St., and Dewdney St., south through the subway, 2.25 miles would cost $78,750; and 1.75 miles of single track would cost $31,500; engineering and overhead expenses would cost $4,750, making a total cost of construction of $115,000. (June, pg. 497).

Saskatoon, Sask. — Application has been made to the city council, on behalf of a British company, that the ratepayers be asked to vote on the question of the construction of an electric railway in the city, and whether they are in favor of private or municipal ownership.

Stratford, Ont.—The city council decided to submit a bylaw, July 29, granting a franchise for an electric railway in the city. The new company is said to be in no way associated with the Peoples Ry., the Stratford and St. Joseph's Radial Ry., or any of the other companies which have been trying to get the money to build an electric railway in and through Stratford. The proposed bylaw sets forth that T. O. Robson, H. L. Rice, D. Bouis, and A. Baird, of St. Mary's, propose to apply to the Ontario Legislature incorporating the Stratford Ry. Co. with power to build electric railways in and through Stratford and in the neighborhood; and provides that in the event of the charter being granted the company may build and operate an electric railway on certain streets within the city; build sidings to factories fronting or abutting on streets whereon the railway is built; may carry freight and baggage as well as passengers; but only on certain streets; freight is not to be collected or delivered except from sidings or a freight shed, and freight cars are not to be permitted to stand on the streets except at certain specially designated points. When the city population has reached 30,000 the company is to build an additional half mile of track for each 2,000 of population above 25,000. Provision is also made in the bylaw as to passenger fares, rates of speed, etc., and for the starting of construction within six months after the passing of the act. It is also provided that power is to be taken from the Hydro-Electric Power Commission from the stepping down station at Stratford.

Local reports refer to this line as being promoted in the interests of the St. Marys and Western Ontario Ry., which is controlled by the C.P.R. Of those named in the agreement with the Stratford city council, T. O. Robson, was one of the original directors of the St. M. and W.O. Ry.

Toronto and Eastern Ry.—An engineering party is reported to be engaged in making a survey for this projected electric railway, from Toronto to Cobourg, Ont., with a branch northerly from Oshawa to Lindsay, and an extension southerly to the Oshawa harbor. Press reports state that it is the company's intention to proceed with the construction of the line between Toronto and Bowmanville this fall.

Toronto Ry.—The question of the condition of the tracks on Dundas St., West Toronto, came before the Ontario Railway and Municipal Board, July 7, when it was admitted by the company that 25% of the track required to be relaid. Some of the condition of the line, it was stated, was due to work done about three years ago by the West Toronto city council, before its amalgamation with the city of Toronto. Judgment was reserved.

H. S. Osler, K.C., informed the Ontario Railway and Municipal Board by letter, July 14, that the company accepted the terms of the Board's order of May 18, given in our July issue, pg. 585, providing for the extension of its tracks and the building of new cars. It is expected that the building of the new lines will be gone on with at once.

Toronto, Niagara and Western Ry.—The Board of Railway Commissioners order referred to in our last number, was issued July 12. It authorizes the company to construct its line on the level across a large number of streets in the north west part of Toronto, but is added that if at any time the C.P.R. is ordered to elevate its tracks in the north of the city, the T.N. and W.R. must follow suit, and that it shall also provide such protection at the crossings as shall be directed by the Commissioners from time to time.

Plans of the revised location for the section of the line between Burlington and Hamilton, have been filed with the Hamilton city clerk. The new route for the east will carry the line along the north shore of the bay, skirting the water instead of the high land; crossing the bay on trestles, and under the G.T.R. at Desjardins bridge, and paralleling to the city limits the short piece of line owned by the C.P.R. which gives that company a connection between the G.T.R. and T., H. & B.R. tracks. The Dundas council, as well as the Hamilton city council, is opposing the plans before the Board of Railway Commissioners, particular objection being taken to the bridge over the Desjardins canal. The Commissioners decided that the company would have to make a special appeal to the Government as to the bridge. The matter is still under consideration. (July, pg. 585).

Welland, Ont.—C. J. Laughlin, who is negotiating franchises for an electric railway in Welland, and to Welland Jct. Ont., stated recently, that the company would have its line completed within five months from starting work, and would give a 15 minute service between the two points named.

The Dunnville, Wellandport and Beamsville Ry., and the Niagara Falls, Welland and Dunnville Ry. have charter powers covering such a line.

Winnipeg Electric Ry.—No progress is being made with the company's application to the courts to have bylaw 5907 passed by the city council, respecting poles and wires, quashed. (July, pg. 585).

Electric Ry., Finance, Meetings, Etc.

British Columbia Electric Ry.—Gross earnings for May, $256,806; working expenses $156,065; net operating revenue, $100,741; renewal funds $17,852; net earnings $82,889; approximate income from investments, $16,500; net income $99,389, against $197,802 gross earnings; $116,000 working expenses; $81,802 net operating revenue; $13,958 renewal funds; $67,844 net earnings; $13,550, approximate income for investments; $81,394 net income for May, 1909. Aggregate gross earnings for 11 months ended May 31, $2,728,437; net earnings, $1,147,106, against $2,098,154 gross and $942,925 net for the same period 1908-09.

The Dominion Power and Transmission Co., for the past half year has not paid any dividends on its stock, using the available profits for improvements upon its electric railway lines. It is reported that at the July meeting, held in Hamilton, the directors decided to resume paying dividends next half year.

Halifax Electric Tramway.—Railway receipts for June, $18,257.05, and for two weeks ended July 14, $9,975.77, against $17,300.48 and $8,648.09 for same periods 1909.

London St. Ry.—Gross earnings for May, $19,294.92; operating expenses $14,603.04; net earnings $4,691.88; deductions $2,441.75; net income $2,250.13, against $19,172.85 gross earnings; $14,191.27 operating expenses; $4,981.58 net earnings for May 1909. Aggregate gross earnings for five months ended May 31, $94,359.60; operating expenses $70,571.68; net earnings $23,787.92; deductions, $11,893.85; net income, $11,894.07, against $89,809.25 aggregate gross earnings; $67,246.16 operating expenses; $22,563.09 net earnings for same period 1909.

Port Arthur-Fort William Electric Ry.—The financial statement for April shows; passenger earnings, $9,250.17 gross earnings $9,650.24; expenditure $6,798.99; net earnings, $2,851.25. Car mileage, 39,385 miles; gross earnings per car mile, $24,533; operating expenses per car mile, $17,285; net earnings per car mile, $7,248.

St. Thomas St. Ry.—The receipts for the five months ended May 31 were, $8,345.67, against $9,241.63 same period 1909; and the expenditures $14,546.53, against $12,321.77. In the expenses for 1909 there was included $2,062.94 for power, but nothing has been paid on account of power this year. During the five months to May 31, there were 120,176 passengers carried, against 165,600 in the same period of 1909. The number of pasengers has been steadily falling off since 1907, and the manager stated two causes had tended to bring about the decrease, one being the institution of the delivery of letters by the post office and the other the opening of the Ross St. subway. The question of the rental of the right to run over the city lines by the London and Lake Erie Ry. and Navigation Co., (The old South Western Traction Co.,) was considered, and it was suggested that the company be asked to pay an increased rental as it is now going a seven instead of a six-day service.

Montreal St. Ry.—Passenger earnings for June, $373,258.80; miscellaneous earnings $11,305.31; total earnings $394,564.11; operating expenses $198,848.62; net earnings $185,715.49; city percentage on earnings $39,463.79; interest on bonds and loans $15,036.62; rent leased lines $552.90; taxes $4,000; total charges $59,053.31; surplus, $126,662.18; expenses per cent. of earnings 51.71, against $342,293.02 passenger earnings; $12,624.57 miscellaneous earnings; 354,917.59 total earnings; $187,320.38 operating expenses; $167,597.21 net earnings; $33,120.71 city percentage on earnings; $14,514.96 interest on bonds and loans; $498.67 rent leased lines; $3,000 taxes; $51,134.34 total charges; $116,462.87 surplus; 52.78 expenses per cent. of earnings for June 1909. Aggregate passenger earnings for nine months ended June 30, $3,018,903.81; miscellaneous earnings $72,895.75; total earnings $3,091,799.56; operating expenses $1,806,291.83; net earnings, $1,285,507.73; city percentage on earnings, $205,108.34; interest on bonds and loans $141,654.00; rent leased lines $4,813.35; taxes $36,000; total charges $377,603.34; surplus $907,904.39, against $2,730,032.60 aggregate passenger earnings; $61,940.67 miscellaneous earnings $2,791,973.27 total earnings; $1,688,603.30 operating expenses; $1,103,369.97 net earnings; $169,241.78 city percentage on earnings; $136,324.08 interest on bonds and loans; $4,325.34 rent leased lines; $25,800 taxes; $335,691.20 total charges; [illegible] for same period 1908-09.

Montreal Terminal Ry.—[illegible] of the Montreal Street Ry., owning the M.T. Ry., stated July 13, that there was

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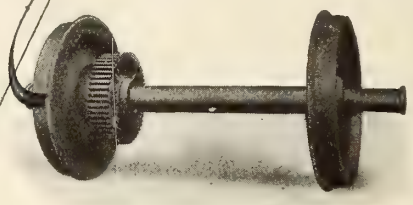

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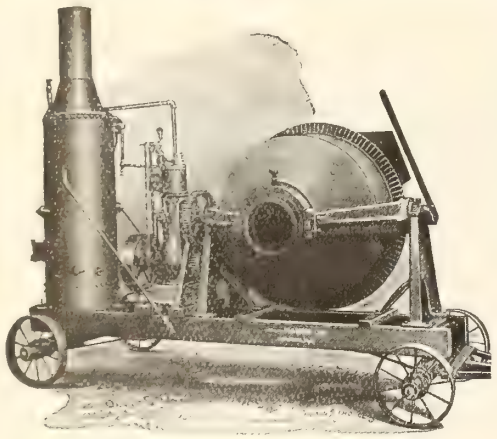

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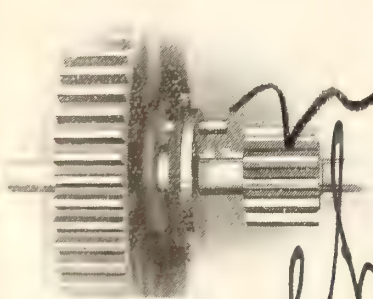

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no truth in the press reports that the section of the M.T. Ry. from Maisonneuve and Boul. de l'Ile had been sold to the C.P.R. This section of the line is largely used by the C.P.R. for switching cars from its lines to the factories in the Maisonneuve district.

Quebec Ry., Light, Heat and Power Co.—It is said application will be made to have the company's stock listed on the Bourse in Paris, France, and on the London, Eng., stock exchange.

Toronto Ry.—Gross earnings for May, $353,791; operating expenses $170,426; net earnings $183,365, against $323,722 gross earnings; $155,919 operating expenses; $167,803 net earnings for May 1909. Aggregate gross earnings for five months ended May 31, $1,656,842; net earnings $786,460, against $1,483,750 gross and $708,744 net for same period 1909.

Winnipeg Electric Ry.—Gross earnings for May, $238,240; operating expenses $117,812; net earnings $120,428, against $189,564 gross earnings; $96,014 operating expenses; $93,550 net earnings for May 1909. Aggregate gross earnings for five months ended May 31, $1,289,774; net earnings $629,587, against $1,017,067 aggregate gross earnings, and $503,589 net earnings for same period 1909.

Electric Railway Notes.

The Quebec Ry., Light, Heat and Power Co., has received two 18-seat pay-as-you-enter cars, from the Ottawa Car Co., Ottawa.

The Montreal board of control proposes to recommend to the city council that it take over and operate the incline Ry. at Mount Royal.

The Peoples Ry. has received tenders for the supply of a number of car bodies, and trucks. It is proposed to complete the cars at Berlin, Ont.

The Edmonton Radial Ry., has received two pay-as-you-enter cars, with 27 G.1 trucks, and one tower wagon from the Ottawa Car Co., Ottawa.

The Judicial Committee of the Imperial Privy Council, has disallowed the appeal in the case of the Berlin and Waterloo St. Ry., against the city of Berlin, Ont.

The B.C. Electric Ry. Co., has been given permission by the British Court of Chancery, to extend its powers in the direction of acquiring gas works, mining and lumbering interests, etc.

R. Smith, of the London and Lake Erie Ry. and Transportation Co.'s staff, was presented with an address and a marble clock by the passenger staff, on the occasion of his marriage recently.

An increase of wages has been given to the men employed on the Port Arthur-Fort William Electric Ry., and the strike, which was threatened at the end of June has been averted.

E. Zimmerman, motorman, one of the survivors of the Lakeview car accident, near Vancouver, B.C., in Nov., 1909, has been awarded $6,500 and $520 expenses, against the B.C. Electric Ry.

Press reports from Port Arthur, Ont., state that N. C. Pelcher, Manager Port Arthur and Fort William Electric Ry., has resigned, on acount of disagreements with one of the members of the commission operating the railway.

D. J. McQuarrie, formerly manager of the B.C. Electric Ry. city and interurban service, New Westminster, was presented with an address, an arm chair and a silver tea service, by the employes, on his leaving the service recently.

The Toronto Suburban Ry., has ordered two pay-as-you-enter cars, with 32 ft. bodies, 7 ft. vestibules at each end, 46 ft. total length, on trucks with wheel base 4½ ft., 4 ft. 10⅝ ins. gauge. The car bodies are finished within and without in cherry.

The Nipissing Central Ry., operating between Cobalt and Haileybury, Ont., is reported to have ordered two trailers from the Preston Car and Coach Co., Preston, Ont., and also an additional generator set. The traffic, especially in the evenings, has increased at a quicker rate than was anticipated.

British Columbia courts have awarded $10,000 damages to the widow and child of a man who was killed in the Lakeview accident on the B.C. Electric Ry., last year. The company admitted liability and left it to the jury to assess the damages. Mrs. A. E. Kealy of North Vancouver has also recovered $700 for injuries sustained in the same accident.

The Montreal board of control has passed a resolution calling upon the Montreal Street Ry. to take steps to lessen the number of fatal accidents arising out of the operation of the railway. The board of which F. L. Wanklin, formerly manager of the M.S.R. is a member should know that the company is more interested in the prevention of accidents than anyone else.

A difficulty has arisen in Montreal as to the payment by the Montreal St. Ry., of percentage on fares. Since the agreement between the company and the city was entered into, there have been several annexations to the city, and the point which is being discussed, is whether the city is entitled to collect a percentage on fares paid on a route which is only partly within the city limits.

A board of conciliation has been appointed under the Lemieux Act, in the difference between the Toronto Ry. and its employes. The men ask 25c. an hour for first year men and 28c. an hour for all others, while the company suggests the adoption of the Montreal scale which is at the rate of 20c. and 21c. an hour. This rate, except for first year men, is less than is at present paid in Toronto. The board consists of J. G. O'Donoghue, K.C., representing the men; J. P. Mullarkey, representing the company, with Judge Barron, Stratford, Ont., as Chairman.

Telegraph and Cable Matters.

B. S. Jenkins, Superintendent of Telegraphs, C.P.R. Western Lines, visited a number of Pacific coast points during July, on a trip of inspection over the company's telegraph system.

It was announced in London, Eng., July 11, that the Marconi Wireless Telegraph Co., would receive messages for transmission, by wireless, to Eastern Canada, at sixpence a word.

The St. John Nfld., city council has decided to dismiss the Commercial Cable Co.'s application for exemption from taxation on its cables on the city streets.

The Newfoundland Government has decided to erect wireless telegraph stations at Fogo, Grey Islands, Belle Isle and along Labrador, to enable communication to be kept up with the sealing steamers during the season, and for general purposes.

Representatives of the Western Union Telegraph Co., returned to St. John, N.B. recently from Newfoundland, where they had been for the purpose of locating a site for the landing of cables. It is understood that Bay Roberts has been selected, but nothing definite has been decided.

The Board of Railway Commissioners will sit in Winnipeg, Sept. 22, to hear, among other things, an application by the Winnipeg Board of Trade, and the Grain Exchange for the setting aside of the tariff of telegraph tolls charged by telegraph companies operating into and out of Winnipeg.

W. C. Muir, heretofore Superintendent Canadian Northern Telegraph and Express Companies, has been appointed General Superintendent Canadian Northern Telegraph and Express Companies, with office at Winnipeg, Scott Griffin, heretofore Manager at Toronto, having been appointed Manager Canadian Northern Steamships Ltd., London, Eng.

The board of conciliation appointed to enquire into the matters between the C.P.R. and its commercial telegraph operators, consists of J. E. Duval, Manager Canadian Car Service Bureau Eastern Lines, Montreal, chairman; F. H. McGuigan, Toronto, formerly Fourth Vice President G.T.R., representing the company, and D. Campbell, Toronto, on behalf of the operators.

The Dominion Government is reported to have entered into an agreement with the United Wireless Telegraph Co., as to the charges for communication between Dominion Government stations on the Pacific coast and vessels equipped with the United company's system. The rates generally are based on those agreed to at the Berlin convention, to which the U.S. was not a party, but by which the company has agreed to abide. The charge is $2 for 10 words and 2c. a word, of which amount, the land station receives 60% and the vessel 40%.

R. F. Easson, Superintendent of the press and commercial news department G. N. W. Telegraph Co., Toronto, who retired from the service recently, entered telegraph service with the Montreal Telegraph Co., at Toronto, in 1844, as messenger, and with the exception of a short period, from 1853 to 1855, spent in Chicago, his entire service has been in Toronto. He was appointed chief operator Montreal Telegraph Co., in 1864, and on the taking over of the property by the G.N.W. Telegraph Co., in 1882, he was appointed to the position which he has just resigned.

The balance sheet of the Marconi Wireless Telegraph Co. for 1909, presented at the recent annual meeting in London, Eng., shows a net profit of £11,400, out of which, interest on the 7% cumulative preference participating shares has been paid, and the balance carried forward. The report states that considerable progress was made during the year, and but for the fire which destroyed the Glace Bay station, then nearing completion, the result would have been better still. The new station is better in every way than the previous one, and a large increase has been made in the business handled. It is also stated that arrangements have been made, whereby the Canadian company will be in a position to repay the greater part of the £144,300, owing by it to the English company.

Dominion Telegraph Company.

The report for the year ended June 30, shows assets of $1,309,876.25, and liabilities of $1,015,878.63, with a balance at credit of profit and loss of $293,997.62. The Western Union Telegraph Co., which has a 99 year lease of the property, has distributed the guaranteed interest at 6%, quarterly, in advance, for the past 30 years. Following are the officers and directors for the current year: President, T. Swinyard; Vice President, Sir Henry M. Pellatt; Secretary and Treasurer, F. Roper; other directors, B. Brooks, T. F. Clark, Col. R. C. Clowry, Æ. Jarvis, C. O'Reilly, and A. G. Ramsay.

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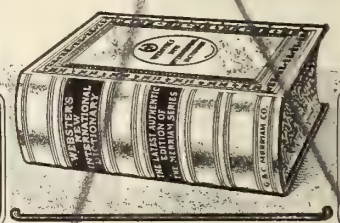

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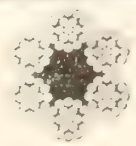

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Montreal Street Railway Dump Car.

The Montreal St. Ry. Co. has recently added to its freight equipment a new type of dump car for handling stone. Several types of car were tried, with the result that all were found to be too slow in regard to unloading. The car that was required was one that would dump its load all to one side, free of the track, and do it quickly so as not to hold up passenger traffic. From these requirements the present car was developed with the result that one car was built by the Dominion Car and Foundry Co., in March, 1909. It was given a thorough test and was found to fulfil the requirements, and 24 more were built between July and Sept., 1909, and 25 more have been ordered from the Canadian Car & Foundry Co. On the cars last ordered. a plow device is added to the rear truck which spreads the rock after the car has deposited it beside the track. This plow device is detachable and is folded in when the car is in running position. The car can be dumped and righted in one minute, in fact the car body rights itself as it is balanced on rockers instead of hinges. The rocker feature is a decided advantage over the old hinge design as it allows the car to settle easily to the dumping position and thus avoids all the shocks that have always accompanied the old style of dumping car.

The car is built entirely of steel with the exception of the cab. The centre sills are composed of 12 in. 25 lbs. channels, braced with six 8x8 lbs. channel separators at rocker bearing point, and further tied together with a ⅞ rocker plate. The side is composed of 10x15 lbs. channel reaching from end sill to end sill secured with rolled connection angles. The end sills are also a 10 in. 15 lbs. channel faced with an oak beam 5 ins. thick, and securely bolted to the web of the end sill channel. The body bolsters are composed of 5 in. x 11.6 lbs. Z bars with ¼ in. cover plates top and bottom and secured to side and centre sills with ¼ in. gusset plate.

The car is not symmetrical, as the 10 in. side sill is on one side only. There are four channel diaphragms 5 ins. deep, reaching from the center sill to the side sill on the non-dumping side of the car; rivetted to these channels are the bearing plates that secure the operating shaft.

The car body is composed of light angles and ¼ in. plates securely rivetted together and is divided into five separate compartments; each compartment being 5 ft. wide by 7 ft. 11 ins. long, thus allowing different classes of material to be carried at the same time.

Montreal Street Railway Dump Car, unloading.

The car body rests on cast steel rockers, one at each end and at each partition. The cast steel rockers have lugs that engage openings in the ⅞ in. rocker plate. These rocker castings allow the car to rock easily to the dumping side of the car without any undue shock, and the car body is so balanced that it can easily be righted again.

The dumping mechanism is composed of two cast steel racks with pinions secured to the operating shaft; all easily controlled from the motorman's cab.

There are five doors of 3-16 in. plates reinforced with bars. They are hinged at the bottom and open downward so that when the car is dumped they form an extension and help to throw the load away from the track. The locking device for the doors is composed of a shaft 1½ in. round, extending the full length of car body; secured to this shaft are 10 malleable iron hooks, two to each door. The hooks lip over the top edge of doors, thus holding them securely in place. At each end of the door shaft there is a short lever which is connected to a toggle on the center sill by a connecting bar with turn buckle for adjusting. When the car body reaches a certain angle in dumping it operates the door locks automatically and releases the doors. Buffers are provided for the doors to fall on. Wood buffers are also provided on the trucks.

Montreal Street Railway Dump Car, loaded.

The trucks are the Montreal St. Ry. pattern but any standard truck may be used, although a truck with a short wheel base is preferred. The car is built with motors on each axle, hand brakes only, with the usual electrical equipment in cab. Sanding box and fenders are also used.

Following are the general dimensions:

Length over end sills, 33 ft.
Truck centres 21 ft. 3 ins
Width of box 7 ft. 3 ins.
Length of box 25 ft.
Height of box 21¼ ins.
Box spring draft gear.
Angle of dump, 35 deg.
Capacity 40,000 lbs.
Cubic contents, 20 cubic yards.
Weight 26,000 lbs. without motors.

The Quebec Railway Light, Heat & Power Co. had two similar cars built by the Canadian Car & Foundry Co. in July as a trial order.

Montreal St. Ry. Mutual Benefit Association.

Following are extracts from the report for the year ended Apr. 30: A summary for the relief work done during the year shows that 705 members were disabled through sickness or injury; $8,874.90 was paid for sickness and injury; $1,614.85 for medicine, and $289.50 for pensions; $99.70 for withdrawals, and $12,183.35 for death and burial insurance. The sixth annual picnic showed a profit of $8,928.22. During the year, $19,189.75 was invested, the total amount invested being $67,915.25, the securities being deposited with the Royal Trust Co. The receipts include a special Christmas donation from the Montreal St. Ry., of $3,000, making a total received from the company of $15.476.53, which, added to the members' fees and dues of $14,075.50, and the proceeds from the picnic, interest on investments, and bank deposits, amounting to $13,864.88, make a total revenue of $43,416.91. The expenses for the year were $30,898.[illegible], leaving a surplus of $12,518.18.

At the annual meeting, the following committee of management was elected: W. G. Ross, D. McDonald, A. Gaboury, A. S. Byrd, R. H Hannaford, H. G. Taylor, P. Dubee and D. E. Plair, on behalf of the company, and S. Dupras, O. B[illegible]ner, J. Thibault. S. Chartier, J. Millette, Jno. Hughes and J. Poirier, on behalf of the men.

The Hamilton St. Ry. has received two pay-as-you-enter cars, 43 ft. over [illegible] from the Ottawa Car Co., Ottawa.

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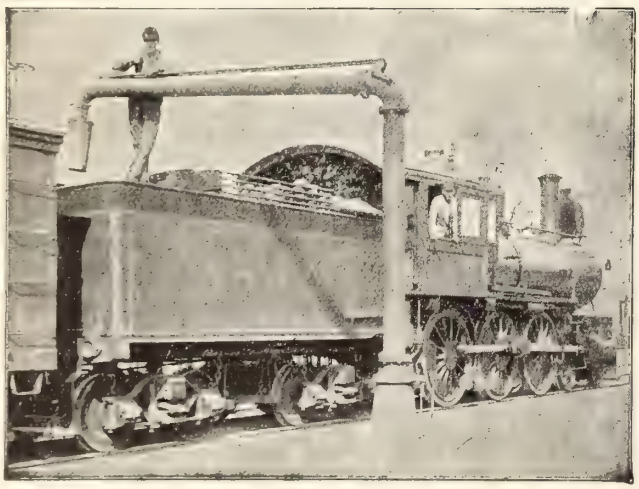

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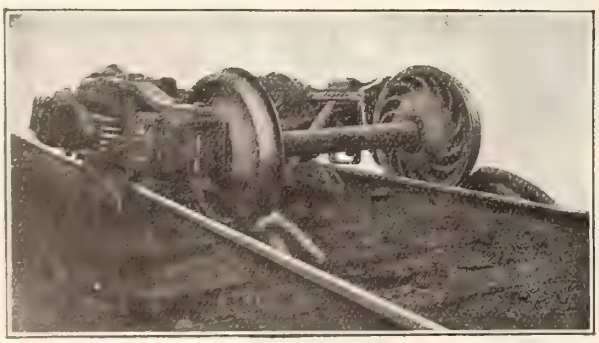

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International Water Lines Passenger Association.

PRESIDENT, W. M. Lowrie, New York.
SECRETARY, M. R. Nelson, New York.

The Shipping Federation of Canada.

PRESIDENT, A. A. Allan, Montreal; MANAGER, AND SECRETARY, T. Robb, 526 Board of Trade, Montreal.

Ship Masters' Association of Canada.

GRAND MASTER, Capt. J. H. McMaugh, Toronto, Ont.; GRAND SECRETARY-TREASURER, Capt. H. O. Jackson, 376 Huron St., Toronto.

Stranding of the s. s. Ben Cruachan.

Judgment has been delivered in the matter of the stranding of the s.s. Ben Cruachan, near Port Nova island, N.S., May 31, while bound from Baltimore, Md., to Chatham, N.B., as follows:—The court finds that the Ben Cruachan was well found in all respects and was carefully navigated by the master up to noon on May 31; that from this time the soundings were too far apart to be of any practical value in determining the ship's position in the prevailing weather. The chart used was on too small a scale and did not show sufficient detail for coasting purposes. The master and officers being entire strangers to this coast were evidently misled in the fog signal as given by Louisburg, and considered it was that of Scatterie island, but the master having a list of fog signals on board should have been forewarned by the fact that there was a similarity between the signals of these two places, and should have taken more soundings to determine his position with greater accuracy. The court considers that the mate was somewhat careless in making the entries in the ship's log book, and also considers that the fog signals at Scatterie and Louisburg are too similar in character, considering the distance they are apart. Taking into consideration the care shown by the master in the navigation of his ship, we are of opinion that the cause of stranding was due to an error of judgment by the master and officers, and consider it necessary to caution the master, since he is an entire stranger to these ports, that while navigating along the Nova Scotia coast, and the Eastern provinces, he should supply himself with a chart on a larger scale, and also full sailing directions.

The St Andrews Lock and Dam.

The lock and dam which have been constructed on the Red River, between Winnipeg and the outlet of the river into Lake Winnipeg, were formerly opened by the Minister of Public Works, July 14. The work was practically completed last fall, and the lock was opened for navigation at the commencement of the present season.

The lock is similar in type to those on the Welland canal, and will accommodate a vessel 215 ft. long, 45 ft. wide, with a depth of 9[illegible] ft. The dam is 800 ft. long, and 25,000 cub. yds. of concrete was used in its construction. The main concrete piers are about 134 ft. centre to centre, carrying the steel superstructure, which is of the double deck type, the lower level being used in connection with the movable curtain dams, with an electric travelling crane for their operation, while the upper level is used as a traffic bridge, to connect the two sides of the river. The top of the submerged dam forms a bearing for the castings sustaining the girders of the curtain frame. The main piers are 14 ft. wide by 55 ft. long at the top, and 14 by 76 ft. at the base, with an average height of 50 ft., the piers facing up stream, are projected 21 ft. at an angle of 45 deg., with a 7 ft. radius, dropping vertically to bed rock, as a protection against ice. The lock is equipped with gates 28 ft. long by 37 ft. high, at the upper end, and 28 ft. long by 23 ft. high at the lower end. The curtains of the movable dam consist of wooden laths 7 ft. 3¾ ins. long by 3 ins. connected with copper links. In the complete structure, there are 110 such curtains. These are operated by four electric cranes.

The dam has the effect of raising the water level at Winnipeg 2 ft., thus giving 9 ft. of navigable water there. The Minister of Public Works, stated some time ago, that exclusive of the sums spent on this work in earlier years, the improvement had cost $1,100,000.

The Dominion Premier, in a speech at the formal opening, said that there was now a clear space of navigation for 300 miles; this, though a considerable achievement, was only the beginning. the Red River had been opened to navigation to Winnipeg, and it now remains to open the Saskatchewan River to Edmonton. Engineers are already surveying the Saskatchewan, and, he believed, that before many years had passed the river would be open to navigation. Tributes were paid to the contractors, Haney, Quinlan and Robertson, and to A. R. Dufresne, engineer in charge, for the ability shown in the carrying out of the work.

The s. s. Thomas J. Drummond.

This vessel, which has recently been added to the Algoma Central and Hudson Bay Ry. Co.'s fleet and named after the company's president, is of the single deck type, and of the following dimensions: length 248 ft., breadth 44 ft., depth moulded 26 ft. She is built to British Corporation Survey with scantlings, entitling her to trade in any waters, and is specially designed for carrying rails and bulk cargo, her arrangements being such that these may be handled with the greatest possible facility. The hold space is divided into three compartments, and extra strength is introduced in the structure of the vessel where additional strains are likely to be experienced when engaged in her special trade. A cellular double bottom of extra depth over rule requirements, and fore and after peak tanks, are arranged for carrying water ballast. Her deck machinery, including winches, windlass, and capstan, is all arranged for the speedy and easy handling of the vessel. The steam steering gear works direct on to the rudder quadrant, the rudder being of the usual balanced lake type, and fitted with coupling to permit of easy removal. A large coal bunker is fitted on deck as well as bunkers alongside boilers, all arranged so that trimming can be practically dispensed with. Electric light is fitted throughout the vessel, including holds. Accommodation is provided in the forecastle forward for mates, wheelmen, watchmen, and deck hands; a suite of rooms with bathroom is arranged for owner, while the captain's accommodation, including bedroom, bathroom, office, and chart room, is arranged in texas house on top of forecastle. A wheel house is fitted on top of texas house, with telegraph for docking and telegraphs and whistle pulls to engine room. The engineers are accommodated aft, where also the dining saloon, pantry, galley, mess-room, and ice house are placed. The vessel is propelled by machinery of the triple expansion single screw type having cylinders 20½, 33 and 54 by 36 in. stroke, supplied with steam from two boilers 14 by 10½ ft., working at a pressure of 190 lbs. The main engines are controlled by steam and hydraulic starting and reversing gear, and have also steam turning gear; a special feed pump is fitted, also feed heater, there is an atmospheric self-tipping ash hoist, and the whole engine room equipment is thoroughly up-to-date.

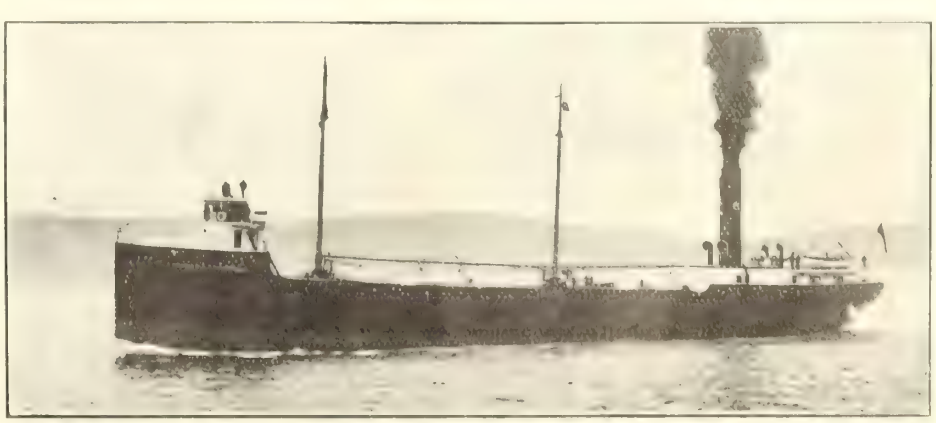
The vessel was built by Archd. McMillan and Son, Ltd., at Dumbarton, Scotland, and is one of the most up-to-date of her type which has been constructed. On her trial trip she steamed at 12½ miles an hour over the measured mile at Skelmoilie. During construction the owners were represented at Dumbarton by Capt. Jordan and Mr. Sylvestre.

St. John, N.B., Shipping Statistics.

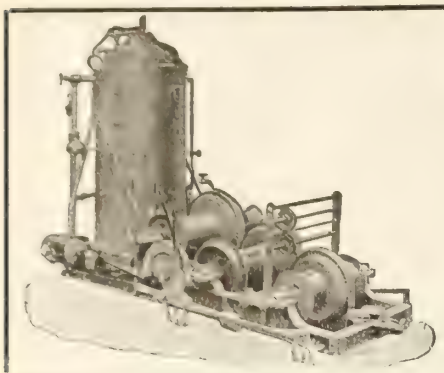
The exports from St. John, N.B., by transatlantic vessels, for the winter season, from Nov., 1909, to May, 1910, amounted to $24,030,007, classified as follows:—

		Value
Wheat, bush	6,962,651	$9,156,681
Barley, bush	240,912	
Oats, bush	257,141	
Buckwheat, bush	58,317	
Hay, tons	8,523	125,272
Flour and meal, pkgs.	988,407	3,075,585
Cheese, pkgs.	77,553	761,876
Butter, pkgs.	2,518	19,931
Lard, pkgs.	121,009	1,026,423
Meats, pkgs.	67,598	2,973,707
Apples, brls.	65,992	209,089
Cattle, head	6,251	93,800
Horses, head	22	4,150
Lumber, stds	23,771	678,774
Other lumber, tons	1,031,320	380,447
Manufactures, pkgs.	14,964	84,351
Miscellaneous, pkgs.	176,028	1,378,808
Fur and silver		1,000,000

The Government returns for the fiscal year ended Mar. 31, show the exports as



Algoma Central Steamship Co.'s s.s Thomas J. Drummond.



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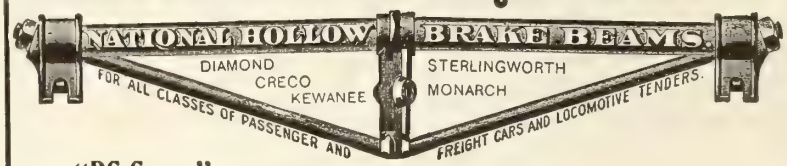

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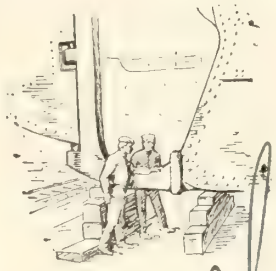

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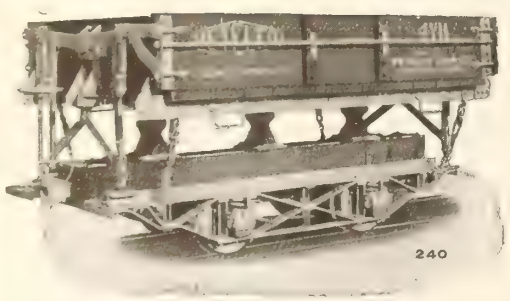

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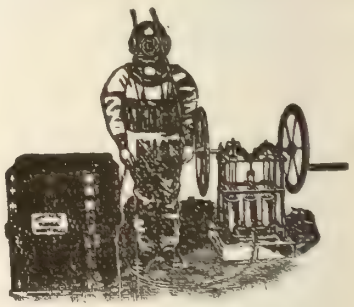

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Brass Founder & Coppersmith

152 Craig St. West, Montreal

$24,988,519, an increase of $4,320,002 over those for 1908-09. The number of vessels, transatlantic only, arriving and departing was 114, an increase of six over the previous year, and an increase of 56 over 1898, since when the value of the shipments has increased nearly 600%. The registered tonnage of the vessels during the past season, was 504,260, and for 1898, 102,316, so that, not only has there been an increase of nearly 100% in the number of vessels using the port, but the average registered tonnage is greater by about 150%.

Dominion Government Quarantine Steamboat.

The steamboat for quarantine service, to meet all incoming ocean liners at Grosse Isle, Que., for which the Dominion Government has recently given a contract will be 113 ft. 3 ins. long over all and 23 ft. beam, and will have lower, main, and hurricane decks. She will be of steel construction throughout and a steel deck house will be built on the main deck, in which will be located two hospitals for landing the sick, the doctor's staterooms, officer's mess room, etc. The captain's and first mate's quarters are to be arranged in the texas abaft the wheel house on the hurricane deck, and accommodation has been made below the main deck for the rest of the officers. The hospitals, staterooms, etc., will be handsomely finished and the equipment throughout will be of the most up-to-date kind.

The boiler will be of the Scotch marine return tubular type, 13½ ft. diameter by 11 ft., built for a working pressure of 130 lbs. The propelling engine will be compound surface condensing with cylinders 18 and 36 ins. diameter by 24 ins. stroke indicating 400 h.p., and it is expected that the boat will have a speed of over 11 knots an hour.

The contract has been given to the Kingston Shipbuilding Co., Ltd.

Navigation from Winnipeg to the Rockies.

The Dominion Government is said to have decided on establishing a water route from Winnipeg to the Rocky Mountains within five years. In an interview at Winnipeg recently, Minister of Public Works Pugsley, said:—"The completion of the St. Andrews locks connects Winnipeg city with the north end of Lake Winnipeg, 300 miles of waterway. At about 250 miles north of Winnipeg the Saskatchewan River from the Rockies enters the lake at Grand Rapids. It is a big river at this point. The project under consideration is to build locks at the rapids so as to enable the ascent of the Saskatchewan River. We believe that by an expenditure not greater than warranted by the importance of the undertaking, such as building locks at Grand Rapids, possibly two other locks on the Saskatchewan River, constructing a number of wing dams, and doing some dredging, it will be possible to make the river navigable for moderate-draught vessels. The result will be a system of navigation from 100 miles west of Edmonton, close to the foothills of the Rockies, right down to Winnipeg, 1,500 miles. The building of the locks will result in the development of between 80,000 and 100,000 horsepower at Grand Rapids, which would be of great importance either for transmission to Winnipeg or to operate the industries likely to be established at Grand Rapids. When the Hudson Bay Railway is completed it will be the most convenient point for the manufacture of lumber, pulp, paper and flour for shipment to the markets of the old world. Our department has now in the field five parties surveying the Saskatchewan River, determining the best mode and cost of the necessary improvements. We conducted the preliminary survey last year, and much valuable information was derived."

LIST OF STEAM VESSELS REGISTERED IN CANADA DURING JUNE, 1910.

Name	No.	Where and When Built.	Engines, etc.	Length	Breadth	Depth	Gross Tons	Reg. Tons	Port of Registry	Owners
Albertview	126,886	Vancouver, B.C., 1910.....	Screw 2 n. h. p..	50 0	12.0	6.1	30	21	Vancouver, B. C.....	M. Desbrisay, Vancouver, B.C.
B.X.	126,516	Soda Creek, B.C., 1910.....	Paddle 27 " ..	127 5	28.0	5.1	513	323	Victoria, B.C.....	B.C. Express Co., Ashcroft, B.C.
Bethalma (a)	121,956	Wilmington, Del., 1899.....	Screw 30 " ..	110 3	16.4	10.2	113	52	Port Stanley, Ont....	J. C. Duffield and C. S. Hyman, London, Ont.
Bonnitoba....	122,278	Winnipeg, Man., 1910.....	Paddle 4 "	118 0	22.5	4.0	278	175	Winnipeg	Hyland Navigation and Trading Co., Winnipeg.
Capitola (b) .	126,832	Auburn, N. Y., 1904.....	Screw 1 "	30 9	6.2	3.6	4	3	Toronto	R. W. Fawcett, Hamill's Point, Muskoka, Ont.
Dorothy F. ..	126,771	Richibucto, N.B., 1910.....	" 43 "	32 6	10.4	5.0	14	12	Richibucto, N.B.....	W. E. Forbes, Richibucto, N.B..
Gambler .	126,642	Port Dover, Ont., 1909.....	" 3 "	54 0	13.6	5.8	25	17	Port Dover, Ont,.....	H. W. Ansley, Port Dover, Ont.
Geo. E. Young	126,060	Tobermory, Ont., 1909.....	" 1 " ..	42 0	10.0	3.6	12	8	Owen Sound, Ont....	Geo. E. Young, M.O., Tobermory, Ont.
Geo. H. Jones	130,221	Owen Sound, Ont., 1910....	" 10 "	65 4	14.5	6.0	71	48	" "	D. Rumley, and S. Robinson, Owen Sound, Ont
Hall Mine	126,891	Vancouver, B.C., 1909	" 3 " ..	38.0	9.2	4.8	16	11	Vancouver, B.C.....	K. Walkem Vancouver, B.C.
J. A.....	126,888	" 1910.....	" 2 " ..	26 0	6.7	3.5	5	4	" "	J. A. Fisher, Vancouver, B.C.
J. O'B.....	126,607	Chatham, N.B., 1910.	" 8 " .	57 0	12.6	5.5	35	13	Chatham, N. B.....	J. O'Brien, Nelson, N.B.
J. D Schofield	126,999	Port Robinson, Ont., 1910.	" 30 " ..	58.4	16.0	9.4	51	31	St. Catharines, Ont..	G. Ross, Port Robinson, Ont.
Konomic	126,893	Vancouver, B.C., 1910.. ..	" 4 "	57 0	12.6	6.6	33	22	Vancouver, B.C.	E. Easthope, Vancouver, B.C.
Kyuquot	126,884	" 1910... ..	" 6 " .	55 0	13.3	6.2	29	20	" "	Packers' Steamship Co., Vancouver, B.C.
L. Ray Brooks ...	116,320	Amherstburg, Ont., 1910....	" 19 "	71 3	15.2	8.1	61	42	Amherstburg, Ont....	J. S. McQueen, Amherstburg, Ont.
Lakefield	126,723	Lakefield, Ont., 1910 ...	" 8 "	82 4	14.7	5.2	58	40	Peterboro, Ont.	C. F. Gray, Lakefield, Ont.
Minto C. ...	126,229	Hull Rapids, Que., 1910	" 4 "	45 0	13.2	5.7	23	14	Ottawa	Minister of Public Works, Ottawa.
Naturitch ...	126,890	Vancouver, B.C., 1910.....	" 3 "	38 5	10.1	4.8	13	9	Vancouver, B.C..	S. J. Castleman, Vancouver, B.C.
New Delta...	126,894	" 1910.....	" 9 " .	57 8	15.0	6.4	73	49	" "	G. W. Brewster, Ladner, B.C.
Oose River...	126,100	Dunville, Ont., 1909.....	" 8 "	45 0	10.0	2.5	16	13	St. Catharines, Ont..	C. Ross, Port Maitland, Ont.
Port Douglas	126,885	Vancouver, B.C., 1909.....	" 2 "	32 8	9.4	4.0	13	9	Vancouver, B.C.....	C. F. Pretty, Harrison River, B.C.
Prince Ito ...	126,476	Kinderdyk, Holland, 1900..	" 243 "	150	28.0	10.2	473	321	Halifax, N.S.	W. J. Poupore, Montreal Que.
Princetown ..	126,889	Vancouver, B.C., 1910.....	" 3 "	30 9	10.1	3.9	12	8	Vancouver, B.C.	R. J. Cromie, Vancouver, B.C.
Rosalind C ..	126,831	Hamilton, Ont., 1910...	" 6 "	47 0	9.8	4.4	18	15	Toronto	Montreal River Transportation Co., Toronto
Rosedale	126,328	Sorel, Que., 1906...	" 54 "	125 0	26.0	14.2	301	144	Ottawa	Minister of Marine, Ottawa.
Sloth	126,724	Hastings, Ont., 1909	" 4 "	40 0	11.5	5.6	17	12	Peterboro, Ont	Randolph Macdonald Co., Toronto.
Trask	117,170	Summerville, N.S., 1910...	" 1 "	29 2	8.3	3.5	8	4	Windsor, N.S.	C. E. Terfry, Summerville, N.S.
W. C. Stetson	126,515	Muskegon, Mich., 1907.....	" 9 " .	48 4	10.2	5.5	21	14	Victoria, B.C.....	J. Arbuthnot, Victoria, B.C.
W. Grant.....	126,517	Victoria, B.C., 1910	" 45 "	93 0	18.0	10.3	108	24	" "	Queen Charlotte Whaling Co., Victoria, B.C.
W. Lucas ...	126,892	Vancouver, B.C., 1909.....	" 2 " ..	31 7	8.6	3.4	15	10	Vancouver, B.C.....	Attorney General for British Columbia, Victoria, B.C.
Westminster ...	126,783	New Westmi'ster, B.C., 1910	" 32 "	79 0	18.5	8.2	90	49	New Westminster B.C.	Westminster Towing and Fishing Co., New W'stm'st'r.

(a) Formerly Surprise. (b) Formerly Ramona.

LIST OF SAILING VESSELS AND BARGES REGISTERED IN CANADA DURING JUNE, 1910.

Name	No.	Where and When Built	Rig	Length	Breadth	Depth	Reg. Tons	Port of Registry	Owners
A. L.	126,848	Petite Riviere St. Francois, Que. 1909	Schr.	71.5	21.0	5.4	48	Quebec.....	A. Lavoie, Petite Riviere St. Francois, Que.
Adana C.	126,812	Tancook, N.S. 1910	"	45.0	11.2	7.0	17	Lunenburg, N.S..	B. Cleveland, Bayswater, N.S.
Alice and Jennie	122,036	White's Cove, N.S., 1910 ...	"	60.2	19.2	7.1	38	Weymouth, N.S..	T. C. Guthrie, Little River, N.S.
Arkona	126,810	Mahone Bay, N.S., 1910	"	97.8	27.6	10.9	144	Lunenburg, N.S..	W. C. Smith, M.O., Lunenburg, N.S.
Dandy K.	126,802	Yarmouth, N.S., 1910	Sloop	35.5	11.7	5.9	12	Yarmouth, N.S....	W. A. Killam, M.O., Yarmouth, N.S.
Drill Boat No. 1.	126,725	Hastings, Ont., 1909..... ..	Scow	50.0	20.0	4.0	44	Peterboro, Ont. ..	Randolph Macdonald Co., Toronto
Drill Boat No. 2.	126,726	" 1910.....	"	40.2	16.0	2.0	21	" "	" "
Dundela	126,847	Petite Riviere St. Francois, Que., 1910	Schr.	82.3	24.5	7.3	68	Quebec	M. P. Tremblay, Petite Riviere St. Francois, Que.
Dunsmuir	78,800	Glasgow, Scotland, 1891	Ship.	277.8	41.8	24.8	2056	Victoria, B.C.....	R. P. Rithet, Victoria, B.C.
E. C. E. No. 14 .	126,887	Vancouver, B.C., 1907.....	Scow	78.0	28.8	6.9	139	Vancouver, B.C	G. Coleman, Vancouver, B.C.
Evelyn V. Miller	126,811	Mahone Bay, N.S., 1910.	Schr	100.0	26.0	11.2	99	Lunenburgh, N.S.....	H. W. Adams, M.O., Lunenburg, N.S.
Grand Falls.....	126,661	Shelburne, N.S., 1910	"	113.0	26.5	10.0	113	Shelburne, N.S..	A. W. Dyett, St. Jacques, Nfld.
Great Dipper ..	126,573	Grand Etang, N.S., 1910 ...	"	40.0	11.4	5.5	10	Port Hawkesbury, Ont	J. R. and D. R. Doucet, Grand Etang, N.S.
Iroquois	126,813	Lunenburg, N.S., 1910	"	106.4	26.2	10.8	100	Lunenburg, N.S.....	R. Ritcey, M.O., Riverport, N.S.
Nina L.	124,015	Notre Dame Bay, Nfld., 1910 .	"	88.5	24.7	10.2	96	Sydney, N.S.	J. C. Crosbie, St. John's, Nfld.
Nova Scotia	126,475	Owls Head, N.S., 1910	"	31.0	9.6	5.0	6	Halifax, N.S.....	M. Stevens, Owls Head, N.S.
Onato	85,408	House Harbor, Que., 1910 ...	"	51.8	18.1	7.0	35	Magdalen Islands, Que	W. G. Leslie, Grindstone, Magdalen Islands, Que.
Roy Penny. ...	126,572	Somerset, N.S., 1910	"	47.0	15.1	6.0	26	Port Hawkesbury, N.S	D. Gillis, et al., Port Hood, N.S.

Department of Railways and Canals.

QUEBEC BRIDGE.

Tenders for Superstructure.

Notice to Contractors.

SEALED TENDERS addressed to the undersigned and endorsed "Tender for Quebec Bridge Superstructure," will be received at this office until 12 o'clock noon, not later than September 1st, 1910, for the superstructure of a bridge across the St. Lawrence River near the City of Quebec.

Plans and specifications may be seen and forms of Tender obtained on and after July 1st 1910 at th office of the Quebec Bridge Board of Engineers, Canadian Express Building, Montreal, and at the Department of Railways and Canals, Ottawa.

Parties tendering will be required to accept the fair wages schedule prepared or to be prepared by the Department of Labour, which schedule will form part of the sontract.

Contractors are requested to bear in mind that tenders wil not be considered. unless made strictly in accordance with the printed forms, and in the case of firms, unless there are attached the actual signature, the nature of the occupation, and place of residence of each member of the firm.

An accepted bank cheque for the sum of $500,000.00 made payable to the order of the Minister of Railways and Canals of Canada must accompany each tender, which sum will be forfeited if the party tendering declines entering into contract for the work at the rates stated in the offer submitted and in accordance with the terms stated in the form of Contract accompanying the Specifications.

Cheques thus sent in will be returned to the respective contractors whose tenders are not accepted.

The lowest or any tender not necessarily accepted.

L. K. JONES,
Secretary.

Department of Railways and Canals,
Ottawa, 17th June, 1910.

Newspapers inserting this advertisement without authority from the Department will not be paid for it.

The name of the steam dredge Triton has been changed by Order-in-Council to Prince Ito.

Press reports state that A. H. Treen has been appointed Agent for the Northern Steamship Company at Victoria, B.C.

The Anglican mission ship, Columbia II., which was recently launched at New Westminster, was duly consecrated, July 7. She was announced to take her first trip to northern waters at the end of July.

Judging from past events, one would scarcely imagine that the position of a wreck commissioner was a bed of roses. However, the Montreal Gazette, recently in referring to the Cassandra-Advance enquiry, said, "As the matter is still sub rosa, it is impossible to make any comment thereon at present." Perhaps it is just as well.

An order-in-council has been passed, amending the one of Apr. 1. respecting the exemption of steamboats holding certificates of inspection of Lloyds' Register, British Corporation, or Bureau Veritas. from the annual steamboat inspecting imposed by the Canada Shipping Act, by adding also, certificates of the Norwegian Veritas.

The Mackenzie Steamship Co.'s s.s. Rupert City, it is reported, has been taken out of the passenger trade, and is being remodelled. to accommodate her for the coal carrying trade, between Nanaimo, B.C., and Alaska, under charter to the Pacific Coast Steamship Co. She was formerly known as Powhatan, and was built at Barrow-in-Furness, Eng., in 1886.

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The only material that will fill cracks in old paint or varnish, and keep them filled

SAVES TIME—SAVES BURNING OFF—SAVES MONEY

Used in conjunction with any reliable surfacer, gives perfect results. For Coaches, Engines and Tenders

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CHECKS THE BROKEN AND PARTLY BROKEN STAYBOLTS AND CROWN STAYS FOR LOCOMOTIVE, MARINE AND STATIONARY BOILERS

Double the Endurance of Solid Stays. Positively prevents Explosions from Broken Stays. Assists Combustion. Years of Hard Service have proven their Safety and Economy.

Furnished in miscellaneous length bars in the rough, averaging 8 to 10 ft. long, any outside or inside diameter specified. We also make Solid Staybolt Bars, of the best double refined charcoal iron. Average length of bars, 16 to 20 feet.

FALLS HOLLOW STAYBOLT CO., Cuyahoga Falls, Ohio, U.S.A.

Representatives Dominion of Canada: Brydges Engineering and Supply Co., Winnipeg, Canada; Mussens Limited, Montreal, Canada.

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Street Railway Springs from the largest to the smallest

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B. J. COGHLIN CO., Limited, 432 St. PAUL St., MONTREAL, CAN

The Steamship C. A. Jaques.

A vessel bearing this name and which has been built for C. A. Jaques, of Montreal, has arrived in Canada and gone into the Great Lakes trade, running in the Merchants Mutual Line. Her dimensions are, length 249 ft., width 42¾ ft., depth 25 ft. She is built to Lloyds' highest class, 100 A.1. for trading on the Great Lakes and for coasting. She is arranged for package freight traffic, having 'tween decks with large cargo doors through vessel's sides and an installation of line shafting with separate engine for working the cargo. She is strongly built, her scantlings where necessary to meet the exigencies of her special trade being increased over rule requirements. Cellular double bottom and fore and after peaks are arranged for water ballast, and her hatches and deck fittings are arranged in accordance with the latest requirements for vessels of this type. She has a steam windlass forward, steam capstan aft, two steam winches on deck, and steam steering gear with engine geared direct on to the quadrant. Accommodation for mates, wheelmen, watchman and seamen, with baths and lavatories, is arranged in forecastle forward, while on top of same is a texas house, with bedroom, office, chart room and bath, etc., for captain. A wheelhouse is fitted on top of this house, with steering standard, engine and docking telegraphs, and whistle pulls. The engineers' accommodation, also rooms for firemen, oilers, etc., is arranged aft, where are also situated the dining-room, firemen's mess-room, galley, pantry and ice house. The accommodation is steam heated throughout, and a complete sanitary system is fitted. The life boats are of seamless steel, and the vessel is completed in a thoroughly up-to-date manner. Triple expansion engines with cylinders 18, 30 and 48 x 36 in. stroke are fitted, and these are supplied with steam at a pressure of 185 lbs. from two boilers 12½ ft. diameter by 11 ft. long, fitted with forced draught. The auxiliary machinery is complete in every respect, and includes a large water ballast pump, independent feed and circulating pumps, feed heater, ash ejector, steam and hydraulic starting and reversing gear, etc.

On her trial trip on the measured course on the Clyde the vessel attained a speed of about 12 miles an hour in her loaded condition, and she sailed immediately thereafter for Canada. The maiden trip from the Clyde to Montreal was accomplished in the rapid time for this type of vessel, of 12 days 18 hours. The vessel was built by Archd. McMillan & Son, Ltd., at Dumbarton, Scotland. The owner was represented during the building, by J. H. Hall, of Ottawa.

Notices to Mariners.

The Department of Marine has issued the following:

51. June 17, 136. Ontario, list of lights and fog signals, new edition. 137. Ontaro, Lake Ontaro, Bay of Quinte, Telegraph narrows, dredging, caution. 138. Ontario, Lake Erie, Pelee passage, southeast shoal, new lightship.

52. June 21., 139.—New Brunswick, Bay of Fundy, Old Proprietor gas and whistling buoy, light in operation. 140. New Brunswick, Chaleur bay, Petit Rocher, position of lighthouse. 141. Nova Scotia, south coast, off Charles point, Bull rock, bell buoy established. 142 Nova Scotia, Cape Breton island, east coast, Neil harbor, hand fog horn at light station. 143. Newfoundland, southeast coast. Cape Race characteristic of light.

53. June 22. 144. British Columbia, Canadian list of lights and fog signals, new edition. 145. British Columbia, Trincomali channel, Portlock point, light improved. 146. British Columbia, strait of Georgia, Active Pass, Mayne island, Georgina point, light improved. 147. Alaska, Wrangell strait, Turn point, shoal reported, caution.

54. June 24. 148. Ontario, Lake Ontario, Bay of Quinte, Telegraph narrows and Nigger narrows, low water, caution. 149. Ontario, Lake Ontario, Cobourg, fog alarm on east pier. 150. United States of America, St. Clair river, Russell island, middle light, new structure. 151. United States of America, Lake Huron, Detour passage, change in position of Watson reef gas buoy.

55. June 27. 152. Quebec, Gulf of St. Lawrence, May islets, lighthouse established. 153. Quebec, Saguenay river, Cape East, new lighthouse.

56. June 28. 154. Nova Scotia, west coast, Cape St. Mary, character of light. 155. Nova Scotia, south coast, Fisherman harbor approach, off Cape Mocodome, Bull rock, bell buoy established. 156. Prince Edward Island, north coast, off entrance to Cascumpecque harbor, bell buoy established.

57. June 29. 157. Quebec, Gulf of St. Lawrence, Moisie river, range lights established. 158. Quebec, River St. Lawrence, Godboat, range lights established.

58. June 30. 159. Quebec, Ottawa river, Grenville, lighted buoy established. 160. Ontario, list of buoys, beacons and daymarks on Lake Huron and connecting waters, first edition. 161. Ontario, Sault Ste. Marie, dredging, buoy placed.

59. June 30. 162. New Brunswick, east coast, Miramichi bay, Grandoon flats, dredging. 163. New Brunswick. Miramichi river, dredging. 164. New Brunswick, east coast, Tabusintac gully, dredging. 165. New Brunswick, Chaleur bay, Caraquet harbor, dredging. 166. New Brunswick, Chaleur bay, Bathurst, dredging, hydrographic notes. 167. New Brunswick, Chaleur bay, Restigouche river, Dalhousie, dredging, hydrographic notes. 168. New Brunswick, Restigouche river, Campbellton, dredging, hydrographic notes.

60. July 7.—169. Ontario, Lake Superior, lighthouse established on island west of Shaganash island.

61. July 8.—170. Nova Scotia, Bay of Fundy. Port Lorne, upper light improved, lower light discontinued. 171. Prince Edward Island, south coast. Charlottetown, light established on Marine Department's wharf. 172. New Brunswick, east coast, Miramichi bay, Hay island, back range light improved.

62. July 9.—173. British Columbia, Burrard inlet, Second narrows, beacons established. 174. United States of America, Washington, Strait of Georgia, Roberts point, light established. 175. Alaska, Revillagigedo channel, Hog rocks light, characteristic and intensity changed.

63. July 12.—176. Quebec, River St. Lawrence, Lark reef, gas buoy established. 177. Quebec, River St. Lawrence, Saguenay river entrance, Pointe Noire, hand fog horn at light station. 178. Quebec, River St. Lawrence, ship channel between Quebec and Montreal, below Cap Charles, Grande Point shoal, dredging, buoy to be moved westward.

64. July 13.—179. Quebec, Gulf of St. Lawrence, rock southeastward of Stevenson island, rocks in Aylmer sound. 180. Newfoundland, east coast, Notre Dame bay, Great Dunier island, light discontinued. 181. Newfoundland, east coast, Peckford island, lighthouse established. 182. Newfoundland, east coast, Trinity bay, entrance to Smith sound. Ragged island, lighthouse established. 183. Labrador, Battle Harbor approach, Double island light, change in color.

65. July 16.—184. New Brunswick, east coast, Shippigan gully, change in position of back range light on wharf. 186. Quebec, Gulf of St. Lawrence, Moisie river, range lights not in operation.

66. July 18.—187. Quebec, River St. Lawrence, ship channel between Quebec and Montreal, Ste. Croix bar, gas buoy established.

67. July 20.—188. British Columbia, Vancouver island, east coast, Sidney channel. Sidney, position of buoys, hydrographic notes. 189. British Columbia, Kootenay lake, west arm, Procter, change in light, range lights established.

68. July 21.—190. Quebec, River St. Lawrence, chart of the approaches to Saguenay river issued. 191. Quebec, River St. Lawrence, ship channel between Quebec and Montreal, Cap a la Roche, gas buoy established.

Mariners and the Criminal Code.

"The Attorney General for Ontario desires to call the attention of all masters of vessels, and all vessel men generally, to the fact that if they show negligence in the management of their vessels, they may be prosecuted under sec. 284 of the Criminal Code, which reads as follows: 'Every one is guilty of an indictable offence and is liable to two years imprisonment, who, by any unlawful act, or by doing negligently, or omitting to do, any act, which it is his duty to do, causes grievous bodily harm to any other person."

It is also stated in the circular that a conviction may be obtained under this section, even though the negligence charged has not been the subject of an investigation by the Department of Marine.

Vessels Removed from the Register.—The following vessels were removed from the register during June for the reasons assigned: Steam—Sovereign, Peterboro, Ont., 37 tons, broken up; Sailing—Blomidon, Windsor, N.S., 271 tons, stranded; Calabria, Windsor, N.S., 451 tons, transferred to Newfoundland; Empress, Charlottetown, P.E.I., 26 tons, wrecked; J. D. Everett, Windsor, N.S., 1,957 tons, sold to foreigners; Osprey, Shelburne, N.S., 69 tons, transferred to Barbadoes; Valkyrie, Yarmouth, N.S., 11 tons, broken up.

Lake Grain Shipments

The following statement, prepared by F. E. Gibbs, Grain Inspector, Fort William, Ont., shows the bushels of grain shipped from the various elevators in Fort William and Port Arthur, including vessels loaded for winter storage, from the opening of navigation, Apr. 13, to June 30, inclusive, with the ports of destination. The two figures shown in each column after the period represent lbs.

	Wheat	Oats	Barley	Flax
CANADIAN PORTS				
Collingwood	75,900.00			
Depot Harbor	624,138.00	60,243.22		
Goderich	1,196,916.00	686,758.17	103,075.34	111,829.14
Kingston	2,664,163.00	2,414,569.13	152,236.14	35,228.47
Montreal	1,888,199.20	2,303,350.07	223,734.13	57,170.41
Meaford	156,000.00	88,000.00		
Owen Sound	518,181.30	817,286.14		
Prescott		70,000.000		
Port Colborne	611,575.20	170,147.00	10,000.00	
Point Edward	355,243.50	97,397.27		
Port Stanley	20,000.00	10,252.00		
Tilbury	2,177,929.40	325,500.00		
Walkerville	72,000.00			
Totals	10,310,256.40	6,938,474.17	489,046.13	204,228.46
FOREIGN PORTS				
Buffalo	4,245,805.00	459,764.11	102,965.06	691,[illegible]8
Totals	14,556,061.40	7,398,238.28	592,011.19	895,546.18
Same period, 1909	10,947,848.10	3,680,397.13	444,410.36	709,[illegible]38

Of the total amounts shipped, the following quantities were taken in foreign vessels: Wheat, 3,165,794.10; oats, 154,124.24; barley, 39,999.44; flax, 386,844.09

THE CANADIAN BRIDGE CO., LIMITED

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FORGINGS OF ALL KINDS

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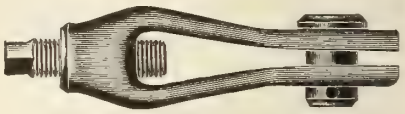

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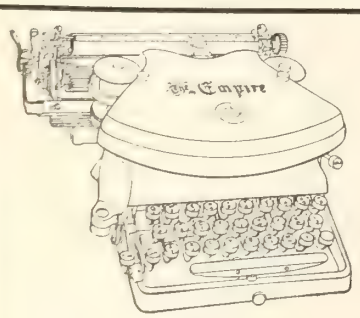

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Lieut. P. C. W. Howe, R.N., has been appointed to take charge of the Canadian Navy dockyards branch, by special arrangement with the British naval authorities.

The Canada Line's s.s. Prinz Oskar, which was recently damaged by grounding in the St. Lawrence, reached Quebec, July 8, under her own steam, and was drydocked for inspection.

An attempt is being made to float the s.s. Heimdal which ran ashore recently, on Sable island. Some difficulty is anticipated, as it is said no vessel has ever been refloated after going ashore there.

The Osaka Shosen Kaisha, operating a line of freight vessels, with third class accommodation, between the Orient and Puget Sound ports, has announced that it will make regular calls at Victoria, B.C.

Scott Griffin, heretofore Manager Canadian Northern Express and Telegraph Cos., Toronto, has been appointed Manager Canadian Northern Steamships, Ltd., with office at Bond Court House, Walbrook St., London, E.C., Eng.

The C.P.R. s.s. Empress of Ireland, in arriving at Rimouski, Que., July 7, created a new mail record between Liverpool, Eng., and Montreal, the time between the two latter points being a little over six days.

The Allan Line s.s. Grampian, which was recently damaged by striking some hidden obstruction near Cap a la Roche, has been examined and the necessary repairs completed in Great Britain. She was again placed in service July 23, the White Star-Dominion Line's s.s. Southwark having been chartered to take her place while she was in dock.

An order-in-council has been passed directing that passenger certificates issued to passenger steamers by the New Zealand authorities be accepted in Canada, as of the same force and to the same extent, as if they had been issued by the British Board of Trade, such certificates having been given such privileges in Great Britain in 1886, the British certificates having been permitted in Canada since 1904.

The Imperial Merchant Service Guild is conferring with the British Board of Trade, regarding the hardship imposed on captains and officers of merchant vessels, who are frequently compelled to give up their positions on account of being detained, in connection with enquiries into casualties, on the ground that their evidence may be material. It is stated that a scheme is being propounded, whereby such officers may insure against loss due to any such detention.

The Canadian New Zealand Line's s.s Aeota, on her first trip from Montreal to New Zealand, June 29, ran aground at Martin River, about 250 miles below Quebec, and was released, with some difficulty, by the C.P.R. tug Cruiser and the Sincennes-Macnaughton Line's tug Sin-Mac, after which she was taken to Quebec, where her cargo and coal was removed, prior to examination. She is reported to have sustained considerable damage. Her place has been taken by the s.s. Wakanui.

Montreal press reports of July 11, stated that the White Star-Dominion Line, was about to acquire a controlling interest in 12 additional steamships, aggregating 51,361 tons, for the Australian and New Zealand service, and that arrangements were being made with the Canadian Northern Ry., and Grand Trunk Pacific Ry., for the operation of their railways in connection with the service. W. Mackenzie, President, is reported to have stated, that so far as the Canadian Northern Ry. was concerned, there was no truth in the rumor.

Maritime Provinces and Newfoundland.

The Newfoundland Governor-in-Council has approved the pilotage rates for the port of Botwood.

An enquiry into the cause of the collision between the Government s.s. Minto and the s.s Rosalind, resulted in finding that the captain of the s.s. Minto was to blame, and he was cautioned for running too close to the Rosalind's propellor.

The s.s. Evangeline, which has been lying idle at Hantsport, N.S., for over a year, has been sold to W. McFatridge, Halifax, for use as a tender in the harbor. She was built at Windsor, N.S., in 1882, her dimensions being, length 81 ft. 2 ins., breadth 16 ft. 8 ins., depth 7 ft. 5 ins.; tonnage, 69 gross, 28 register, and she is equipped with engine of 50 n.h.p., driving a screw.

The Newcastle Steamboat Co., Ltd., has been incorporated under the New Brunswick Companies Act, with a capital of $20,000, and office at Newcastle, to build, purchase or otherwise acquire, and operate steam and other vessels, and to carry on a general carrying business on the Miramichi River and its branches. The provisional directors are, P. Hennessy, D. Morrison, J. Fergusson, G. Stables, and E. A. McCurdy, Newcastle.

Following are the vessels, with captains and chief engineers, of the Black Diamond Steamship Co., operated by the Dominion Coal Co., Glace Bay, N.S.:—

Bonavista	D. C. Fraser	D. Cameron.
Borgestad	J. Haraldsen	O. Evertsen.
Cabot	J. Kemp	S. A. Stevenson.
Cacouna	K. Marsters	R. Patterson.
Cape Breton	A. F. Macdonald	L. A. Stevenson.
Chr. Knudsen	J. Olsen	B. Boeson.
Coban	A. McPhail	J. Scott.
Dominion	W. H. Norcott	A. S. Mills.
Fornebo	C. Hansen	A. Haniseh
Fritzoe	E. Quale	O. Fuglestad.
Kingstown	T. Foley	W. D. B. Yates.
Kronprins Olav	P. A. Nilsen	K. Kristensen.
Louisburg	L. Holmes	C. D. Cooke.
Morien	C. M. Burchell	R. Lawson.
Ocean	G. Olsen	H. C. Antonsen.
Reidar	H. G. Nielsen	A. C. Andersen.
Rosalind	C. Smith	J. V. Reader.
Stigstad	H. Kjerland	J. Engebretsen.

Province of Quebec Marine.

The Montreal Harbor Commissioners received tenders, July 27, for the supply of timber and railway ties.

G. Tanguay has been appointed a member of the Quebec Harbor Commission, in place of D. Arcand, resigned.

Capt. Bernier sailed from Quebec, July 9, on the Government s.s. Arctic, with sealed orders, for a cruise in Arctic waters.

The Department of Public Works has awarded the contract for the construction of a deep water wharf at Levis, as described in our last issue, to H. Dussault of Levis.

The Quebec Harbor Commission announces that it has come to an arrangement, which enables the C.P.R. to remove the discriminating freight rates existing on goods on their Empress steamships, consigned to Quebec, as compared with Montreal.

The s.s. King Edward, which stranded at Anticosti Island last fall, and was eventually salved after being abandoned by the owners, has been thoroughly overhauled and repaired at Quebec. It has not been decided as to what is to be done with her.

The Montreal Harbor revenue for June was $58,871, against $51,329 for June, 1909. There was considerable increase in the local traffic. The total revenue from the opening of navigation was $112,840, against $88,095 for the same period 1909.

The Richelieu and Ontario Navigation Co.'s steamboat Three Rivers has been practically rebuilt, with the exception of her hull, and she will be utilized in the excursion business. The superstructure was removed down to the main deck, and renewed in more modern style.

The permanent board of conciliation, which has been appointed to deal with any complaints of the longshoremen against their employers at Montreal, considered a number of such, July 7, and settled one or two points, which were not considered sufficiently clear in the recent award of the board which dealt with the dispute in the early part of the year.

The Canadian General Development Co.'s steam tug Sogenada, arrived in

SAULT STE. MARIE CANALS TRAFFIC.

The following commerce passed through the Sault Ste. Marie Canals in June :

ARTICLES.			CANADIAN CANAL	U. S. CANAL	TOTAL
Copper	Eastbound	Net tons	4,364	[illegible]	17,408
Grain	"	Bushels	2,228,898	2,538,672	4,767,570
Building stone	"	Net tons	[illegible]	[illegible]	[illegible]
Flour	"	Barrels	272,818	560,621	[illegible]
Iron ore	"	Net tons	4,771,189	[illegible]	7,119,158
Pig iron	"	"	[illegible]	[illegible]	[illegible]
Lumber	"	M. ft. B.M.	2,056	[illegible]	[illegible]
Silver ore	"	Net tons	[illegible]	[illegible]	[illegible]
Wheat	"	Bushels	[illegible]	[illegible]	5,278,607
General merchandise	"	Net tons	[illegible]	9,499	17,478
Passengers	"	Number	1,655	1,990	3,645
Coal, hard	Westbound	Net tons	32,420	143,208	175,628
Coal, soft	"	"	[illegible]	1,218,358	1,770,805
Flour	"	Barrels	[illegible]	[illegible]	[illegible]
Grain	"	Bushels	[illegible]	[illegible]	2,000
Manufactured iron	"	Net tons	21,513	50,050	[illegible]
Iron ore	"	"	[illegible]	[illegible]	[illegible]
Salt	"	Barrels	[illegible]	90,781	117,192
General merchandise	"	Net tons	[illegible]	99,730	171,843
Passengers	"	Number	3,024	1,504	[illegible]
Vessel passages		Number	1,108	1,981	3,089
Registered tonnage		Net	[illegible]	[illegible]	[illegible]
Freight	Eastbound	Net tons	4,943,709	[illegible]	[illegible]
"	Westbound	"	[illegible]	1,526,356	2,207,422
					9,839,872
Total freight		"	5,624,775	4,215,097	

Montreal, July 8, from Great Britain. She is said to be the smallest steam vessel which has come to Canada across the Atlantic under her own steam. The voyage, which occupied about six weeks, was made by way of the Azores. The vessel is about 65 ft. long, with bunker capacity for 30 tons of coal.

A. Vickers, of Vickers, Son & Maxim of England, was in Montreal recently, in connection with the construction of a dry dock and ship repairing plant there. A site of about 30 acres is said to have been selected, situated about four miles east of the city, for a floating dry dock. It is stated that work will be commenced on what is estimated to be a $5,000,000 plant, this fall, and that the whole will include dry dock, ship building and repairing plant, and the manufacture of car wheels.

The Dominion Government steamboat Montmagny, which has recently been completed at the Sorel yards, is built of steel throughout, and is of the flush deck type with two pole masts. Her dimensions are: Length over all, 222 ft.; beam, 34 ft. 8 ins.; draught, 15 ft., with 2,064 tons displacement. She has three decks, with all up to date accommodation and equipment, including a Marconi wireless telegraph installation. The machinery consists of twin screw triple expansion engines with cylinders 15, 24 and 39 ins. diar., by 24 ins. stroke, supplied with steam by two marine return tube boilers, 14 ft. diar., by 10 ft. long, at a pressure of 170 lbs.

In the litigation going on between the Quebec and Levis Ferry Co., and the Levis Ferry, Ltd., the Superior Court recently gave judgment to the effect that the first named had not the right of ferrying passengers between Quebec and Levis, and ordered it to cease carrying on such business. This order not being complied with, the Levis Ferry, Ltd., applied, July 7, in chambers, for an order to restrain the Q. & L. F. Co. from conducting a ferry service, and asking that the company be fined, and the manager committed for contempt of court in not carrying out the previous order. The Q. & L. F. Co. has issued a writ against A. Bernier, President Levis Ferry Ltd., asking that he be condemned for not carrying out the contract, as to the ferry service, and has also written to the Quebec Ferry Committee, offering to take over the contract and continue the service. The hearings of the latter actions have been deferred, pending the decision of the Superior Court in the action and appeal.

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Ontario and the Great Lakes.

The contract for the widening of the Welland Canal at Welland has been let to J. W. Russell, Toronto.

The name of the steamboat Salaberry, No. 111665, registered at Kingston, has been changed by order in council to Quinte Queen.

The Inland Lines steamboat Glenellah, which ran aground at Presqu'ile, early in July, was released July 7, without damage.

Hamilton press reports state that the Hamilton Ferry Co. will purchase a large ferry steamboat for operation between Hamilton and Oaklands.

An order in council has been passed approving regulations for the governance of a ferry across the St. Clair River, between Sarnia and Port Huron.

The Western Steamship Co.'s steamboat J. A. McKee ran aground at Grecian shoal, near Colchester, July 12, and was subsequently released without apparent damage.

The Dominion Government is reported to have decided to erect a lighthouse on the shoal lying a little to the south of Chimney island, in the St. Lawrence River.

In speaking at Morden, Man., recently, Minister of Railways Graham said that a new Welland canal would probably be built instead of enlarging the present one.

The Chicago and St. Lawrence Steamboat Co.'s steamboat G. R. Crowe, which ran on a shoal in Lake Erie, near Amherstburg, July 19, was released without damage, July 20.

The Niagara, St. Catharines and Toronto Navigation Co.'s steamboat Lakeside, which has been thoroughly overhauled and repaired, was placed in service for the first time this season, July 4.

The ferry steamboat Fortune, which has been operated for some time between Sault Ste. Marie, Mich., and Sault Ste. Marie, Ont., will, it is reported, be rebuilt and strengthened for ice breaking purposes.

The Montreal Transportation Co.'s steamboat Bothnia, which was beached at Lily Bay, near Brockville, July 18, was, after being lightered, temporarily repaired, and proceeded to Montreal under her own steam, July 20.

The ratepayers of Owen Sound, will vote, during August, on the granting of a bonus of $50,000 to a British syndicate, for the construction of a dry dock, ship building and repairing plant there, at a cost of $1,000,000.

The Toronto Ferry Co.'s steamboat Trillium, a description of which was given in our last issue, was placed in service July 1. The vessel, which was built by Polson Iron Works, Toronto, was only launched June 18.

The Department of Marine has issued a list of buoys, beacons and day marks on Lake Huron and its connecting waters, corrected to June 15. It has been compiled by Lt. Col. W. P. Anderson, Chief Engineer of the Department, and covers the aids to navigation on the Canadian shore of the lake, the Georgian Bay, North Channel, and River St. Mary, below the falls.

The U.S. Lake Survey reports the levels of the Great Lakes for June, in feet above tidewater, as follows:—Superior, 601.86; Michigan and Huron, 580.56; Erie, 572.68; Ontario, 246.46. Compared with the average levels for the past 10 years, Superior was 0.72 ft. below; Michigan and Huron, 0.52 ft. below; Erie, 0.16 below, and Ontario, 0.32 ft. below.

Sir John Murray, who was one of the members of the Challenger expedition, which was organized in 1872, to examine the physical and biological condition of the great ocean beds, was in Ottawa recently, when, it is stated, that he made representations to the Government, with a view to the undertaking of similar work on the Great Lakes.

The construction of the Western Dry Dock and Shipbuilding Co.'s plant at Port Arthur, is being rushed, and the President is reported to have said, July 5, that the keel of the first vessel to be built by the company, would be laid in September. He also announced that tenders would shortly be called for, for the construction of the north end breakwater, plans for which were with the Public Works Department.

The traffic through the Canadian canals, from the opening of navigation to May 31, is reported to have been considerably heavier than for the similar period last year; the total being 8,276,270 tons, against 2,552,560 for May 1909. The increases are, Sault Ste. Marie, 5,502,110; Welland, 69,617; St. Lawrence, 79,105; Chambly, 32,611; Ottawa, 17,644; Murray, 15,403; Rideau, 7,408. St. Peters canal is the only one showing a decrease.

Manitoba, Saskatchewan and Alberta.

In our July issue, in referring to the appointment of H. J. Truscott as Contracting Agent Inland Lines, Ltd., at Winnipeg, we stated, in parentheses, "which was taken over by the Inland Navigation Co." This should have read, "which has taken over the Inland Navigation Co."

In an interview at Winnipeg, July 14, the Minister of Public Works, promised a deputation representing the city parks board, that engineers would be engaged at once to conduct a survey of the Assiniboine River, as far as the park, and to prepare an estimate for the clearing of the bed, so as to admit of navigation to that point by small craft. He also stated that the Department might favorably consider the granting of assistance to the city for the construction of a central wharf, in connection with the parks, if a site were agreed upon.

Two parties of Government engineers started from Edmonton, recently, on a survey of the Saskatchewan River to Winnipeg. Each party will cover about 200 miles, carrying a line of levels along the banks, and taking water levels. Two parties will also work along the river from Prince Albert, meeting L. R. Voligny, in charge of another party half way between Prince Albert and Edmonton. It is expected to complete the survey between Winnipeg and Edmonton before the winter sets in, and if no serious obstacles are encountered, the scheme of making the waterway navigable between these two points will be pushed forward with all possible speed.

B.C. and Pacific Coast Marine.

The Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince George arrived at Victoria, July 12, from Great Britain, having taken 66 days on the voyage. She was placed on her route July 22.

The C.P.R. s.s. Princess Adelaide was launched at Glasgow, Scotland, July 7. She is intended for the Vancouver-Seattle service, and has capacity for 240 first class and 960 second class passengers.

Press reports state that the Dominion Department of Marine has decided to establish a marine depot at Prince Rupert for vessel repairs and for the light and buoy service. The initial cost is stated as $100,000.

Arrangements are reported to have been made for the carrying of mails by the G.T.P. Steamship Co.'s steamships Prince Rupert and Prince George, in addition to the mail service by the C.P.R. Pacific coast steamships.

The Gulf Steamship and Trading Co., has communicated with the New Westminster board of trade, offering to put on a semi-weekly service with Victoria, in response to the board's efforts to improve the freight service between the two cities.

Press reports from Victoria, state that A. H. Treen, who has had a long service with the G.T.R., C.P.R. and the Union Steamship Co., has been appointed agent for the Northern Steamship Co. there.

The Victoria Shipping Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $150,000, to own, operate and trade with steam and other vessels of all descriptions, and to carry on the business of shipowner in all its branches.

The G.T.P.R. has applied for a subsidy for a floating dock at Prince Rupert, which will be constructed at a cost of $1,500,000. The dock, plans for which have been filed with the Depart-

The Richelieu and Ontario Navigation Co.'s steamboat Rochester, which runs between Youngstown and Ogdensburg, N.Y., from photo by W. I. Serrell.

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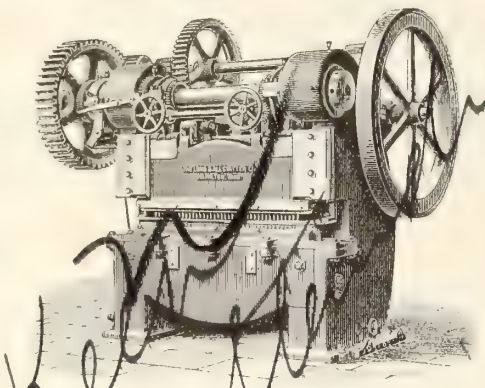

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The Dominion Government has renewed the subsidy to the Pacific Coast Steamship Co., for a service between Victoria and San Francisco, Cal., for three years, expiring Mar. 31, 1913; and has also renewed the subsidies to the C.P.R. for services to Northern British Columbia, Skagway and other coast points.

C. B. Foster, Assistant General Passenger Agent C.P.R., Vancouver, is reported to have stated, July 4, that the two steamships, which are under construction in Scotland for the Pacific Coast steamship service, and which are to be named Princess May and Princess Adelaide, will be placed on their routes in the fall, and that they will replace the steamships Charmer and City of Nanaimo, which will be transferred to other routes.

The Coast Steamship Co.'s s.s. British Columbia, which recently arrived at Victoria, from Glasgow, Scotland, is being operated between Vancouver, Prince Rupert, Stewart and way ports. Her dimensions are, length, between perpendiculars, 170 ft.; breadth 27.1 ft.; depth of hold 10.5 ft.; depth, molded, 12.9 ft.; cargo capacity 29,736 ft., (40 cu. ft. to one ton); and she is equipped with triple expansion engines, with cylinders 14, 22½ and 37 ins. diar., by 27 ins. stroke supplied with steam at a pressure of 160 lbs.

The s.s. Cheslakee, built for the Union Steamship Co. of British Columbia, at Belfast, Ireland, on her recent test runs made 12-15 knots an hour. Her dimensions are, length, 132 ft.; breadth, 28 ft.; depth, molded, 17¾ ft. She is intended chiefly for the passenger traffic, and she has been equipped with all the most modern appliances. The machinery consists of triple expansion engines, with cylinders 13½, 22 and 36 ins. diar., by 20 ins. stroke, supplied with steam by a multitubular Scotch boiler, at a pressure of 185 lbs.

The Grand Trunk Pacific Coast Steamship Co., the incorporation of which we announced in our last issue, will take over and operate the steamships Prince Rupert and Prince George, now running between Prince Rupert, Stewart, Vancouver, Victoria and Seattle; and the Prince Albert (formerly Bruno), running between Prince Rupert and Queen Charlotte islands. The officers of the company are, President, C. M. Hays, Montreal; Vice President, E. J. Chamberlin, Winnipeg; Manager, C. H. Nicholson, Vancouver; Secretary, H. Phillips, Montreal; Treasurer, F. Scott, Montreal; Auditor, W. H. Ardley, Montreal.

The Purchasing Agents' Guide

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Ales
E. L. Drewry .....Winnipeg.

Alloys
American Vanadium Co....Pittsburg, Pa.

Angle Bars
Hamilton Steel & Iron Co..Hamilton, Ont.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.

Anti Rail Creepers
The Holden Co., Ltd.....Montreal.

Automobiles
Preston Car & Coach Co...Preston, Ont.

Axes
James Smart Mfg. Co.....Brockville, Ont.

Axles
Canadian Car & Foundry Co....Montreal.
Hamilton S. & I. Co., Ltd., Hamilton, Ont.
James Hutton & Co. .....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Jas. W. Pyke & Co.....Montreal.

Babbit Metal
Tallman Brass & Metal Co., Hamilton, Ont.

Beacons
International Marine Signal Co....Ottawa.

Bearings, Side
Canadian Car & Foundry Co....Montreal.
Chicago Railway Equipment Co..Chicago.

Blankets and Bedding
The Hudson's Bay Co. .....

Boilers
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S

Boilers, Portable
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Boilers, Stationary and Marine
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
I. Matheson & Co.....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Boiler Staybolt Iron or Steel Bars
Falls Hollow Staybolt Co..Cuyahoga Falls.

Boilers, Steam
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Boilers, Water Tube
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Bolsters
Canadian Car & Foundry Co....Montreal.
Canadian Ry. Equipment Co., Welland, Ont.

Bolts, Bridge
Montreal Rolling Mills Co.....Montreal.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Toronto Bolt and Forging Co....Toronto.

Bolts, Carriage and Machine
Toronto Bolt and Forging Co....Toronto.

Bolts, Track
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Toronto Bolt and Forging Co....Toronto.

Borers, Car Wheel
John Bertram & Sons Co....Dundas, Ont.

Braces, Cross Arm
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.

Brake Beams
Canadian Car & Foundry Co....Montreal.
Chicago Railway Equipment Co..Chicago.

Brake Shoes
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd..Montreal.
The Holden Co., Ltd.....Montreal.

Brake Shoes, Locomotive Driver
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd..Montreal.

Brass and Copper Cloth
The B. Greening Wire Co..Hamilton, Ont.

Brasses, Car
T. McAvity & Sons .....St. John, N.B.

Bridge Numbers
Acton Burrows, Limited .....Toronto.

Bridges
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.

Bronze
American Vanadium Co....Pittsburg, Pa.

Buckets, Coal, Ore and Concrete
M. Beatty & Sons, Ltd....Welland, Ont.
Brown Hoisting Machinery Co., Cleveland.

Buildings, Steel
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.

Bumping Posts
Dominion Equip't & Supply Co..Winnipeg.
The Holden Co., Ltd.....Montreal.
McCord & Co. .....Chicago, Ill.

Buoy Lighting
Safety Car Heat. & Light. Co..New York.

Buoys
International Marine Signal Co....Ottawa.

Cables, Electric and Feeder
Chapman & Walker, Ltd.....Toronto.
E. F. Phillips Electrical Works..Montreal.
The Wire and Cable Co.....Montreal.

Car Furnishings
Guilford S. Wood.....Chicago, Ill.

Car Loaders, Box
Mussens, Ltd. .....Montreal.

Car Movers
F. H. Hopkins & Co.....Montreal.
Mussens, Ltd. .....Montreal.

Cars
R. M. Burns & Co.....Chicago, Ill.
Crossen Car Mfg. Co.....Cobourg, Ont.
Canadian Car & Foundry Co....Montreal.
J. T. Gardner .....Chicago, Ill.
Hart-Otis Car Co., Ltd.....Montreal.
Hicks Locomotive and Car Works, Chicago.
The Males Co., ... Cincinnati, O.
Ottawa Car Co., Ltd.....Ottawa.
Pay-As-You-Enter Car Co....New York.
Preston Car and Coach Co., Ltd..Preston.
Russel Wheel & Fdry Co...Detroit, Mich.
Silliker Car Co., Ltd.....Halifax, N.S.

Cars, Logging
Peteler Car Co. .....Minneapolis, Minn.
Russel Wheel & Fdry Co...Detroit, Mich

Castings
Edgar Allen & Co., Ltd. ..... Montreal.
American Vanadium Co....Pittsburg, Pa.
Canadian Car & Foundry Co....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
John Inglis Co., Ltd. .....Toronto.
Lumen Bearing Co.....West Toronto, Ont.
I. Matheson & Co.....New Glasgow, N.S.
Russel Wheel & Fdry Co...Detroit, Mich.
Standard Steel Works Co..Philadelphia, Pa.

Castings, Brass
Canadian Bronze Co. .....Montreal.
Canada Iron Corporation, Ltd...Montreal.
Kerr Engine Co. .....Walkerville, Ont.
Lumen Bearing Co.....West Toronto, Ont.
I. Matheson & Co.....New Glasgow, N.S.
Tallman Brass & Metal Co., Ltd.Hamilton.

Castings, Car
Edgar Allen & Co., Ltd. ..... Montreal.
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd...Montreal.
Russel Wheel & Fdry.. Co..Detroit, Mich.

Castings, Iron
Allis-Chalmers-Bullock Ltd. ....Montreal.
Canada Iron Corporation, Ltd...Montreal.
Kerr Engine Co.....Walkerville, Ont.
Russel Wheel & Fdry.. Co..Detroit, Mich.

Castings, Iron and Steel
Edgar Allen & Co., Ltd. ..... Montreal
Am. Brake Shoe & F'dry Co., Mahwah, N.J.

Castings, Malleable
Galt Malleable Iron Co.....Galt, Ont.
Taylor & Arnold .....Montreal.

Castings, Manganese Steel
Edgar Allen & Co., Ltd. ..... Montreal.
Lumen Bearing Co.....West Toronto, Ont.
Montreal Steel Works, Ltd.....Montreal.

Castings, Steel
Edgar Allen & Co., Ltd. ..... Montreal.
American Vanadium Co....Pittsburg, Pa.
Canada Iron Corporation, Ltd..Montreal.
Montreal Steel Works .....Montreal.

Chains
B. J. Coghlin & Co.....Montreal.

Chisels for Pneumatic Chipping Hammers
Edgar Allen & Co., Ltd. ..... Montreal.
Cleveland Punch & Shear Wks., Cleveland.

Closets, Car
Duner Co. .....Chicago, Ill.

Coal
Nova Scotia S. & C. Co., New Glasgow, N.S.

Compressors, Air
Allis-Chalmers-Bullock Ltd. ....Montreal.
The American Well Works...Aurora, Ill.
Canadian Rand Co. .....Montreal.
The Holden Co., Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
Vandeleur & Nichols .....Toronto.

Concrete Mixers and Rock Crushers
Edgar Allen & Co., Ltd. ..... Montreal.
F. H. Hopkins & Co.....Montreal.
Mussens, Limited .....Montreal.

Contractors' Supplies
F. H. Hopkins & Co.....Montreal.
Rice Lewis & Son.....Toronto.
Peteler Car Co. .....Minneapolis, Minn.
Russel Wheel & Fdry.. Co..Detroit, Mich.

Conveyors, Coal and Ash
Babcock & Wilcox, Ltd.....Montreal.

Copying Presses
James Smart Mfg. Co.....Brockville, Ont.

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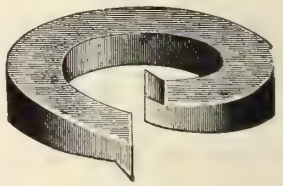

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NOTICE TO SHAREHOLDERS.

The Annual General Meeting of the Shareholders of this Company will be held on Wednesday, 10th day of August next, at the Head Office of the Company, in Kingston, at eleven o'clock a.m., for the purpose of electing Directors and transacting of other business.

The Stock Transfer books will close in New York on Saturday, 31st day of July, 1910, at 1 p.m. All books will be re-opened on Thursday, 11th day of August, 1910.

A. McNAUGHTON,
Secretary and Treasurer.

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Montreal Steel Works, Ltd.....Montreal.
Taylor & Arnold .....Montreal.

Couplers, Steam
Consolidated Car Heating Co., Albany, N.Y

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Brown Hoisting Machinery Co..Cleveland.
Northern Engineering Wks..Detroit, Mich.

Cranes, Electric
Babcock & Wilcox .....Montreal.
Dominion Bridge Co. .....Montreal.
Mussens, Limited .....Montreal.
Northern Engineering Wks, Detroit, Mich.

Cranes, Locomotive
The Males Co., ... Cincinnati, O.

Cranes, Wrecking
Mussens, Limited .....Montreal.

Crowbars
B. J. Coghlin & Co.....Montreal.
Toronto Bolt & Forging Co.....Toronto.

Curtains and Fixtures, Car
The Holden Co., Ltd.....Montreal.
Preston Car & Coach Co...Preston, Ont.

Cuts
Acton Burrows, Limited .....Toronto.

Cylinders
American Vanadium Co....Pittsburg, Pa.

Derailing Devices
General Ry. Signal Co., Rochester, N.Y.

Derricks
M. Beatty & Sons .....Welland, Ont.
Mussens, Limited .....Montreal.

Diaphragms, Vestibule
Guilford S. Wood.....Chicago, Ill.

Dies
Butterfield & Co. ....Rock Island, Que.
A. B. Jardine & Co. .....Hespeler, Ont.

Ditchers
M. Beatty & Sons .....Welland, Ont.

Diving Outfits
John Date .....Montreal.
Mussens, Limited .....Montreal.

Doors, Steel Rolling
Mussens, Limited .....Montreal.

Door Signs
Acton Burrows, Limited .....Toronto.

Draft Gear
The Holden Co., Ltd.....Montreal.
McCord & Co. .....Chicago, Ill.
Standard Coupler Co....New York City.
T. H. Symington & Co.....Baltimore, Md.
Waugh Draft Gear Co.....Chicago, Ill.

Draughtsmen's Supplies
John A. Hart & Co. .....Winnipeg.

Dredges
M. Beatty & Sons .....Welland, Ont.
Polson Iron Works, Ltd.....Toronto.

Drills, Air
Canadian Rand Co.....Montreal.

Drills, Flat Twisted
Cleveland Punch & Shear Wks., Cleveland.

Dry Goods
The Hudson's Bay Co.....

Dump Cars, Contractors'
Dominion Equip't & Supply Co..Winnipeg.
F. H. Hopkins & Co.....Montreal.
Peteler Car Co. .....Minneapolis, Minn.

Dynamos
Northern Electric & Mfg. Co.....Montreal.
Vandeleur & Nichols .....Toronto.

Dynamo and Electric Castings
Am. Brake Shoe & F'dry Co., Mahwah, N.J.

Economizers
Babcock & Wilcox, Ltd.....Montreal.

Electric Apparatus
Allis-Chalmers-Bullock Ltd. ....Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co.....Montreal.
Vandeleur & Nichols .....Toronto.

Electric Car Route Signs
Acton Burrows, Limited .....Toronto.
Preston Car & Coach Co...Preston, Ont.

Electric Light Plant
Allis-Chalmers-Bullock Ltd. ....Montreal.

Elevators, Grain
John S. Metcalf Co. .....Chicago, Ill.

Enameled Iron Signs
Acton Burrows, Limited .....Toronto.

Engines, Automatic
Robb Engineering Co., Ltd..Amherst, N.S.
Polson Iron Works, Ltd.....Toronto.
Russel Wheel & Fdry Co..Detroit, Mich.

Engines, Corliss
Allis-Chalmers-Bullock Ltd. ....Montreal
John Inglis Co., Ltd. .....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Engines, Gas
Allis-Chalmers-Bullock Ltd. ....Montreal.
Vandeleur & Nichols .....Toronto.

Engines, Gasolene
Canadian Fairbanks Co., Ltd...Montreal.
Ontario Wind Engine & Pump Co. Toronto.
Vandeleur & Nichols .....Toronto.

Engines, Hoisting
Allis-Chalmers-Bullock Ltd ....Montreal.
M. Beatty & Sons .....Welland, Ont.
Dominion Equip't & Supply Co., Winnipeg.
John Inglis Co., Ltd. .....Toronto.
I. Matheson & Co.....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto.
Russell Wheel & Fdry. Co..Detroit, Mich.

Engines, Pumping
John Inglis Co., Ltd. .....Toronto.

Engines, Stationary and Marine
John Inglis Co., Ltd. .....Toronto.
I. Matheson & Co.....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Engines, Steam
Allis-Chalmers-Bullock Ltd. ....Montreal.
Vandeleur & Nichols .....Toronto.

Explosives
Standard Explosives, Limited ..Montreal.

Express Office Signs
Acton Burrows, Limited .....Toronto.

Ferro-Vanadium
American Vanadium Co. ..Pittsburg, Pa.

Fire Appliances
Missouri Lamp & Mfg. Co., St. Louis, Mo.

Flags
The Hudson's Bay Co.....

Flour
The Hudson's Bay Co.....

Forgings
Edgar Allen & Co., Ltd. ..... Montreal.
American Vanadium Co. ..Pittsburg, Pa.
Canadian Car & Foundry Co...Montreal.
Cleveland City Forge & Iron Co., Cleveland.
Crossen Car Mfg. Co.....Cobourg, Ont.
Hamilton Steel & Iron Co., Ltd., Hamilton.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Standard Steel Works Co., Philadelphia, Pa.

Foundry Appliances
Goldschmidt Thermit Co. .....Toronto.
Ont. Wind Eng. & Pump Co., Ltd., Toronto.

Frames, Steel for Cars
Canadian Ry. Equip't Co., Welland, Ont.

Frogs
Canadian Ramapo Iron Wks.Niagara Falls.
Peteler Car Co. .....Minneapolis, Minn.

Furnaces, Corrugated
Continental Iron Works....Brooklyn, N.Y.

Fuse Batteries
Standard Explosives Limited...Montreal.

Fuse Detonators
Standard Explosives Limited...Montreal.

Fuses, Electric
Standard Explosives Limited...Montreal.

Gaskets
Franklin Mfg. Co.....Franklin, Pa.
The Holden Co., Ltd.....Montreal.
McCord & Co. .....Chicago, Ill.

Gates, Crossing
General Ry. Signal Co....Rochester, N.Y.
The N. L. Piper Ry. Supply Co...Toronto.

Gauges, Locomotive
Taylor & Arnold .....Montreal.
Utica Steam Gauge Co.....New York.

Gears
American Vanadium Co. ..Pittsburg, Pa.

Generators, Electric
Northern Electric & Mfg. Co.....Montreal.

Grates, Shaking
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
Vandeleur & Nichols .....Toronto.

Groceries
The Hudson's Bay Co.....

Guides and Outfitters
Otto Bros. .....Field, B.C.

Hammers, Cast Steel
American Brake Shoe & Fdry Co.Mahwah.
James Smart Mfg. Co....Brockville, Ont.

Handcars
Canadian Fairbanks Co., Ltd...Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Dominion Equip't & Supply Co..Winnipeg.
F. H. Hopkins & Co.....Montreal.
Mussens, Limited .....Montreal.
Rice Lewis & Son.....Toronto.

Hardware
The Hudson's Bay Co.....
Rice Lewis & Son.....Toronto.

Headlights
Commercial Acetylene Co.....Toronto.
The N. L. Piper Ry. Supply Co...Toronto.
Pyle National Elec. Headlight Co..Chicago.

Headlinings
Crossen Car Mfg. Co.....Cobourg, Ont.

Heaters, Feedwater
Robb Engineering Co., Ltd..Amherst, N.S.

Heaters, Oil-burning
Tate, Jones & Co. Inc. ..... Pittsburg, Pa.

Heating, Car
Canadian Gold Car H'g & L'g Co..Montreal.
Consolidated Car Heating Co., Albany, N.Y.
Safety Car Heating & L'ting Co.New York.

Hoists, Pneumatic
Taylor & Arnold .....Montreal.

Hollow Staybolt Iron and Steel Bars
Edgar Allen & Co., Ltd. ..... Montreal
Falls Hollow Staybolt Co..Cuyahoga Falls.

Hoppers, Car, Wet or Dry
Duner Co. .....Chicago, Ill.

Hose, Air Brake and Steam
Guilford S. Wood.....Chicago, Ill.

Hydrants
Canadian Fairbanks Co., Ltd...Montreal.
Kerr Engine Co.....Walkerville, Ont.

Illustrations
Acton Burrows, Limited.....Toronto.

Injectors
T. McAvity & Sons .....St. John, N.B.

Inspections
R. W. Hunt & Co.....Montreal.

Insurance, Accident
Can. Casualty & Boiler Ins. Co...Toronto
Canadian Ry. Accident Ins. Co...Ottawa.
Imp. Guarantee & Acc. Ins. Co..Toronto.
London Guar. & Accident Co., Ltd.Toronto.

Insurance, Boiler
Can. Casualty & Boiler Ins. Co...Toronto.

Insurance, Vessel
Burnett, Ormsby & Clapp, Ltd...Toronto.

Interlocking Plant and Signals
Montreal Steel Works, Ltd.....Montreal.
Railway Signal Co. of Canada....Montreal.
Saxby & Farmer, Ltd.....Montreal.

Iron, Pig
Nova Scotia S. & C. Co., New Glasgow, N.S.

Iron Signs
Acton Burrows, Limited.....Toronto.

Iron Staybolt Bars
Falls Hollow Staybolt Co..Cuyahoga Falls.

Jacks
Canadian Fairbanks Co., Ltd...Montreal.
Dominion Equip't & Supply Co., Winnipeg.
H. & E. Lifting Jack Co..Waterville, Que.
F. H. Hopkins & Co., Ltd.....Montreal.
Montreal Steel Works, Ltd.....Montreal.
Mussens, Limited .....Montreal.
A. O. Norton .....Coaticook, Que.
James Smart Mfg. Co....Brockville, Ont.
A. R. Williams Mchy. Co., Ltd...Toronto.

Japans
The Dougal Varnish Co., Ltd...Montreal.

Journal Bearings
Canadian Bronze Co. .....Montreal.
Crossen Car Mfg. Co. .....Cobourg, Ont.
Kerr Engine Co. .....Walkerville, Ont.
Jas. W. Pyke & Co. .....Montreal.

Journal Boxes
The Holden Co., Ltd.....Montreal.
McCord & Co. .....Chicago, Ill.

Journal Jacks
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Lager Beer, &c.
E. L. Drewry .....Winnipeg.

Lagging and Covering, Locomotive
Franklin Mfg. Co. .....Franklin, Pa.
Taylor & Arnold .....Montreal.

Lamps, Arc
Northern Electric & Mfg. Co.....Montreal.

Lamps, Incandescent
Canadian Westinghouse Co..Hamilton, Ont.

Lamps and Lanterns
The Hudson's Bay Co.....
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.

Lamps, Switch
The N. L. Piper Ry. Supply Co..Toronto.

Lathes
John Bertram & Sons Co.....Dundas, Ont.

Lighting, Car
Canadian Gold Car H'g & L'g Co.Montreal.
Safety Car Heating & L'ting Co.New York.

Lights, Contractors' and Wrecking
F. H. Hopkins & Co., Ltd.....Montreal.
Mussens, Limited .....Montreal

Locomotives, Compressed Air
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co..Kingston, Ont.
International Marine Signal Co...Ottawa.
Montreal Locomotive W'ks (Ltd.).Montreal.

Locomotives, Electric
Baldwin Locomotive Works..Philadelphia.
Montreal Locomotive W'ks (Ltd.).Montreal.

Locomotives, Logging
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co..Kingston, Ont.

Locomotives, Rack
Baldwin Locomotive Works...Philadelphia.
Canadian Locomotive Co..Kingston, Ont.
Montreal Locomotive Works.....Montreal.

Locomotives, Steam
Baldwin Locomotive Works...Philadelphia.
R. M. Burns & Co. .....Chicago, Ill.
Canadian Fairbanks Co., Ltd...Montreal.
Canadian Locomotive Co. ..Kingston, Ont.
Dominion Equip't & Supply Co., Winnipeg.
J. T. Gardner .....Chicago, Ill.
Hicks Locomotive & Car Works.Chicago.
The Males Co., ... Cincinnati, O.
Montreal Locomotive Works.....Montreal.
Vulcan Iron Works .....Wilkesbarre, Pa.

Lorries, Tracklaying
Crossen Car Mfg. Co.....Cobourg, Ont.
F. H. Hopkins & Co.....Montreal.

Lubricators
McCord & Co. .....Chicago, Ill.
Taylor & Arnold .....Montreal.

Lumber
Parry Sound Lumber Co. .....Toronto.
Machines and Plant, Contractors'
M. Beatty & Sons .....Welland, Ont.
R. M. Burns & Co. .....Chicago, Ill.
Canadian Fairbanks Co., Ltd...Montreal.
J. T. Gardner .....Chicago, Ill.
General Ry. Signal Co....Rochester, N.Y.
F. H. Hopkins & Co. .....Montreal.
Mussens, Limited .....Montreal.
Machines and Tools, Prospecting
The American Well Works...Aurora, Ill.
Machines and Tools, Well Drilling
The American Well Works...Aurora, Ill.
Machines, Boring and Turning
John Bertram & Sons Co.....Dundas, Ont.
Machines, Car Shop
John Bertram & Sons Co., Ltd.Dundas, Ont.
Cincinnati Punch & Shear Co., Cincinnati.
Greenlee Bros. & Co. .....Chicago, Ill.
Machines, Cement
James W. Pyke & Co. .....Montreal.
Machines, Drilling
John Bertram & Sons Co. ..Dundas, Ont.
Machines, Hoisting
Brown Hoisting Machinery Co..Cleveland.
Machines, Logging
Russel Wheel & Fdry. Co..Detroit, Mich.
Machines, Milling
John Bertram & Sons Co. ..Dundas, Ont.
Machines, Planing and Shaping
John Bertram & Sons Co. ..Dundas, Ont.
Cleveland Punch & Shear Wks., Cleveland.
Machines, Radial Drilling
John Bertram & Sons Co. ..Dundas, Ont.
Machines, Rivetting
Long & Allstatter Co. .... Hamilton, Ohio.
Machines, Shaping
John Bertram & Sons Co. ..Dundas, Ont.
Machines, Slotting
John Bertram & Sons Co. ..Dundas, Ont.
Machines, Straightening
Cleveland Punch & Shear Wks.Cleveland.
Machines, Tire Welding
Long & Allstatter Co. .... Hamilton, Ohio.
Machines, Track
Greenlee Bros. & Co. .....Chicago, Ill.
Machines, Tracklaying
F. H. Hopkins & Co. .....Montreal.
Machines, Wood and Iron Working
Canadian Fairbanks Co., Ltd...Montreal.
Machine Tools
John Bertram & Sons Co. ..Dundas, Ont.
Pratt & Whitney Co. .....Dundas, Ont.
Manhole Frames and Covers
American Brake Shoe & F'dry Co.Mahwah.
Canada Iron Corporation, Ltd...Montreal.
Marine Repairs
Goldschmidt Thermit Co. .....Toronto.
Marine Supplies
Rice Lewis & Son.....Toronto.
Metal, Anti-friction
W. Abbott .....Montreal.
Metal, Babbit
Tallman Brass & Metal Co., Hamilton, Ont.
Metals
Goldschmidt Thermit Co. .....Toronto.
Metal Work, Structural
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Montreal Locomotive Works.....Montreal.
Jas. W. Pyke & Co. .....Montreal.
Milepost Numbers
Acton Burrows, Limited.....Toronto.
Motors
Canadian Fairbanks Co., Ltd...Montreal.
McCord & Co. .....Chicago, Ill.
Motors, Electric
Allis-Chalmers-Bullock Ltd. ....Montreal.
Canadian Crocktr-Wheeler Co....Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co.....Montreal.
Vandeleur & Nichols .....Toronto.
Motor Generator Sets
Allis-Chalmers-Bullock Ltd. ....Montreal.
Chapman & Walker, Ltd.....Toronto.
Vandeleur & Nichols .....Toronto.
Motors, Turntable
Taylor & Arnold .....Montreal.
Nickel
The Orford Copper Co. .....New York.
Nickel for Nickel Steel
The Orford Copper Co. .....New York.
Numbers
Acton Burrows, Limited .....Toronto.
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Positive Lock Washer Co. ..Newark, N.J.
Nuts, Clevis
Cleveland City Forge & Iron Co.Cleveland.
Nuts, Square and Hexagon
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt & Forging Co.....Toronto.
Oakum
The Hudson's Bay Co.....
Office Fittings
Can. Office & Sch'l Furn. Co....Preston.
Office Signs
Acton Burrows, Limited .....Toronto.
Oils
Galena Signal Oil Co..Franklin & Toronto.
Packing
The N. L. Piper Ry. Supply Co...Toronto.
Paints
R. F. Johnston Paint Co, Cincinnati, Ohio.
Patterns
Hamilton Pattern Works..Hamilton, Ont.
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F. H. Hopkins & Co. .....Montreal.
Mussens, Limited .....Montreal.
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The N. L. Piper Ry. Supply Co..Toronto.
Pipe, Culvert, Cast Iron
Gartshore-Thompson Pipe Co...Hamilton.
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Pipe, Water (Cast Iron)
Gartshore-Thompson Pipe Co...Hamilton.
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John Bertram & Sons Co. ..Dundas, Ont.
Platforms, Steel
Standard Coupler Co. ....New York City.
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Mussens, Limited .....Montreal.
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E. L. Drewry .....Winnipeg.
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Standard Explosives, Limited ..Montreal.
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Guilford S. Wood.....Chicago, Ill.
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Southam Press .....Toronto.
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Canadian Fairbanks Co., Ltd...Montreal.
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M. Beatty & Sons .....Welland, Ont.
John Inglis Co., Ltd. .....Toronto.
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The American Well Works....Aurora, Ill.
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The American Well Works....Aurora, Ill.
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The American Well Works....Aurora, Ill.
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The American Well Works....Aurora, Ill.
Pumps, Sprinkler Systems
The American Well Works....Aurora, Ill.
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The American Well Works....Aurora, Ill.
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Polson Iron Works .....Toronto.
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Jas. W. Pyke & Co. .....Montreal.
Standard Steel Wks. Co..Philadelphia, Pa.
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A. B. Jardine & Co. .....Hespeler, Ont.
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B. J. Coghlin & Co. .....Montreal.
Dominion Equip't & Supply Co..Winnipeg.
F. H. Hopkins & Co. .....Montreal.
Montreal Steel Works .....Montreal.
Mussens, Limited .....Montreal.
Tools, Pneumatic
The Holden Co., Ltd.....Montreal.
Tools, Cast Steel Track
American Brake Shoe & Fdry. Co. Mahwah.
Track Equipment
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Tramway Equipment
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James Smart Mfg. Co. ...Brockville, Ont.
Trucks, Electric Car
Baldwin Locomotive Works...Philadelphia.
Montreal Steel Works .....Montreal
Trusses, Roof.
Canadian Bridge Co. ...Walkerville, Ont.
Dominion Bridge Co. .....Montreal.
Tubes, Boiler.
Jas. W. Pyke & Co. ..... Montreal.
Turbines, Steam.
Allis-Chalmers-Bullock Ltd. ....Montreal.
Turnbuckles.
Cleveland City Forge & Iron Co..Cleveland.
Montreal Steel Works. .....Montreal.
Turntables.
Canadian Bridge Co. ....Walkerville, Ont.
Dominion Bridge Co. .....Montreal.
Typewriters.
Williams Mfg. Co. .....Montreal.
Valves
Consolidated Car Heating Co., Albany, N.Y.
Valves, Brass Gate
Kerr Engine Co. .....Walkerville, Ont.
Valves, Brass Globe.
Kerr Engine Co. .....Walkerville, Ont.
Valves, Iron and Brass.
Canadian Fairbanks Co. Ltd. ...Montreal.
Valves, Iron Gate.
Kerr Engine Co. .....Walkerville, Ont.
Valves, Locomotive Pop.
T. McAvity & Sons .....St. John, N. B.
Taylor & Arnold .....Montreal.
Vanadium Steels.
American Vanadium Co. ....Pittsburg, Pa.
Varnishes.
Berry Bros. .....Walkerville, Ont.
The Dougal Varnish Co., Ltd...Montreal.
R. F. Johnston Paint Co, Cincinnati, Ohio.
Ventilators.
Paul Dickinson, Inc. .....Chicago, Ill.
Vessels.
Polson Iron Works .....Toronto.
Washers.
Montreal Rolling Mills Co. .....Montreal.
Waste.
B. J. Coghlin & Co. ..... Montreal.
N. L. Piper Railway Supply Co..Toronto.
Water Softeners.
Babcock & Wilcox, Ltd. .....Montreal.
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Dearborn Drug & Chemical Co., Chicago.
Water Towers
John Inglis Co., Ltd. .....Toronto.
Welding.
Goldschmidt Thermit Co. .....Toronto.
Wheelbarrows
F. H. Hopkins & Co. .....Montreal.
Wheels, Car.
Canada Iron Corporation, Ltd..Montreal.
Canadian Car & Foundry Co. ....Montreal.
Peteler Car Co. .....Minneapolis, Minn.
Jas. W. Pyke & Co. .....Montreal.
Standard Steel Works Co. Philadelphia, Pa.
Wheels, Locomotive.
Canada Iron Corporation, Ltd..Montreal.
Wheels, Rolled, solid forged.
Standard Steel Works Co. Philadelphia, Pa.
Wheels, Steel Tired
Standard Steel Works Co. Philadelphia, Pa.
Windmills.
Ontario Wind Engine & Pump Co..Toronto.
Wire and Wire Rope
Dominion Wire Rope Co. .....Montreal.
The B. Greening Wire Co...Hamilton, Ont.
Mussens Limited. .....Montreal.
The Wire & Cable Co .....Montreal.
Wire Cloth.
The B. Greening Wire Co...Hamilton, Ont.
Wire, Copper.
E. F. Phillips Elec. Works, Ltd...Montreal.
The Wire & Cable Co .....Montreal.
Wire, Electric.
Chapman & Walker, Ltd.....Toronto.
E. F. Phillips Elec. Works, Ltd...Montreal.
The Wire & Cable Co .....Montreal.
Wire, Insulated, Copper.
E. F. Phillips Elec. Works, Ltd...Montreal.
The Wire & Cable Co .....Montreal.
Wire, Telegraph and Telephone.
Chapman & Walker, Ltd.....Toronto.
E. F. Phillips Elec. Works, Ltd...Montreal.
The Wire & Cable Co .....Montreal.
Wire, Transmission and Trolley.
Chapman & Walker, Ltd. .....Toronto.
The Wire & Cable Co. .....Montreal.
Wire.
American Vanadium Co. ..Pittsburg, Pa.
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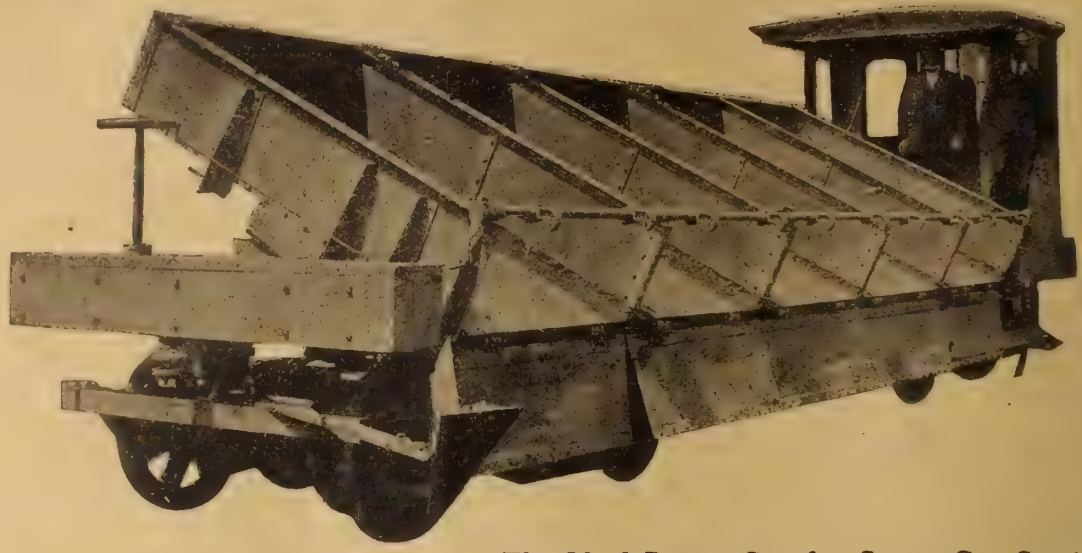

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TORONTO, CANADA, SEPTEMBER, 1910.

For Subscription Rates, See page 753.

Should the Brake Power on Freight Cars be Increased.

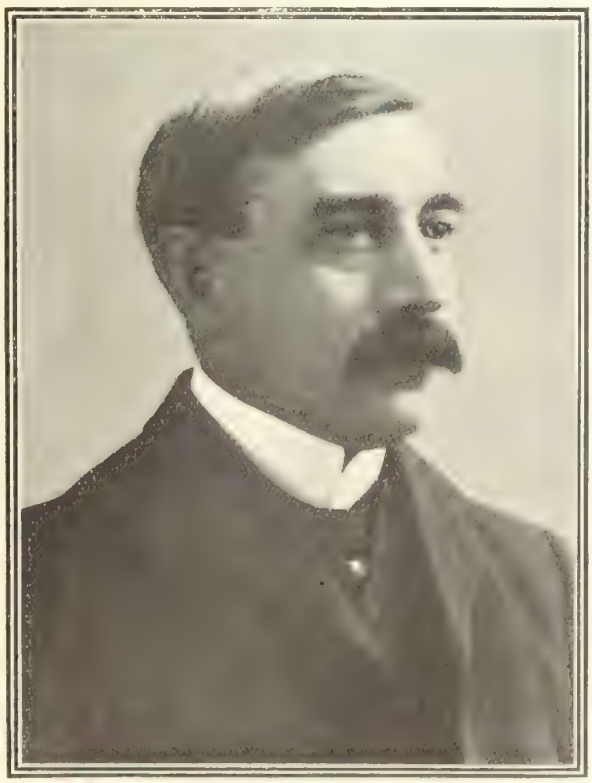
By T. Clegg, Assistant Air-Brake Instructor C. P. R., Winnipeg.

Ever since air brakes came into general use on railways, the average well-informed air brakeman has ever had before him the question, "What is the proper percentage of brake power for a freight car." This question is not so easily answered as may at first appear, for, if we enquire deeply into the subject we find there are many things to consider before we can arrive at a decisive answer and then the answer is not always unanimous.

During the past few years there have been tests made of practically everything that could be tested in regard to braking power for railway rolling stock, yet we find on most railways a braking power on the average freight car that falls below that efficiency which the service demands. This is not the fault of the air brake apparatus, for this has been brought to such a state of efficiency that, if properly maintained, it would seem almost impossible to improve it, but it is in the distribution of the power this brake is capable of developing, that the most serious inefficiency occurs. It is a remarkable fact that we do not stop the average freight train in any less distance today than we did 20 years ago. That the brake power on the average freight car today is too low cannot very well be disputed but we have got so accustomed to it that we manage to get along fairly well, but if it can be improved, even in a small degree, we need every bit of it.

Very often the engineer's mode of procedure in stopping a long loaded freight train is to shut off steam a considerable distance from the expected stopping place and let the momentum of the train decrease to some extent, then make practically a full set service brake and wait for the eventual stopping of the train, which may or may not be at the intended place, this depending on conditions and the judgment he has used in making the stop, and after making this application the engineer is left without any margin of brake power, therefore it is very apparent that if a freight train of 2,000 tons is travelling 30 miles an hour it will take considerable time and distance to bring it to a successful service stop, and we cannot regard this as an ideal method of stopping the train. It is possible to improve these conditions to some extent, and it is the purpose of this paper to provide some data in regard to freight car brakes, and to show to some extent what use we are making of our air brakes, and what use it is possible to make of them.

The average freight car is braked to 70% of its light weight, based on the emergency application of the brakes with a train-pipe pressure of 70 lbs. per sq. in. and a brake piston travel of 8 ins. There has been a tendency recently on some roads to increase this brake power to some extent and this is most assuredly a step in the right direction. There is no doubt it is a mistake to base the brake power on the emergency application, because emergency applications are only properly made in a case of absolute necessity to prevent as far as possible, damage to life and property by stopping as quickly as possible a moving train. Ordinarily the brake is used in service applications and for that reason alone the correct base of the brake power should be the full set service brake. On cars that are based on the 70% in emergency plan the brake power falls below what is the general supposition. In actual practice it means as a rule that the brake power is not 50% when the brake is set in full service on a light car, because of the many losses that occur between the pressure per square inch in the brake cylinder and the pressure of the brake shoe on the wheel and often we find if a car is loaded to its capacity that the brake power with a full set service brake falls below 10%, which fact in itself is sufficient to justify some enquiry into the problem with the object in view of increasing the brake power if at all possible. In order to show the theoretical and actual brake power on freight cars, the table on the next page has been arranged, which though not elaborate, will help to show approximately the relation that exists between the different brake power bases and the striking difference between the theoretical and actual brake power with various applications.



P210

Alfred Price

General Superintendent Alberta Division Canadian Pacific Railway

Having now shown approximately, the theoretical and actual brake power, I will proceed to find the cause of the difference. Elaborate tests made by W. H. Marshall, M.E., and issued by the Westinghouse Air Brake Co., in bulletin 6015, show that the friction of the brake piston packing-leather causes a loss of 9.5% of the total cylinder value when that cylinder contains a pressure of 40 lbs. per sq. in., also that the brake piston release spring causes a loss of 8% of the cylinder valve when the piston travel is 8 inches. This seems that 17.5 of the cylinder value is lost right in the brake cylinder, which on the car we are considering, would mean a total loss of 12.5 of the total brake power, which basis of loss has been used in compiling the table. The effect of this in road service is as follows: Suppose we have a train of 50 loaded cars and we make a full service application of the brakes to stop the train, what is the percentage of brake power? This application would brake the cars to (theoretically) 58.3% of their light weight. The load will reduce the percentage to 21.5, subtract from that the 12.5% lost by reason of cylinder value and behold the brake power is only 9%.

If this train was braked on the 80% in service plan the braking power would be 17% under the same application. We must now take into consideration other losses that may further reduce the above 9%. These losses might be insufficient train-pipe and auxiliary reservoir pressure, leaky brake cyinders or piston packing leather, excessive piston travel, too light reductions in making applications on long trains, friction of foundation gear, occasional brakes cut out, and so on, all of which, if present, will do their share to diminish the actual brake power.

Suppose the train consist of light cars then under the 70% in emergency plan the brake power would be about [illegible] and under the 80% in service plan, the brake power would be about 67.5% not taking into consideration the minor losses. This will show that if we braked the 80% in full service plan, we appear to be well within the limits for the reasonable prevention of slid flat

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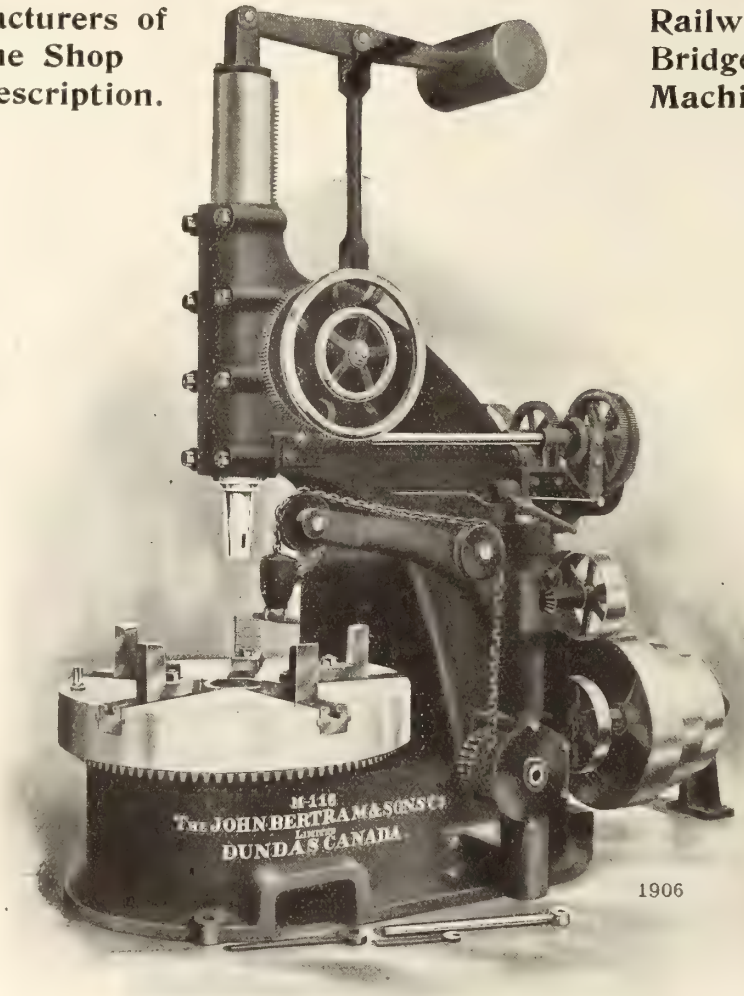

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wheels, but since cars are used mostly under load it is to that phase of the subject that our attention should chiefly be directed.

With a train braked on the 70% in emergency plan, at a certain speed the train could be stopped in 300 ft. with a full service application, whereas if the train was braked on the 80% in full service plan it would be stopped in approximately 160 ft. therefore it is very evident this plan of braking would effect a considerable difference to the stopping power of a freight train.

The above statements are not intended to suggest that we would make full service applications all the time, but to show what it is possible to do when desired. There is no doubt that higher braking power offered some difficulty on long trains with the old style (F 36) triple valves, because they took too long to apply at the rear of the train, and if the brakes were applied heavily at the head end before they applied to any appreciable extent at the rear, a severe run-in was liable to be the result, which of course, is liable to damage draft gear and lading, but since the advent of the type K triple valve this defect has been practically overcome, so that we now have no reasonable excuse to offer for continuing to use as low brake power as has been in general use in the past.

Something should be said in regard to the possibility of slid flat wheels with increased brake power, but this phase of the subject is so extensive that it would require a separate paper to deal with it adequately. Suffice it to say that it is not the increased brake power that is the immediate cause of skidded wheels. The most prolific cause of skid flat wheels is the inequality of braking power coupled with various conditions and variations in manipulation of the brake, as an instance, supposing there is a car on the train with the brake cut out and the one ahead of it has the brake operating, when the brake is applied the tendency is for the unbraked car to bump into the braked car and in this action temporarily relieves the adhesion between the wheel and the rail, the shoe grabs the wheel, and there is a skidded wheel, but the cause of it was not the braked car, the fault being the unbraked car. There are a great many other causes of slid flat wheels, but they are too extensive for this paper, still it may be interesting to mention that a car would have to be braked to about 500% of its light weight to skid the wheels if that car was travelling at the rate of 60 miles an hour where 20% might, under certain conditions skid a wheel at say four miles an hour, therefore it is very plain that speed is a very important factor in skidded wheel consideration. Where the increased braking power has been used in any class of service it has usually shown a tendency to reduce the number of slid flat wheels. But just so long as the weight of freight cars is varied without corresponding variation of the brake power, just so long will we have the skidded wheel trouble and although it is necessary to keep the brake power within reasonable limits there does not seem any valid reason why the brake power should not be materially increased, as the benefits to be derived far exceed the detriments to be encountered.

It is possible that freight car wheels, will require more attention in regard to being kept in line and perfectly round; for if any wheel becomes wobbly, it has a greater tendency to skid than one running true. In further consideration of increased brake power it is necessary to ascertain how this can be accomplished. On the car we have used as our example we could not brake it at 80% in full service with an 8 in. brake cylinder, because this would mean that we would have to multiply the brake cylinder value over 11 times, and with a piston travel of 8 ins. the shoe clearance would be only .7 in. and to overcome this we should use a 10 in. brake cylinder, which would mean a multiplication of the brake cylinder value of 7 times, which is within the recommended practice, and would give a shoe clearance of 1.14 ins. The increase cannot be had by increasing the train-line pressure, as no matter how much it is increased, a 10 or 15 lbs. reduction of the train-pipe pressure would only result in the same brake cylinder pressure as from 70 lbs. and it would be only at such times that the brake neared the equalizing point, that an increased brake power would occur. Also this method would be detrimental, because it would increase the liability of hose bursting, increased train-pipe leakage, set a higher pressure for the pump to work against, increase the liability of triple valves working undesired quick action, all these without any beneficial results, other than we can obtain from the brake cylinder and foundation gear. If we consider for a moment how much the increased brake power is going to facilitate the handling of our freight trains, it will leave no doubt in our minds that we can materially increase the earning power of our freight car brakes without inconvenience.

We would not purchase a locomotive with a tractive power of 30,000 lbs. and then use it all the time hauling trains of 400 or 500 tons on level divisions without some reasonable excuse for so doing, yet railway companies often buy the very best of air brake apparatus but fail to get all out of it they reasonably can. The next part to consider is, whether we should jump from the old style of brake power to the top notch of the new increased brake power (whatever we decide that top notch is going to be) in one jump, for some reasons it would perhaps be advisable to do this in stages, but if we look back at our past and present practice we find that it is quite common to run trains, with occasional brakes cut out, and that without very serious results, then this being the case there does not seem any valid reason why we cannot go to the decided top notch in one operation, because the percentage of difference would not be so great.

It is necessary for everyone who has anything to do with freight car brakes, to give some thought to the plea for a higher braking power, so that our engineers can handle our loaded freight trains with more assured confidence. We all know that the hole made in railway dividends by liability damages is very considerable and more efficient braking power will do a great deal to curtail this expense.

After what has been explained in this paper, it would appear incomplete without containing some recommendation, therefore, after considering, the various powers and their effects, and road conditions, and all other forces bearing on the subject I would recommend that the braking power for freight cars be based on the full service application of the brake, with a train-pipe pressure of 70 lbs. per sq. in., and a brake travel of 8 ins., and that the theoretical brake power be not less than 75% of the light weight of the car, and that the increased brake power be obtained by proper cylindering of car so that the cylinder value will not be in any case multiplied more than 9 times. Furthermore, I will say that it is essential that all interested in the application of brake power to railway stock should regard the air brake as a most important factor in the earning of railroad dividends, and not simply a safety device for the protection of life and property.

The foregoing paper was written for presentation before the Western Canada Railway Club.

A Construction Manager's Opinion.

Chas. R. Scoles, General Manager of the New Canadian Co., Ltd., which is building the Atlantic, Quebec & Western Ry., writes from New Carlisle, Que.: —

"I find the Railway and Marine World very interesting and reliable in all matters both for construction and transportation information, and I would be very glad at any time if I could do anything to further the interests of your valuable paper."

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L. H. Wheaton, Division Engineer National Transcontinental Ry., Moncton, N.B., in writing recently says:—"I have been so busy since coming here over a year ago, that I must have overlooked renewing my subscription to the Railway and Marine World. I now wish to get in touch again with railway matters generally and am dropping some United States periodicals to take yours, which is the best."

BASE OF BRAKE POWER	Percentage of Brake Power with 10 lbs. service reduction					Percentage of Brake Power with 15 lbs. service reduction					Percentage of Brake Power with full service reduction					Percentage of Brake Power with emergency application				
	Brake Cyldr. Pressure	Theoretical		Actual		Brake Cyldr. Pressure	Theoretical		Actual		Brake Cyldr. Pressure	Theoretical		Actual		Brake Cyldr. Pressure	Theoretical		Actual	
		Light	Load	Light	Load		Light	Load	Light	Load		Light	Load	Light	Load		Light	Load	Light	Load
70 per cent. in Emergency .	20 lbs.	23.3	8.6	10.8	0.6	38 lbs.	44.3	16.3	31.8	3.8	50 lbs.	58.3	21.5	45.8	9.5	60 lbs.	70.0	25.8	57.6	13.6
75 per cent. in Emergency .	20 lbs.	25.0	9.2	12.5	0.8	38 lbs.	47.5	17.5	35.0	5.0	50 lbs.	62.5	23.0	50.0	10.5	60 lbs.	75.0	27.6	62.5	14.4
80 per cent. in Emergency . .	20 lbs.	26.7	9.8	14.2	0.85	38 lbs.	50.7	18.7	38.2	6.2	50 lbs.	66.7	24.6	54.2	12.1	60 lbs.	80.0	29.5	67.5	15.9
85 per cent. in Emergency ...	20 lbs.	28.3	10.4	15.8	0.88	38 lbs.	53.8	19.8	41.3	7.3	50 lbs.	70.8	26.0	58.3	13.5	60 lbs.	85.0	31.3	72.5	18.8
65 per cent. in Full Service .	20 lbs.	26.0	9.6	13.5	0.83	38 lbs.	49.5	18.1	37.0	6.2	50 lbs.	65.0	24.0	52.5	11.5	60 lbs.	78.0	28.7	67.5	16.2
70 per cent. in Full Service.	20 lbs.	28.0	10.3	14.0	0.87	38 lbs.	53.2	19.5	40.7	7.0	50 lbs.	70.0	25.8	57.5	13.3	60 lbs.	84.0	31.0	71.5	18.5
75 per cent. in Full Service .	20 lbs.	30.0	11.0	17.5	0.97	38 lbs.	57.0	21.0	44.5	8.5	50 lbs.	75.0	27.6	62.5	15.2	60 lbs.	90.0	33.1	77.5	20.6
80 per cent. in Full Service....	20 lbs.	32.0	11.8	19.5	0.99	38 lbs.	60.8	22.4	48.3	9.0	50 lbs.	80.0	29.4	65.5	16.9	60 lbs.	96.0	35.4	83.5	22.9

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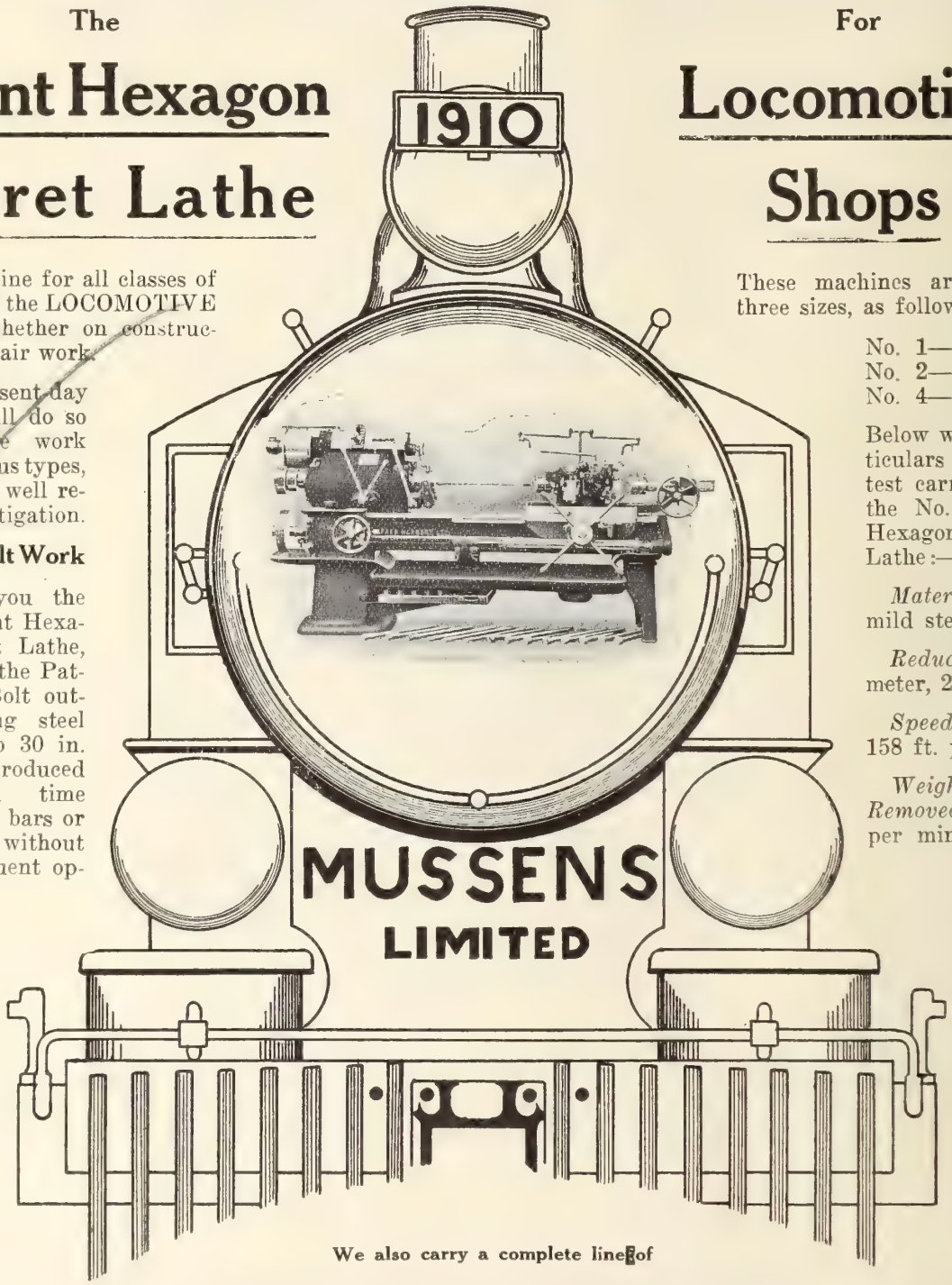

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Improvements in Locomotive Boilers.

By H. H. Vaughan, Assistant to the Vice President Canadian Pacific Railway.

(CONTINUED FROM AUGUST ISSUE.)

BOILER STAYING is either of the gusset plate type in figs. 1 and 5, or the rod type indicated in figs. 3 and 4, detail of the usual design of rod staying being shown in fig. 12. Administrations replying, indicate on the whole, a preference for rod staying, and those having experience with both styles, prefer the rod stays to the gusset plates. The rods are both cheaper to instal and easier to repair, the strain on the stay can be more accurately adjusted, and any defects which may occur more easily detected. The gusset plates have been found in some cases to loosen and crack with age, and should such cracks occur through the rivet holes in the gusset plates they are hidden, and can only be detected by a most careful inspection. These defects are probably caused by the gusset plates not being applied in such a way as to ensure the rivets being strained to an equal amount, but as this is difficult in practice, there seems to be no doubt that the rod staying is actually preferable. both on account of its being possible to cause it to bear its proper portion of strain and the greater ease with which it can be inspected and maintained.

FIRE-BOX STAYING.—The administrations using the round top fire-box construction employ almost universally the direct radial stay for fire-box crown stays, with the exception of the first few rows, which are usually sling stays of various types. A number of rows of sling stays varies with different administrations, but, while some use two or three rows, usually the first four front rows are of this construction. The majority of administrations use button headed stays screwed into the fire-box sheet from the inside of the fire-box for the six or eight centre rows of radial stays. This general arrangement is shown in fig. 13, which shows eight rows of button headed stays in the centre, and ordinary radial stays for the rows on either side. Fig. 14 shows the form of buttonhead usually used on the central rows of stays, the part next the fire-box sheet being recessed near the centre, so as to force the head of the stay to bear tightly against the sheet on its outer edges, in order to allow of it being more easily caulked and kept tight. This construction has largely superseded the rivetted head stay, and the type common in Belpaire boilers in which a nut is used underneath the fire-box crown sheet in order to provide greater strength than is given by the ordinary rivet head.

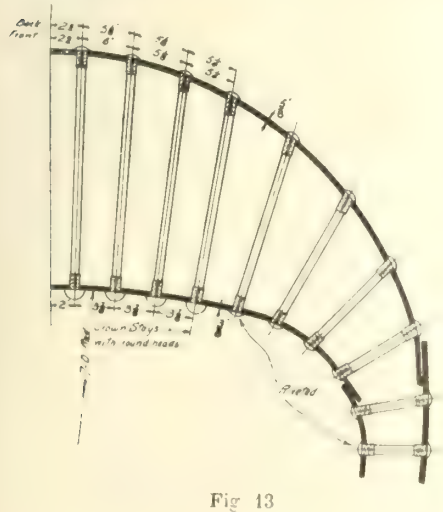

Fig 13

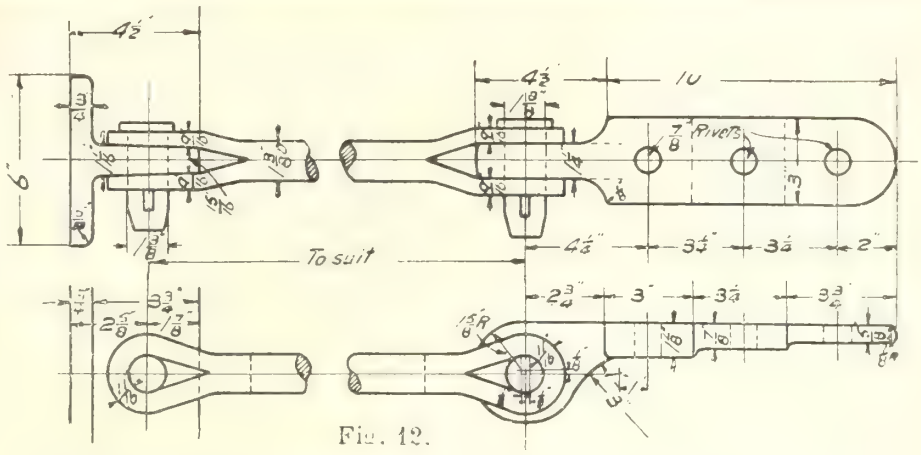

Fig. 12.

The form of sling or expansion stays in use for the front rows of staybolts are shown in figs. 15, 16 and 17. Fig. 15 shows a T-iron sling stay which is in very general use. Figs. 16 and 17 show sling stays employing an eye bolt on the portions rivetted into the fire-box crown sheet and outside fire-box sheet, which are respectively connected by two bars or welded rods forming a link between the top and bottom bolts. A type of expansion stay has also recently been introduced which simply consists of a flexible staybolt rivetted into the fire-box crown sheet. In some cases these designs are modified to permit the use of a button head on the side underneath the fire-box crown sheet, or nuts are used in order to furnish additional strength. The button head construction has about twice the strength of the ordinary rivet head stay when heated to a dull red heat and it has been found that when the crown sheet becomes overheated through an absence of water, that, if the centre rows of stays are of the button head or nut construction throughout, they do not give way until the crown sheet is heated to such a high temperature, that, when failure finally occurs, the sheet is liable to be forced down from end to end. Such an explosion is serious and has torn the boiler apart from the frames and caused serious damage. By using rivetted heads for the front four rows, which are in modern boilers, with sloping top fire-boxes, the highest part of the fire-box and in a location which is overheated before the remainder of the crown sheet is uncovered, these rows will give way before the button heads or nutted stays supporting the remainder of the sheet are overheated sufficiently to seriously affect their strength. They thus act to a certain extent in the same way as a fusible plug and by allowing the steam and water to escape into the fire-box and put out the fire, prevent serious damage occurring.

The universal use of sling or expansion stays for the front rows is largely due to their having been found to reduce the tendency of the flue sheet to crack along the root of the upper flange. Considerable upward movement has been found to occur in the crown sheet of the fire-box with reference to the outer fire-box sheet as the boiler is being heated. No upward movement could of course occur when the crown sheet is exposed to the boiler pressure, as it is not of sufficient strength to sustain this pressure without the load being taken by the stays, but while the water in the boiler is being heated, the pressure on the crown sheet is comparatively small, while the inside fire-box and the outer sheets of the boiler may not be of the same temperature, and if the connections are rigid and relative movement is not permitted, the crown sheet and flue sheet may be forced to bend.

The ordinary crown bar construction supported from the sides or ends of the fire-box is practically obsolete on new construction. A modification of this arrangement is shown in fig. 2 and in detail in fig. 18. This arrangement is used on the Union Pacific Rd. boilers, and is standard on the Harriman lines. It will be noticed that the front crown stay angle irons are connected to the sides of the boilers by links which provide the necessary staying to prevent the sides of the outer fire-box moving outwards under boiler pressure. Behind these horizontal stay rods are provided for the same purpose, and this arrangement thus closely resembles the Belpaire method of staying, with the exception that flat surfaces are not used, and crown bar construction is used in place of the staying of the Belpaire type. In fig. 18 the construction of the crown sheet stays is shown, from which it will be seen that the stays have a taper fit in the crown sheet, while the head of the stay is pressed tight against the sheet, a collar being used between the crown bar and the sheet in order to keep it in place. This construction is not a usual one in the U. S., although the administrations using it control a large number of locomotives. The administrations using radial stays combined with various designs of expansion stays for the front rows, report that their use is satisfactory and that they are preferable to crown stays which have of course been in extensive use on boilers of an older type. The Buenos Ayres and Rosario Ry. reports that it has both in use, but prefers the crown staying construction as with radial stays, cracking occurs along the top flange of the flue sheet, whereas with crown stays it does not. The general preference for radial stays in the U.S. must be ascribed to its being possible to keep the crown sheet free from scale with this form of staying whereas with the crown bar arrangement it is practically impossible to do so unless the water used is exceedingly good.

INSIDE FIRE-BOXES in the U.S. are universally of steel, and with very few exceptions the crown sheet, side sheet and back sheet are ⅝ inch in thickness. A few of the administrations use 7-16 or

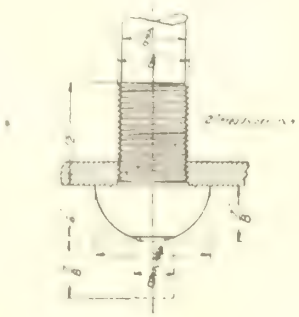

Fig 14

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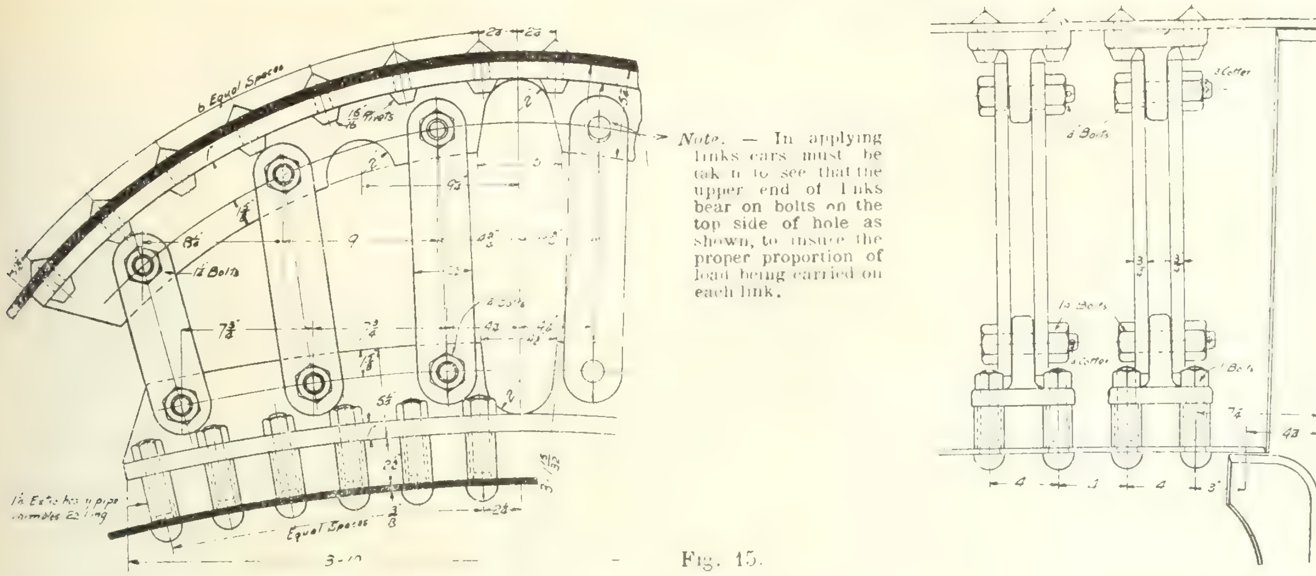

Fig. 15.

½ inch crown sheets, but their number is small, and the use of ⅜ inch for these sheets may be stated to be almost universal. Side sheets are occasionally 5-16 inch in thickness, and some of the administrations using this thickness prefer it to ⅜ inch, and state that less trouble is experienced with the thinner sheet. The same remarks apply to the back sheet of fire-box, but in both cases it may be stated that the use of ⅜ inch plate is almost universal. The tube sheets are almost universally ½ inch in thickness, although in some cases ⅝ inch sheets are used for pressures above 180 pounds. The majority of administrations replying have made no increase in the thickness of their fire-box sheets for pressures of from 180 to 200 lbs., and report that no change is necessary. The Buenos Ayres and Rosario Ry. using a copper fire-box reports the use of ½ inch copper sheets for the crown, back and side sheets, and ⅞ inch or 1 inch for flue sheets, but they have made no difference in the case of boilers carrying higher pressures. The design of inside fire-box is shown in the various illustrations and calls for no special reference. The seams are invariably single rivetted lap seams, rivets being usually ¾ inch in diameter and 1⅞ in. to 2 in. pitch. The lap of the seam is made as small as possible and is usually 2 in., although in some cases 2¼ in. is used. This seam is shown in fig. 19. While not universal, the practice of reducing the thickness of the flue sheet at the seam is adopted by a number of administrations. In some cases the thickness of the back sheet at the seam is similarly reduced. This arrangement

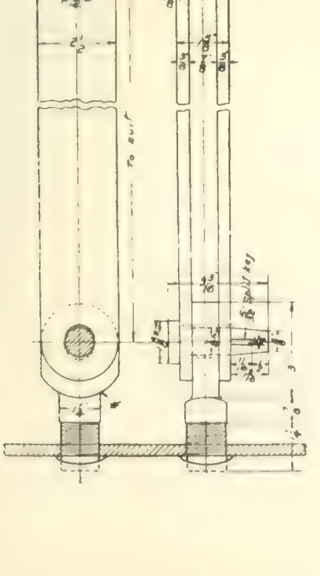
Fig. 16.

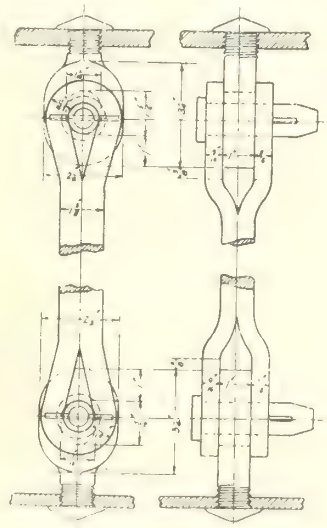
Fig. 17.

is shown in fig. 20 and it will be seen that the rivets are countersunk in the seam and the thickness of the metal exposed to the fire is reduced as much as possible. Some administrations reduce the seam in this manner from the bottom of the fire-box for from 12 to 24 ins., while others do so for the entire length of the seam. The administrations using this practice report that it has considerably reduced the difficulty previously experienced with plates cracking from the rivet holes to the outer edge of the seam and it may be regarded as good practice. Its necessity is evidently affected by the quality of the water used. Where good water is used cone head rivets and full thickness plates are found to give but little trouble, but where the water is bad and there is a tendency for the edges of the seam to become overheated, the reduction in the thickness of the plate appears to prevent to a large extent this deterioration and formation or cracks. Reference has been made to cracking of flue sheet along the corner of the upper flange. Fig. 21 illustrates the design that has been commonly used for the last few years, in which the radius of the flange is about 2 ins. at the upper portion of the tube sheet, and is gradually reduced to about ¾ in. at the sides where little trouble is experienced. The increase of this radius to 2 ins. from ¾ in. which was previously used is stated by many administrations to have given good results. Two administrations, however, which have used it report that it gives more trouble from cracking than the smaller radius. Opinion is divided on this question, but it is stated that on the whole the increase in the size of this radius has not overcome the difficulty, which is quite a serious one, as a number of sheets crack around the root of the upper flange. The use of a larger radius at this point has necessitated a slight reduction in the number of tubes which can be placed in any boiler, and if it is not found to be advantageous its use will be abandoned. There is not, however, sufficient experience at present to state definitely whether or not this detail of design should be followed.

FIRE-BOX DOOR.—Fire door openings are usually oval in form, 13 by 18 ins. to 16 by 20 ins. in size. Some administrations use two doors on wide fireboxes using bituminous coal. The most common form of connection between the back sheet of the fire-box and the outside back sheet of the boiler is shown in figs. 1, 2 and 3. The inside fire-box sheet is flanged outwardly, the outside sheet being flanged inwardly to meet it, forming a single rivetted lap joint. Another form in common use is shown in fig. 22, in which both sheets are flanged outwardly, and a collar is used to connect the inner and outer sheets. This type of joint is somewhat easier to construct than the other, and is reported to give very good satisfaction. A modification is shown in fig. 23, in which the construction shown in fig. 22, is modified by using a solid ring between the

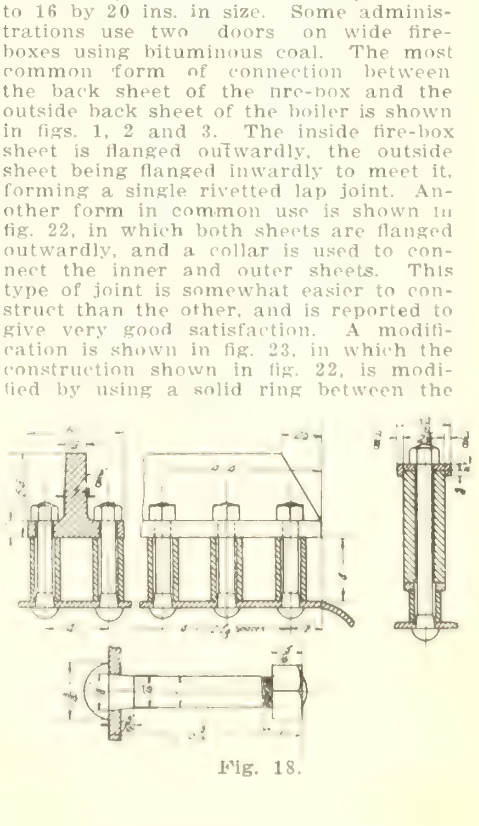
Fig. 18.

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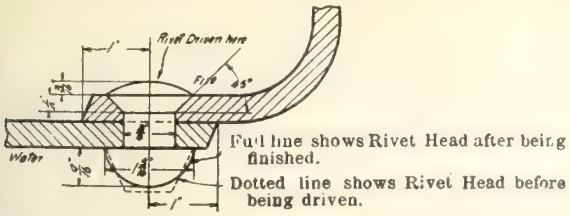

Fig. 19.

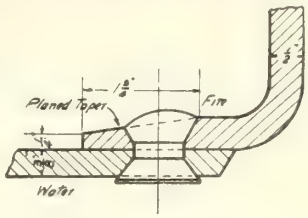

Fig. 20.

collar and outside sheet. This type of door is only reported by one administration, and is not in general use. A patented connection is used by several administrations and is illustrated in fig. 24. The form in which the sheets are flanged is stated to give greater flexibility and avoid the cracking of the sheets in the corners of the flanges. The same result is obtained by spacing the staybolts between the back sheets of the inner and outer fire-box at a rather greater distance from the door opening than usual. On the Buenos Ayres and Rosario Ry. the inner and outer sheets are connected up by a solid ring of the type common in European practice. This method is not, however, used in the U.S. where the arrangement shown in figs. 1, 2 and 3, is the most general, and that used in fig. 22 the usual alternative arrangement.

FIRE-BOX BARREL STAYS.—Stays from the fire-box tube sheet to the barrel of the boiler are commonly of the type shown in figs. 25. 26 and 27, the former being the most common. In fig. 25 a threaded stay is used which is rivetted over in the fire-box sheets. Fig. 26, shows a design in which bolts are used in place of threaded staybolts to connect the brace and the fire-box sheet. In fig. 27 the bolt threaded in to the fire-box sheet is flexibly connected to the bracket. The Pennsylvania Rd. does not use this type of stay, but by referring to fig. 3. it will be seen that the fire-box tube sheet and the throat sheet of the fire-box are formed in such a way that stays of this description are not required. By an ingenious design the tube sheet is flanged to a curved surface and the throat sheet formed to correspond. While this arrangement is evidently satisfactory it is not as easy to construct from a builder's standpoint, as the ordinary design of throat sheet with flat surfaces and is therefore not generally adopted.

THE WATER SPACES between the inner and outer fire-boxes have been considerably increased during the past few years. Instead of water spaces at mud ring of 3½ to 4 ins., at the front of the fire-box and 3 to 3½ ins. at the side and back a number of administrations now use 5 in. water spaces at front, sides and back, while the use of

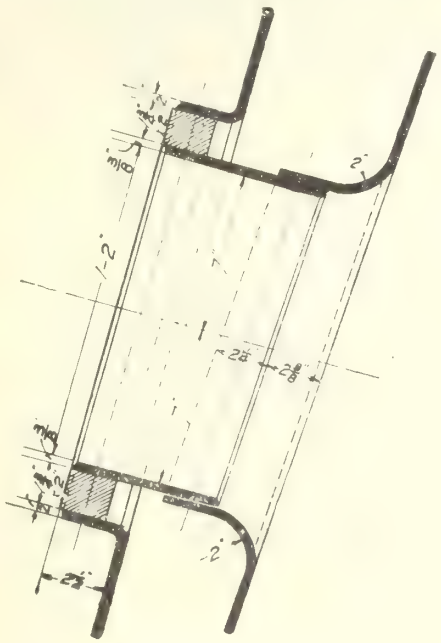

Fig. 23.

5 ins. at the front and 4½ ins. at the sides is common. The water space at the top of the fire-box has also been increased, many administrations using a minimum of 6 ins. while in others this figure is made as large as 6½ to 7½ and even 8 ins. There is no definite information obtainable as to the advantage gained by this increased spacing, but there is a very general opinion that better circulation is obtained and that a decided improvement is obtained in the life of staybolts and fire-box sheets. South American administrations replying, report water spaces of 2½ to 3 ins., but this evidently refers to boilers of a smaller capacity than is common in the U.S. While the larger water spacing increases to a certain extent the weight of the boiler, as previously mentioned where large spaces are used, the barrel of the boiler is tapered so as to reduce the increase of weight to as great an extent as possible. The

Fig. 24.

spaces between the tubes and the sides and bottom of barrel show a considerable variation in the different designs. This also is a dimension that affects the weight of the boiler but replies received from the various administrations would indicate that it is not generally regarded as important: with the exception of

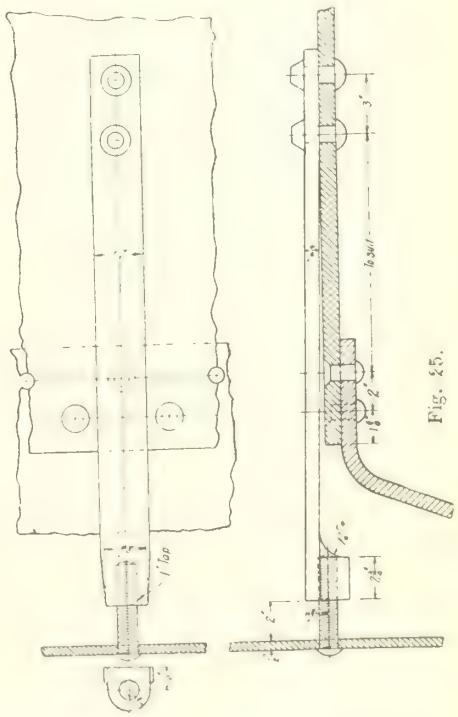

Fig. 25.

a few isolated cases the minimum dimension between the tubes and the side of the boiler which has been permitted is 2 ins., between the tubes and the bottom of the boiler 2½ to 3 ins. These would appear to be satisfactory minimum dimensions. but some administrations indicate a preference for a space

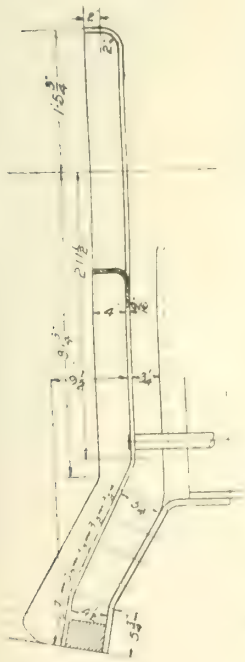

Fig. 21.

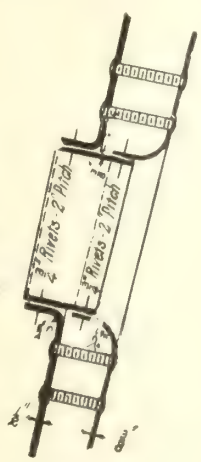

Fig. 22

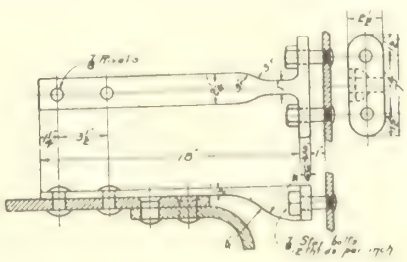

Fig. 26.

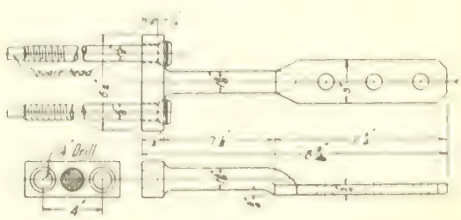

Fig. 27.

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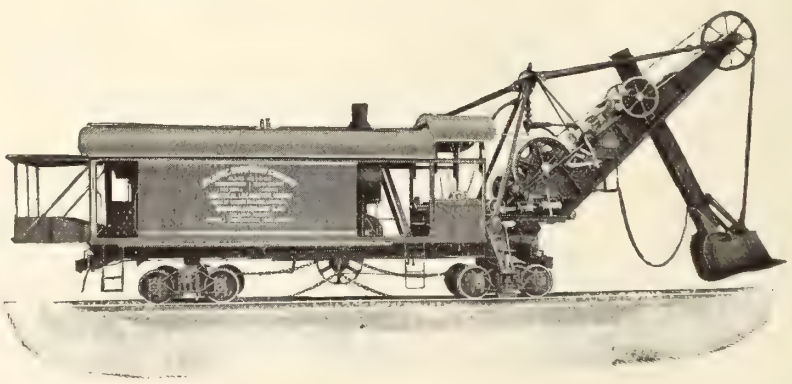

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of 4 to 5 ins. The distance from the top of the fire-box crown to the under side of the outer fire-box sheet of the boiler also varies considerably on different engines, 18 ins. being about the minimum figure allowed, while 24 ins. is about the maximum. Replies received would indicate that 20 to 22 ins. is a satisfactory figure at this point.

A further instalment of this valuable and interesting paper, which was written by Mr. Vaughan, for presentation at the International Railway Congress Association's meeting at Berne, Switzerland, in July, will be published in our next issue.

Tools and Formers.

By Arthur Stockall, Foreman Blacksmith, Intercolonial Railway Shops, Moncton, N. B.

So much has been said on this subject that it seems hard to say anything more, but every year calls for new efforts in this direction and I suppose it will be so always, as there is continually a demand for more economy in tools and speed in manufacturing, and this requires that tools and formers be constantly changed in shape so as to reduce breakage in material, cost of tools and time in making a given piece of work. Therefore, in the designing of tools there are three things that should be borne in mind: to be easy on material, easy on tools and easy to handle. In the carrying out of these things lies the true success in handling our work; for I think that it is better to have two simple tools to make one piece of work, than one complicated and expensive tool, with the danger of breaking the material in the end.

The formers for the bulldozer, I think, can be made cheaper and more conveniently with cast iron, reinforced with hardened steel at the places where friction will take place, so that instead of wearing out the casting, the steel will take the strain and when this is worn out it can be removed and a new piece put in. In other formers, or in fact wherever possible, the roller tool should be used as the best means to save material and power.

Then there is a tool that can be used to make a lot of work, such as freight car steps, carrier irons for passenger cars, glands and all such work where a double bend is required, or a good square corner is needed. I mean a tool with a hinge made so that it will move back far enough to allow the iron to be put in and far enough apart to let the ram come down to square up the crown or middle of the work, thus making a good clean square job that no one need be ashamed of.

As I said before, these tools may be made out of good clean castings reinforced with steel at wearing points and machined where necessary and by a little foresight they may be made so that one former, with a liner put in, can be used for different articles of almost the same shape, but of a different size; this will save cost of tools and cheapen production. In all cases where cutting or punching hot material is required high speed self hardening steel is the stuff. It costs more to put it in, but does its work splendidly and it is a relief to the burdened foreman and a joy to the worker, with no more running water, no more burning and peeling of die, or punch, or cutter, and consequent bending and breaking of tools with the machine on the hog half the time, with the toolmaker swearing and workman grumbling. I well remember my own experience of four years ago in this line. I was punching a lot of steel follower plates. They were pretty hard and of course the usual trouble was intensified by this. If we used water to cool the tools, they split and broke, and the man wading in mud, grumbling and doing very little. I was about to give it up and fall back on the drill; but high speed steel came into my head, and off I started for the toolmaker and stated my case. "I won't do it," he said; "it is only a waste of time and material." "Let's try it, anyway," I said. "I won't" he replied, and he would not, until I went to the Master Mechanic and got his doubtful consent, and at last the tools were made and put in, and the difficulty was gone. High speed steel is undoubtedly the stuff for this kind of work and pays 100% every time.

I used to think that mild steel was good enough for bolt headings, etc., and I tried it thoroughly, but it was not satisfactory. It would burn up in spite of all I could do. "Caseharden it," said my bolt maker. This I did, with the result that almost always the block would warp or bulge out in the middle and in grinding this out the casehardening would be all gone and my labor went for nothing. Then I heard a man say cast iron chills are fine, and cheap. I tried this and found that the blocks would chip and split in two. Chilled tools in my opinion are a waste of time; but I consider good clean cast iron tools superior to any of the other above mentioned for durability and economy. They can be put in and used with a little grinding and when used up can be sold for scrap for more than scrap soft steel. But, I think, from my experience, that self hardening or a good water tempering steel is best for this work. It costs more, but lasts longer and does better work while it does last, and for machine forgings of all sorts a good hard, tough cast steel is best.

For steam hammer tools nothing is too good. You can make an endless variety of things under them and a good material for these tools is the question. A dense grained cast steel top and bottom of about .30 carbon; for wedges a good hard soft steel is the best; for forming blocks, cast iron with a wrought iron band around it to keep it from spliting, gives a tool that will make almost anything.

The foregoing paper was read before the Master Blacksmiths' Association in Chicago recently.

September Birthdays.

Many happy returns of the day to:—

G. W. Alexander, Local Treasurer G.T.R. Western Lines, Detroit, Mich., born at Lightcliff, Yorks, Eng., Sept. 10, 1859.

W. B. Bamford, General Freight Agent Atlantic Division, C.P.R., St. John, N.B., born at Belleville, Ont., Sept. 10, 1863.

W. D. Barclay, General Manager Canadian Northern Quebebc Ry., Quebec and Lake St. John Ry., Halifax and Southwestern Ry., and Inverness Ry. and Coal Co., Quebec, Que., born at Campbellton, N.B., Sept. 23, 1852.

G. T. Bell, Assistant Passenger Traffic Manager G.T.R. and G.T.P.R., Montreal, born there, Sept. 7, 1861.

W. H. Biggar, K.C., General Counsel G.T.R. and G.T.P.R., Montreal, born at the Carrying Place, near Trenton, Ont., Sept. 19, 1852.

E. R. Bremner, ex-Division Freight Agent G.T.R., Ottawa Division, Ottawa, born at Toronto, Sept. 9, 1875.

M. H. Brown, General Freight Agent Ontario Division C.P.R., Toronto, born at Victoria Square, Ont., Sept. 2, 1866.

W. G. Brownlee, General Transportation Manager G.T.R., Montreal, born at Lawrenceville, Ill., Sept. 9, 1858.

J. R. Bruce, ex-Traffic Auditor Intercolonial Ry., Moncton, N.B., born at Portsoy, Banffshire, Scotland, Sept. 23, 1848.

W. B. Bulling, Assistant Freight Traffic Manager C.P.R. Eastern Lines, Montreal, born there, Sept. 16, 1858.

C. F. Burns, Auditor of Disbursements Intercolonial Ry., Moncton, N.B., born at Clements Port, N.S., Sept. 10, 1854.

A. D. Cartwright, Secretary Board of Railway Commissioners, Ottawa, born at Kingston, Ont., Sept. 20, 1864.

W. F. Egg, ex-City Passenger Agent C.P.R., Montreal, born at Plymouth, Eng., Sept. 7, 1859.

W. H. Estano, Traffic Auditor Intercolonial Ry., Moncton, N.B., born at Halifax, N.S., Sept. 29, 1874.

C. B. Foster, Assistant General Passenger Agent C.P.R., Vancouver, B.C., born at Kingston, N.B., Sept. 30, 1871.

J. P. Ferguson, representing Galena Signal Oil Co., Ottawa, Ont., born at Drummondville, Que., Sept. 12, 1856.

L. A. Hamilton, ex-Land Commissioner C.P.R., born at Penetanguishene, Ont., Sept. 30, 1852.

D. W. Hatch, Travelling Agent Atcheson, Topeka and Santa Fe Ry., Montreal, born at Bedford, Que., Sept. 1, 1841.

J. E. Hutcheson, Superintendent and Purchasing Agent Ottawa Electric Ry., born at Brockville, Ont., Sept. 15, 1858.

J. F. Kane, ex-Fuel Agent C.P.R. Western Division, Calgary, Alta., born at Toronto, Sept. 8, 1884.

W. H. Kelson, ex-General Storekeeper C.P.R., Montreal, born at Bath, Eng., Sept. 5, 1850.

C. B. King, Manager London St. Ry., London, Ont., born at Galena, Ind., Sept. 12, 1871.

V. Kistler, District Freight and Passenger Agent Great Northern Ry., Grand Forks, B.C., born at Clyde, Ohio, Sept. 4, 1881.

R. E. Larmour, General Freight Agent C.P.R., Winnipeg, born at Brantford, Ont., Sept. 26, 1868.

H. D. Lumsden, C.E., ex-Chief Engineer National Transcontinental Ry., Ottawa, born at Belhaire, Scotland, Sept. 7, 1844.

J. Bruce Macdonald, Director Niagara Navigation Co., Toronto, born at Glengarry, Ont., Sept. 19, 1850.

F. J. Mahon, Superintendent Telegraphs C.P.R. Atlantic Division, St. John, N.B., born at Montreal, Sept. 18, 1865.

J. F. Mundle, City Freight Agent C.P.R., Montreal, born at Prescott, Ont., Sept. 20, 1857.

B. S. Murray, Route Agent Canadian Express Co., London, Ont., born at Glenwood, N.Y., Sept. 17, 1856.

J. Oborne, General Superintendent C.P.R. Ontario Division, Toronto, born at Montreal, Sept. 19, 1861.

S. S. Oliver, Engineering Dept. Canadian Northern Quebec Ry., and Quebec and Lake St. John Ry., Quebec, Que., born there, Sept. 9, 1858.

J. Paul, General Freight Agent Niagara, St. Catharines and Toronto Ry., born in Euphrasia tp., Grey Co., Ont., Sept. 13, 1858.

R. P. Perry, C.P.R. Ticket Agent, Bracebridge, Ont., born at Whitby, Ont., Sept. 2, 1850.

C. S. Richardson, District Freight Agent C.P.R., Buffalo, N.Y., born at New York City, Sept. 26, 1870.

W. D. Robb, Superintendent of Motive Power G.T.R., Montreal, born at Longueuil, Que., Sept. 21, 1857.

W. H. Rosevear, ex-General Car Accountant G.T.R., Montreal, born at Wadebridge, Cornwall, Eng., Sept. 26, 1837.

E. W. Taylor, General Freight Agent Reid Newfoundland Co., St. John's, Nfld., born at Carbonear, Nfld., Sept. 8, 1870.

W. Whyte, Vice President C.P.R., Winnipeg, born at Charleston, Scotland, Sept. 15, 1843.

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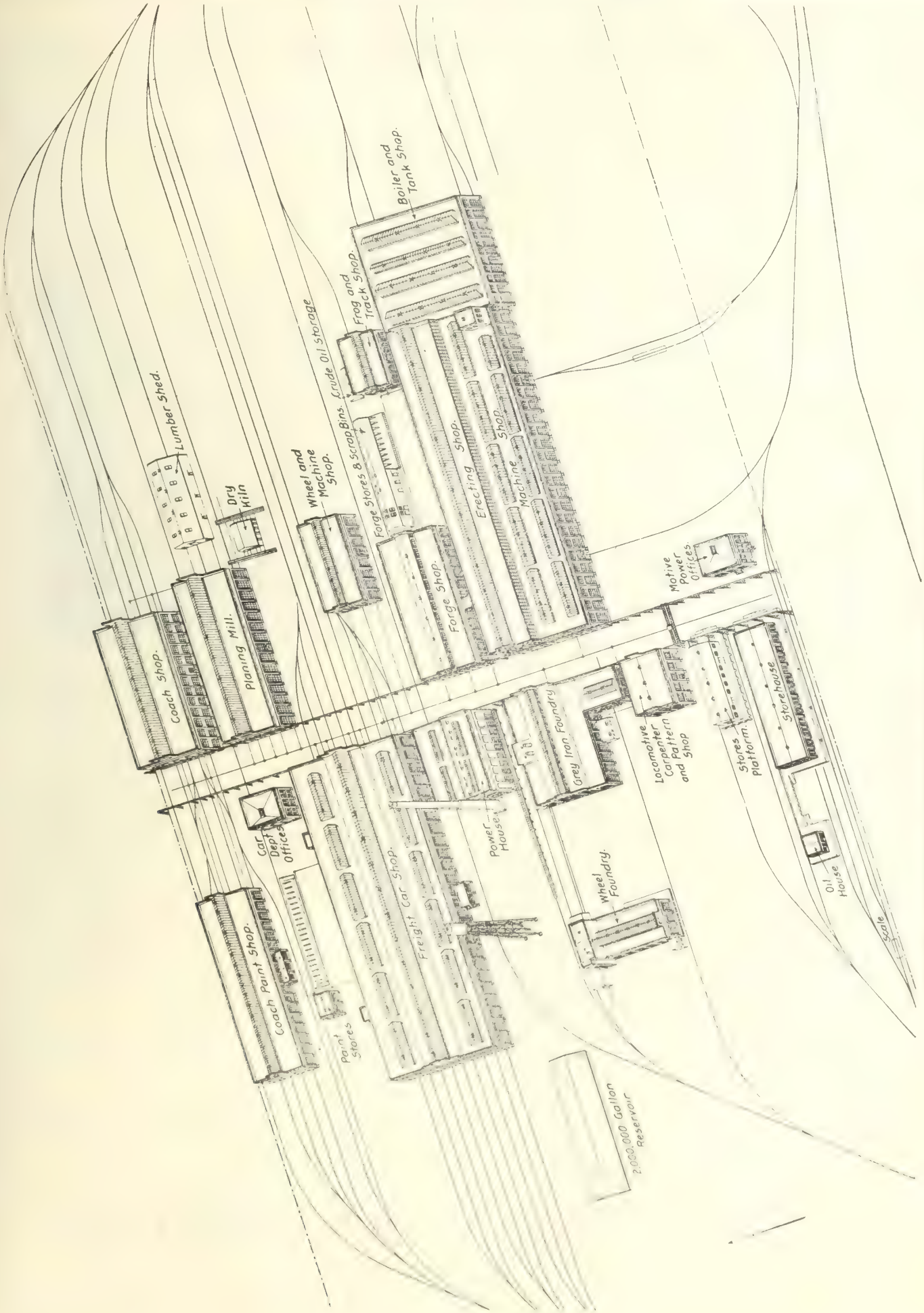

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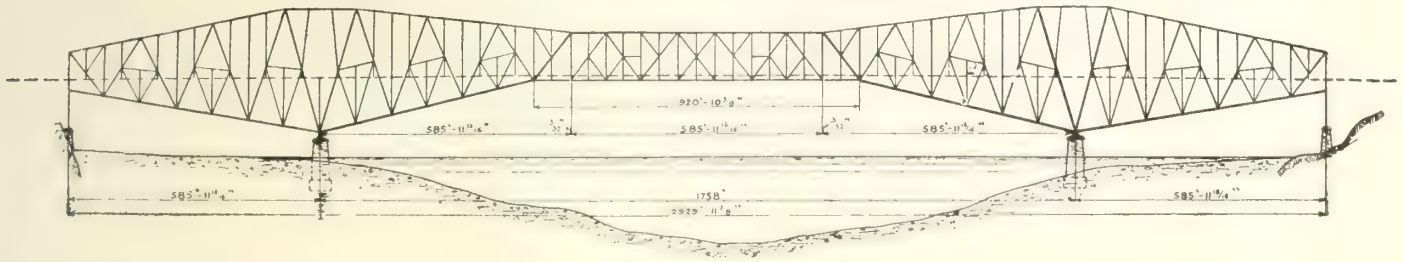
The Quebec Bridge.

The design for the bridge over the St. Lawrence river at Quebec, shown on pg. 189 of our March issue, and reproduced on this page, will illustrate the details given below, which are taken from the specifications upon which the firms tendering will base their prices. The design shows the bridge without approach spans, in regard to which no particular problems had to be solved. The plans for the piers have already been described, and it is now sufficient to say that the bridge, independent of the approaches, will be carried on two main piers and two anchor piers. The main piers will be 1,758 ft. centre to centre, and will rise to 128 ft. The cantilever arms will extend 586 ft. on either side of each main pier, being anchored at the shore ends to the anchor piers. The ends of the two cantilevers extending over the navigable channel will be connected by straight work of 14 panels 586 ft. long. Each arm of the cantilevers will also consist of 14 panels 41 ft. 10 9-32 in. each. The bridge is to be 88 ft. wide, arranged with sidewalk, highway and electric railway, double track steam railway, highway and electric railway, sidewalk.

THE SPECIFICATIONS.

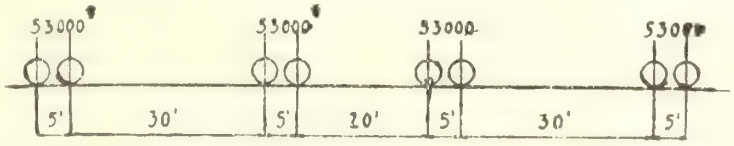
The superstructure is to consist of six spans, starting from the north shore as follows:—one deck span 91 ft.; one deck span 96 ft.; one shore arm 586 ft.; one main span 1,758 ft.; one shore arm 586 ft.; one deck span 115 ft. The board submits a plan for the superstructure, but in addition to tendering on the satisfactory erection and completion of the bridge and it is to be expressly understood that he undertakes the entire responsibility not only for the materials and construction, but also for the design, calculations, plans and specifications, and for the sufficiency of the bridge for the loads therein specified. The enforcement of any, or all parts of the specifications shall not in any way relieve the contractor from such responsibility. The tender must be strictly in accordance with the printed form, signed by every member of the firm, if sent in by a partnership; and setting out the place or places where the material is to be manufactured. It is also specified that all Canadian and foreign customs duties on material and plant shall be paid by the contractor. The tenders must state a price per lb. for the steel in the superstructure erected and painted complete, the suspended span being erected on the cantilever principle, the price to be based upon the use of basic open hearth steel, except for cables, which shall be made of acid open hearth steel; an alternate price per lb. for material and work using acid instead of basic open hearth steel; a lump sum in addition if the suspended span is floated into position; a lump sum for concrete, concrete slabs with reinforcing bars, and other material used for the roadway floors, the laying and banding of electric railway rails, and the furnishing of guard angles, with screws and bolts for the railway floor according to the plans. In the event of the contractor offering to modify the board's plans by changing the length and depth of the cantilever or shore arms or the length and design calculated from the dimensions of material shown in the shop plans, or the weight stated in the tender, plus any increases in quantities of material not provided for in the specifications as interpreted by the Chief Engineer and ordered by him. The Government will provide and lay all rails and material for railway tracks above stringers except the expansion joints and guard angles with the screws and bolts. Each tenderer must send with his tender an accepted cheque for $500,000, and the firm whose tender is accepted must deposit an additional cheque for an amount sufficient to make up 15% of the total cost of the works as estimated by the Chief Engineer. The total deposit made shall be held as security until the delivery to and acceptance of the work by the Minister of Railways.

The erection is to be proceeded with on each side of the river as soon as the main pier is ready, and shall be proceeded with as rapidly as possible so as to secure its completion at the earliest date. It is assumed that the north main pier shall be completed by Nov. 1, 1910, and all other masonry work by Nov. 1, 1911, and while the contractor has to guarantee the completion of the bridge by a date which he will fix on this assumption, the Department on the recommendation of the Chief Engineer may grant an extension of time if the piers are not completed as assumed, or otherwise. Before the completed works are delivered to and accepted by the Minister, the bridge is to be tested under live load. If a suspension design is accepted suitable supplementary specifications will be provided.



this, contractors will be allowed to submit tenders on plans of their own or on modifications of the board's plans, but all tenders are to be subject to the general specifications and to the following conditions:— (1) The superstructure shall be erected on the two main piers shown in the plan. (2) The main span shall be 1,758 ft. long, centre to centre, of piers, with trusses 88 ft., centre to centre, and a maximum depth of 290 ft.; (3) A clear head room for vessels must extend for 600 ft. at the centre of the main span and no part of the steel work, for that length, shall be under elevation 251.30, with the maximum loading specified, leaving 150 ft. clear above high water; (4) A clear head-room must extend 23 ft. above base of rail for a width of 29 ft. over the railway tracks, 14 ft. clear for a width of 18½ ft. over the roadway on each side of the railway tracks, and 7 ft. clear for a width of 5 ft. over the sidewalks; (5) The plan (no. 1) shows the position of the two main piers and of the two existing abutments with elevations. The position and elevation of the two main piers are fixed; the position and elevation of the other piers and abutments may be varied. The grade on any part of the bridge must not be more than 1% under all conditions of loading and temperature. The 600 ft. at the centre of the main span shall be level under dead load except for the camber.

The contractor must satisfy himself as to the efficiency and stability of the design, plans and specifications upon which the bridge is to be built, as the contractor will be required to guarantee of the suspended span, or if the mode of erection he uses decreases the quantities of materials as shown on the plans exhibited, his tender must show the amount of weight saved, and a proof of such statement must be submitted. The contractor will be paid for the number of pounds of steel remaining in the bridge after all erection material has been removed, but in case such weight exceeds the calculated weight based on the dimensions of material shown on the shop plans plus 2%, he shall be paid for the calculated weight plus 2%, the weight of paint not being included in such calculated weights.

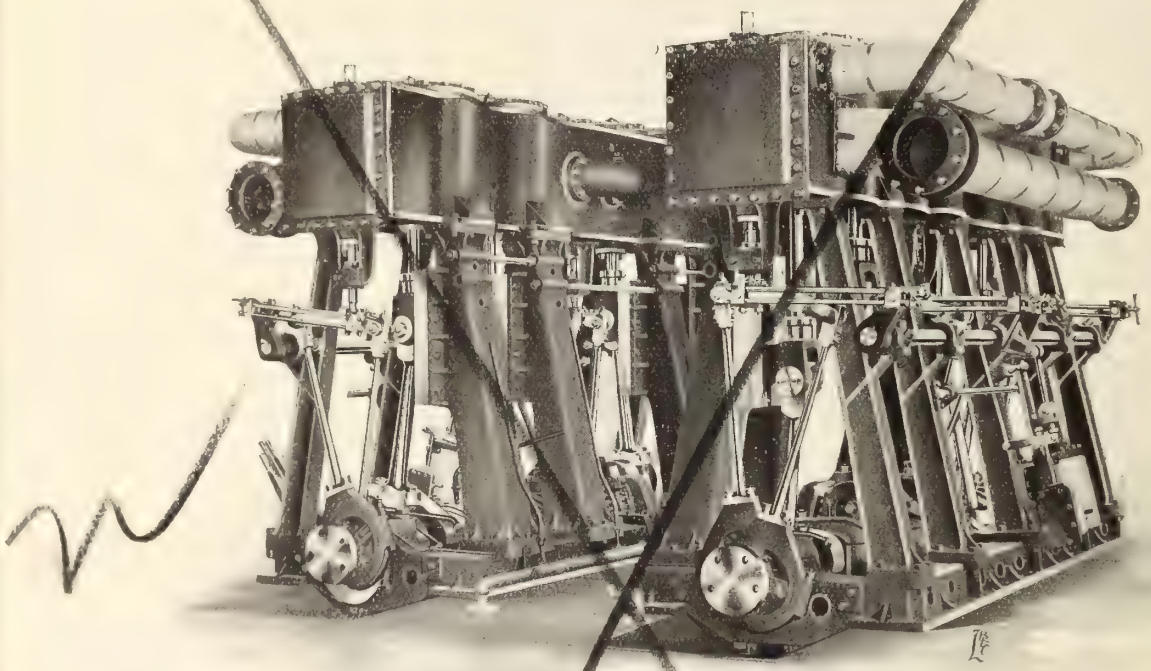


If the contractor tenders on plans prepared by himself the tenders must state prices as above, and in the case of cantilever design also a price per lb. for any additional nickel steel, or carbon steel ordered by the Chief Engineer; and, in the case of a suspension bridge, a price per lb. for any additional material in the anchorage, in the towers, the side spans or other stiffening trusses, or the cables that may be ordered by the Chief Engineer. The contractor is also to state the total weight of steel for each design and each mode of erection tendered on, and shall be paid at schedule prices for lowest of the following weights:—the finished weight of steel, the weight of steel

LOADS AND STRESSES.

The loads and stresses for which the bridge or some of its parts will be calculated, are as follows:—(a) Train load, Cooper's class E 50, on one or two tracks; (b) Train load, Cooper's class E 75, on one or two tracks; (c) A highway and sidewalk load one or two roadways of 40 lbs. per sq. ft., or 920 lbs. per lin. ft. of each roadway; (d) A highway and sidewalk load of 100 lbs. per sq. ft. or 4,600 lbs. per lin. ft. of bridge; (e) Street car load; two 53 ton cars each 60 ft. long and 12 ft. wide on each track; (f) On roadway a concentrated load of 24,000 lbs. on two axles, 10 ft. centres; (g) On highway and sidewalks, a snow load of 30 lbs. per sq. ft., or 1,500 lbs. per lin. ft. of bridge; (h) On highway; dead load above I-beams of 23,000 lbs. per lin. ft. for each roadway; (i) Track-load; ties, guard rails weighing 670 lbs. per lin. ft. of railway track; (j) Weight of steel floor (floorbeams, stringers and I-beams—distributed load); (k) Weight of steel-work as erected not included in h, i and j, but including travellers and false work, etc., during erection; (l) A wind load normal to the bridge of 30 lbs. per sq. ft. on the exposed surface of two trusses, floor and fence (fixed load) and also on travellers and false work, etc., during erection; (m) A wind load of 30

ENGINES



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lbs. per sq. ft. on part above fence of a train 14 ft. high (moving load); (n) A wind load equal to ½ (l + m); (o) A wind load nearly parallel to bridge of 30 lbs. per sq. ft. on the projected area of the steel-work and of two trains 14 ft. high on a vertical plane normal to wind, or on travellers, false work, etc., during erection; (p) Stresses due to a traction load of 750 lbs. per lin. ft. on one track; (q) Stresses due to a variation of temperature of 150 deg. Fahr.; (r) Stresses due to a difference of temperature of 50 deg. between steel work and masonry; (s) Stresses due to a difference of temperature of 25 deg. between the bottom chords of trusses when free motion is not allowed; (t) Stresses due to a difference of temperature of 25 deg. between the outer web exposed to the sun and the other webs of compression members. The trains on the two tracks shall be assumed to have engines headed in the same direction, and whenever two separate loads give the maximum strains in any member, two trains shall be assumed on each track with length of train and position of engines giving the maximum. All the co-existing loads and stresses and the deformation shall determine the section of the different members with the following restrictions: Load b will be used to determine the dimension of the masonry and anchorage and also of the connection of suspended span to cantilever arms and of any members subject to reversal of stresses under live load; and will also be used to establish the outline of the bridge so that the deflection due to the load will always leave the clear height as specified. Load c will be used for trusses, main cables and anchorages only. Loads d, e and f will be used for floorbeams and stringers, and members receiving their maximum strain from a length of moving load covering two panels or less. Loads l, m and o will be used with railway tracks loaded and no highway load. Load n will be used with railway tracks and roadways loaded. Strains produced by t will be considered as secondary strains, and loads s and t will not be assumed to co-exist with wind loads l, m and o. Loads h and i will be used for all designs, plan 2 of floor being standard.

UNIT STRAINS AND PROPORTION OF PARTS.

All parts of the structure shall be proportioned so that the sum of the maximum strains produced by the loads specified shall not exceed the following amounts in lbs. per sq. in. for carbon steel, when a=Live load strains for loads as specified; b=Dead load strains (including snow); c=All co-existing maximum strains together, except secondary strains; d=All co-existing maximum strains, including secondary strains.

Tension members in main trusses—

a	b	c	d
10,000	20,000	20,000	22,000

Suspenders or any members liable to sudden loading—

a	b	c	d
7,000	14,000	14,000	15,400

Wire suspenders—

a	b	c	d
22,500	45,000	45,000	49,500

Railway stringers—

a	b	c	d
8,000	16,000	16,000	17,600

Floorbeams and highway stringers—

a	b	c	d
9,000	18,000	18,000	19,800

Compression members in main trusses—

a	b
16,000—70 l-r	20,000—80 l-r
c	d
20,000—80 l-r	22,000—88 l-r

No compression member built of carbon steel shall, however, be strained more than 15,200 lbs. per sq. in., not including secondary strains.

Laterals and sway bracing. Take both systems in calculation of strains, disregarding reversal of strains.

For compression .....16,000—70 l-r

Rivets—

	Bearing.	Shear.
Floorbeams and stringers	12,000 lbs.	6,000 lbs.
Truss members; live+dead	15,000 "	7,500 "
Truss members; all co-existing maximum strains	20,000 "	10,000 "
Laterals and sway bracing	20,000 "	10,000 "

For field rivets reduce above by 10%.

Pins. For values of a=10,000 in tension or over, or 10,000—40 l-r in compression, and corresponding values of b, c and d, used in calculating the connected member

Bearing.	Fibre Stress.
20,000 lbs.	24,000 lbs.

For smaller values of a, reduce in proportion.

Nickel steel. Increase units given for carbon steel as follows:

Tension 40%
Compression and Pins 25%

No compression member built of nickel steel shall, however, be strained to more than 19,000 lbs. per sq. in., not including secondary strains.

Units for determining sections. The units giving the maximum section shall be used for proportioning the different members.

Unit strains in suspension bridges—

Cables ..... 55,000 lbs.
Carbon steel, tension ..... 16,000 "
Carbon steel, compression ..... 16,000—70 l-r

Increase units by 10% where secondary strains are included.

Pressure on masonry—

Maximum pressure on bed plates per sq. in. ..... 800 lbs.
Maximum pressure on concrete per sq. ft. .....33,000 lbs.

Anchorage masonry. For cantilever designs, anchor piers shall show a co-efficient of safety of two.

For anchorages of suspension bridges a co-efficient of safety is to be assumed of 1½ against both uplift and sliding.

The co-efficient of friction of masonry on rock is to be taken at 50%, but no part of the rock shall be taken as resisting the anchorage strain, as the mass of masonry only will be taken into account.

In case of dispute before and after the contract is awarded, the assumptions to be made and modes of calculation to be used, shall be the ones made and used in the preparing of the plans exhibited, and the results of which are shown in the strain sheets and plans exhibited. The decision of the Chief Engineer on any such question shall be final. The strains in statically indeterminate structures shall be calculated from their elastic deformations and all assumptions made and formulae used for the calculations must be given in strain sheets submitted with tenders. All bending strains produced by the weight of the member itself and by loads applied on the member shall be considered as primary strains. All members shall be proportioned so that the greatest fibre strain due to this bending and axial strain together will not exceed the allowed units for the axial tension or compression in that member. All strains produced owing to the deformation of the steel work under any and all loads, either by the absence of pins at the joints or by the friction on pins opposing the turning of members shall be considered as secondary strains. Members subject to alternate tension and compression shall be proportioned for either stresses. Rivets in connections and splices in all cases shall be proportioned for the sum of both stresses. Material in connections and splices shall be proportioned to resist the larger stress plus 25% of the smaller stress. In no case shall the section be less than the section of the member. In calculating the net area of tension members, the rivet holes shall be taken ⅛ in. larger than the nominal diameter of rivets before driving. Pin-connected riveted tension members shall have a net section through the end pin hole at least 33% in excess of the net section of the body of the member and the net section back of the pin hole parallel with the axis of the member, shall not be less than 80% of the net section of the body of the member. The section through the intermediate pin holes shall be increased over that of the member by the section cut out by the pin hole. The latticing for compression members shall be calculated by assuming the value of K l-r in the column formula Uk=U—K l-r to be the maximum bending strain in the column produced by its compression. It shall also be assumed that the column will bend in a parabola. If the weight of the member produces additional shear, this must be added. The same column formula used in proportioning the section of the member shall be used for its lattice bars. When the value of l-r for the parts of struts connected by lattice bars is more than the value of l-r for the whole strut, the former value shall be used in the calculation of the value of the strut. Plate girders shall be proportioned by their moment of inertia. The gross section of the compression flange shall not be less than the gross section of the tension flange, and the width of the flange shall not be less than 1-12 of the distance between its side supports. The flanges of plate girders shall be connected to the web with a sufficient number of rivets to transfer the total shear at any point in a distance equal to the depth of the girder at that point, and in addition any load applied directly on the flange. The wheel loads where the ties rest on the flanges shall be assumed to be distributed over three ties. Stiffeners shall be riveted to the web as shown in the plans exhibited. Minimum radius of gyration of compression members shall be 1-100 of the length of member for trusses, and 1-120 for lateral and sway bracing struts. Approach spans, floorbeams, stringers, buckle plates, hand railings, stairways and all rivets shall be made of carbon steel. In case the main part of any member of the trusses is made of nickel steel, all the details and connections of such member shall also be nickel steel. In case the main part of any other member of the bridge is made of nickel steel, the details and connections may be made of carbon steel. All material in suspension designs shall be carbon steel.

The next section of the specifications deals with details of design, and provides that all parts of the structure be accessible for inspection, cleaning, painting and repairs; that drain holes be provided for all parts which will hold water; that the main members be so designed that the neutral axis will be as near as practicable in the centre of the section, and the neutral axes of intersecting main members of trusses shall meet at a common point, and for other details necessary for a work of this magnitude. Provision is to be made for the expansion produced by a variation of temperature of 150 deg. Fahr. Provision is also to be made for the inspection and handling of the material to be used in the bridge at all stages of its manufacture; for its shipment from the manufacturing plant to the place of erection, and for the false work to be used in the erection.

MATERIALS.

It is specified that all structural steel shall be made in an open hearth furnace. During the reduction of the steel in the furnace, decarbonization below 0.12% of carbon will not be allowed, and no stock used in the furnace shall contain more than 0.10% of phoshorus nor more than 0.07% of sulphur. The ladle tests of steel as usually taken shall not contain more than the following proportions of the elements named:—

	Acid.	Basic.
Phosphorus	0.06%	0.04%
Sulphur	0.07%	0.07%
Manganese	0.6%	0.6%
Silicon	0.10%	0.10%

The ladle test of the carbon rivet steel shall not contain more than 0.35% of

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phosphorus, nor more than 0.03% of sulphur. Specimens cut from the finished material shall show the following physical properties:—

Material.	Ult. strength lbs. per sq. in.	Minimum yield point lbs. per sq. in.	Minimum Elongation % in 8 in.	Minimum reduction % of area.
Shapes and plates.....	62,000 to 70,000	35,000	1,500,000 / ultimate	44
Rivets	48,000, to 56,000	28,000	1,500,000 / ultimate	50

Specimens cut from plates, bars, and shapes 2 in. wide shall bend cold 180 deg. round a rod of a diameter equal to the thickness of the specimen, when at or above a red heat, 180 deg. flat. Specimens cut from rivet rods shall bend 180 deg. flat when cold or, at or above red heat. A test piece 2 in. long when heated to a bright cherry red shall flatten longitudinally under the hammer to ¼ in. thick, without cracking on the edges. Full sized sections of I bar material as rolled without annealing shall bend cold about a rod of diameter equal to twice the thickness of the bar.

All nickel steel shall be made in an open hearth furnace and shall be rolled in the same manner as specified for rolled carbon steel with the addition of nickel. The ladle test shall contain not less than 3.25% of pure nickel, and not more than the same proportion of phosphorus, sulphur, manganese and silicon as mentioned in the tests for carbon steel. The physical requirements for plates and shapes in the finished material must meet the following physical requirements:—

Ultimate strength, 83,000 to 95,000 lbs. per sq. in.
Yield point, 55,000 lbs. per sq. in., minimum.
Elongation % in 8 in., $\frac{1,600,00}{\text{ultimate}}$ minimum.
Reduction in area, 40% minimum.

Nickel steel for pins in the finished material must meet the following physical requirements:—

Ultimate strength, 90,000 to 100,000 lbs. per sq in.
Yield point, 55,000 lbs. per sq. in minimum.
Elongation % in 8 in., $\frac{1,500,000}{\text{ultimate}}$ minimum.
Reduction of area, 35% minimum.

Specimens of nickel steel not less than 2 in. wide shall bend cold 180 deg. around a rod of diameter equal to twice the thickness of the specimen without sign of fracture.

Steel for castings shall be made in an open hearth furnace; at least one-third of all stock used for steel castings shall be pig iron, and where scrap is used, it shall be of a kind and quality satisfactory to the Chief Engineer. During the reduction of the steel in the furnace, it shall not be decarbonized below 0.10%. The ladle test for castings shall not contain more than 0.04% of phosphorus for basic steel, and 0.06% of phosphorus, 0.05% of sulphur, 0.75% of manganese and 0.35% of silicon for acid steel. The physical tests taken on coupons on the annealed castings shall show an ultimate strength of not less than 65,000 lbs. per sq. in., an elastic limit of at least 35,000 lbs. per sq. in., and an elongation of not less than 20% in 2 in. They shall bend without cracking 120 deg. around a rod twice the thickness of the test piece.

All steel for wire for the cables, suspenders and hand ropes shall be made throughout in an open hearth furnace lined with silica. The wire for serving the cables shall be made of Norway iron of a quality to be approved by the Chief Engineer. The melting stock used for wire steel shall consist of pig iron to the extent of not less than 45% of the total charge, together with other suitable melting stock. None of the pig iron and none of the other melting stock shall contain more than 0.03% of phosphorus or 0.03% of sulphur. The recarburization of steel is essential and the addition of manganese and carbon shall be accomplished by the use of ferro-manganese or spiegeleisen only, and shall be performed carefully, in a manner most likely, in the opinion of the Engineer, to give good results. During the reduction of the steel in the open-hearth furnace, it shall not be decarburized below 0.20%. The ladle tests of the steel shall conform to the following chemical requirements:—Carbon, not not to exceed 0.85%; Manganese, not to exceed 0.55%; Silicon, not to exceed 0.20% Phosphorus, not to exceed 0.04%; Sulphur, not to exceed 0.35%; Copper, not to exceed 0.02%.

The wire for cables, hand ropes and suspenders shall have an ultimate strength of not less than 215,000 lbs. per sq. in. before galvanizing, and an elongation of not less than 2% in 12 in. of observed length, the stretch to be measured while the specimen is in the testing machine. The bright wire shall be capable of coiling cold around a rod 1½ times its own diameter without sign of fracture. The cable wire before galvanizing shall not vary in guage more than 3-1000 of an inch. It shall be drawn on large-sized blocks, and finished in single lengths of not less than 3,000 ft., and shall be drawn as straight as possible without any kinks or sharp bends. After galvanizing, the steel wire shall have an ultimate strength of not less than 200,000 lbs. per sq. in. of gross section.

The other provisions of the specifications govern the making of the tests of the material, and of the parts of the bridge as manufactured, and before being erected; the painting, and the concrete and asphalt to be used in the flooring of the highways.

Tell Tales for Bridges, Tunnels, Etc.

The Board of Railway Commissioners passed the following order 11267, July 19: Re accident on Jan. 15, 1910, on the C.P.R. at snow shed 18, 1¾ miles west of Rogers Pass station, B.C. Upon an investigation by an Inspector of the Board into the cause of the accident and upon the report and recommendation of the Board's Chief Operating Officer, it is ordered that wherever a line of steam railway or any branch or portion of such railway, operated by a railway company subject to the legislative authority of the Parliament of Canada, passes through, or under, any tunnel, snowshed, bridge, or other structure, in which the perpendicular height between the base of rail and the lowest portion of the tunnel, snowshed, bridge or other structure, is less than 22½ ft., as required by the provisions of the Railway Act, the railway company shall, prior to Jan. 1, 1911, erect a suitable tell tale at each side of, and not less than 100 ft. distant from every such tunnel, snowshed, bridge or other structure. Order 10591, May 9, is rescinded.

The Acme Construction Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $40,000, and office at Berlin, to construct and equip railways and all other works, and to deal in railway and builders' supplies. The provisional directors are F. J. Todd, J. H. Wood, and W. J. Moody, Berlin.

Quebec Public Utilities Commission.

In the case of Mercier vs. The Quebec & Lake St. John Co., the Commission has given the following judgment:—The applicant states that he has been a wood merchant at Quebec, for a number of years, that he is in the habit of shipping large quantities of wood over the Q. & L.S.J. Ry.; that the railway only carries the wood twice a week, thereby causing car congestion; that as a consequence the applicant is unable to unload his cars in the 48 hours allowed for such purpose; that the railway obliges him to pay $1 per car, per day, after the said delay of 48 hours; that this charge is onerous and as a consequence the applicant has been obliged to curtail his business. The applicant asks for an order granting him 72 hours free time after delivery to discharge his cars. It appears that the relations between the applicant and the railway in respect of the matters complained of are governed by the Car Service Association's rules which have been adopted with the Railway Commission's approval after conference with both carriers and shippers, and should not be interfered with without grave cause therefor. Considering that these rules do not appear to have been fairly applied to the applicant's case, and that upon the suggestion of this Commission the railway has agreed to refund the demurrage of $10 paid by applicant, and to give him fair and liberal treatment under the rules in the future, in which the President of the Association, present concurred. Considering that the applicant has recourse to the Commission at any time should the foregoing arrangement not be fully observed, the arrangement is approved and no extension of time is presently granted.

The Railway Library, 1909.—Under this title S. Thompson, Manager of the Bureau of Railway News and Statistics, Chicago, has brought together a collection of noteworthy chapters, addresses, and papers relating to railways, which have been written or delivered by prominent railway men during the year. There are 17 papers and addresses, or chapters from books, covering such subjects as the pre-railway era in America, the railway situation of today, railways and the Pacific north west, the diminished purchasing power of railway earnings, railroads and the public, railroad problems of today, railway nationalization, and concerning advances in railway rates. The editor contributes an introduction and the statistics of American railways for 1909. The summary of railway mileage in the U.S. contained in the statistics shows 221,132 miles, against 216,460 in 1908, and included are 1,343 miles of lines in Canada operated by U.S. lines in 1909, against 1,273 operated in 1908. The volume is issued by the Gunthorpe Warren Printing Co., Chicago, Ill.

Transportation Building, Montreal.—With respect to the press reports that a transportation building is to be erected in Montreal, and that the principal railway and steamship companies had already taken space in it, we are advised that, so far as the G.T.R. and its affiliated lines and companies are concerned the report is incorrect. A building company has made a proposition to the G.T.R. Passenger Department for the establishment of a ticket office on the ground floor of the proposed building, to be occupied by the City Ticket Agent and his staff, such occupancy to be, in all probability, jointly with other railways entering Montreal.

J. McCraw, General Agent, Central Vermont Ry., New London, Conn., writes:—"I take pleasure in enclosing renewal subscription to your valuable and interesting magazine, the Railway and Marine World."

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Acadia Coal Co.—The Nova Scotia Legislature has amended this company's act of incorporation, passed in 1865, by authorizing the issue of $2,000,000 first and second preference stock, the latter to be exchanged for ordinary stock. The company has power to construct railways in connection with its collieries. (April, 1908, pg. 275.)

Alberta and Great Waterways Ry.—B. R. Clarke, brother of the President, is reported to have stated recently that the company had not made default in the payment of interest on the $7,500,000 of bonds. The money was in hand but the company was prevented from paying it over by the political situation in the province. The interest due July 1 was paid by the province, which held the funds produced by the sale of the bonds, and the company was ready to reimburse the Government the moment it was permitted to do so.

Some further litigation is likely to arise out of the formation of the company, G. H. Henwood having been given permission to issue a writ against W. R. Clarke, the President. Henwood is solicitor for A. Hawes, of Toronto, who also has an action against the company. (Aug., pg. 627.)

Alberta Central Ry.—The company has entered an objection with the Department of Railways, to the approval of the Canadian Northern Ry.'s plans for the line from south of Stettler, Alta., to Rocky Mountain House, on the ground that it parallels the line which the A. C. Ry. has entered into a contract to build under the act granting aid to certain railways, from Red Deer to Rocky Mountain House.

A recent press report states that a number of men with 25 teams were set to work recently, between the bend of the Red Deer River, and Red Deer, and that it was proposed to add to the construction forces as fast as possible. J. T. Moore, Red Deer, Alta., is principally interested in the line. (June, pg. 447.)

During the visit of the Dominion Premier and the Minister of Railways, to Red Deer, Aug. 11, the first rails were laid, the visitors driving the first spikes. Local reports state that the line has been surveyed for 200 miles to the south-east, and for 25 miles west of Rocky Mountain House.

Atlantic and Lake Superior Ry.—See Atlantic, Quebec and Western Ry.

Atlantic, Quebec and Western Ry.—Construction is being proceeded with and during July the steel work has been placed across the Big and Little Pabos Rivers, and track is laid and ballasted as far as Grand River, Que. From that point to Gaspe, work is being actively pushed and it is expected that the grading and trestle work and most, if not all, of the bridge work will be completed by the end of the season.

When we were advised, July 30, the Atlantic and Lake Superior Ry. was still being operated as a separate line, but trains were being run through from Matapedia to Newport on the Atlantic, Quebec and Western Ry., the officials in charge of the line are, Atlantic and Lake Superior Ry.: General Manager, C. R. Scoles; Roadmaster, B. Robinson. Atlantic, Quebec and Western Ry.: General Manager, A. Lemieux, Montreal; Superintendent, F. C. Bouvier; Auditor, J. S. Gordon; Chief Engineer, W. L. Browne. New Canadian Co., (operating the A., Q. and W. Ry., until completion): Managing Director, C. B. K. Carpenter, Montreal; General Manager in charge of construction, C. R. Scoles; Accountant, W. H. Giroux. Except where otherwise stated, the headquarters of these officials are at New Carlisle, Que.

The A. and L. S. Ry. has, since the above was written, been transferred to the Quebec Oriental Ry., which is a provincial company, the charter of which is held by the Atlantic, Quebec and Westery Ry. (June, pg. 447.)

Behring Strait Tunnel.—Cable dispatches from Paris, France, Aug. 9, state that a corporation is being formed for the construction of a tunnel under Behring Strait. The plans are said to provide for utilizing two small islands in the straits as ventilating towers, thus dividing the tunnel into three sections of about 10 miles each. F. Deloncle, formerly of the French diplomatic service, and J. Delobel, a capitalist, are mentioned as being interested, along with an unnamed retired president of a U. S. railway.

British Columbia and Alaska Ry.—J. Walkenstein, President, had an interview recently with the B.C. Premier, in which the question of the immediate construction of the line was discussed. The line which it is proposed to build will extend from Vancouver, via Lytton and Fort George to the northern boundary of the province. It is also proposed to build a line under other charters from Telegraph Creek to Skagway, Alaska, connecting with the north and south line. The right of way of this east and west line has been located and it is expected that construction will be started this year. A reconnaissance survey of the Vancouver-Fort George section of the north and south line has been completed by L. M. Rice of Seattle. In a subsequent interview the president said arrangements had been completed in London, Eng., for the financing of construction, the estimated cost of which was $25,000 a mile. H. Villard, Jr., son of H. Villard, who was prominent in the building of the Northern Pacific Ry, is also interested in the company. (Aug. pg. 627.)

Burrard Inlet Tunnel and Bridge Co.—The municipality of North Vancouver District, B.C., passed a by-law July 25, to purchase $250,000 of shares in the company, and to pay for the stock by debentures. The agreement with the corporation provides that the company shall erect a bridge across the second narrows of Burrard Inlet from the Burnaby municipality and North Hastings to North Vancouver and suitable railway works to give connection with railways on the south shore, for the opening up and development of the north shore of Burrard Inlet. The company agrees that the erection of the bridge shall be proceeded with within 10 months after the bylaw has been assented to by the Lieut.-Governor, and to have it and at least four miles of connecting railways completed within three years. The reeve of the municipality for the time being is to be a director of the company. The ratepayers of North Vancouver voted on similar bylaws Aug. 13, the amount of shares to be taken being $100,000. (June pg. 447.)

Detroit River Tunnel.—While the first train went through the tunnel under the Detroit River, between Detroit, Mich., and Windsor, Ont., July 22, the first passenger train, drawn by an electric locomotive went through July 27. The train carried U. S. and Canadian officials of the Michigan Central Rd., which owns the tunnel.

Dominion Atlantic Ry.—The Nova Scotia Legislature has guaranteed the principal and interest on the second debenture stock not exceeding £190,000. Money raised by the sale of the stock shall be applied subject to an agreement with the Government and it is understood that it will be used for the construction of a line to be known as the North Mountain Division. The Legislature also passed an act providing means for the payment by the Kent county municipality of the amount expended, or to be expended, on the purchase of land for track and station purposes and terminals. The lands to be taken shall not exceed ten acres for terminal purposes, and for station purposes, 1,000 ft. in length by 200 ft. wide. The line is to be built by June 1, 1912. (June, pg. 447.)

Graham Island.—Under instructions from the B. C. Government, C. L. McCammon, C.E., has made an examination of Graham Island, the principal island of the Queen Charlotte Island group, for the purpose of reporting upon certain proposals which have been made to the Government for the construction of railways there.

J. G. Johnson has paid fees on three areas of coal land totalling 43,520 acres for a Vancouver syndicate, in the vicinity of Sandstone Point, Masset Inlet and Naden Harbor; the Western Steel Co. is reported to have purchased 25,800 acres of coal lands in the vicinity of Naden Harbor and Parry Passage, and a Seattle, Wash., syndicate has also holdings on the island. (See Queen Charlotte Island Ry., May, pg. 353; Graham Island Ry., May, pg. 351, and Island Valley Ry., May, pg. 351.)

Great Northern Mining and Ry. Co.—This is the title by which the Great Northern Mining Co., a company incorporated under the Nova Scotia Companies Act will in future be known. The act passed last session of the Nova Scotia Legislature also provides that the company may build a railway from the Great Northern Plaster Works, Belle Marche, Cheticamp, northwesterly for about three miles to Eastern Harbor, with such spur lines as may be necessary for its works, and to connect with lines already built or to be built. (June, pg. 449.)

Halifax and Eastern Ry.—We are advised that Griffiths & Co., London, Eng., have the general contract for building the line. This firm has just completed building the Chilean-Andean Ry., in South America, and N. Griffiths, on completing an inspection of that line, which he was reported to be making July 30, will come to Halifax to take charge of the construction. Tenders for sub-contracts will, it is expected, be asked for shortly. It is quite possible, we are advised, that considerable construction will be done before the winter sets in. The company's securities have all been underwritten in England.

The company is reported to have leased the property at the corner of Portland and Water Sts., Dartmouth, as headquarters for its engineering staff. The engineers are working from Dartmouth over the route as laid down in the route maps filed with the Department of Railways at Ottawa, and it is expected they will have completed their work early in Sept. A. W. Kirkpatrick, of Kingston, Ont., went to Halifax, July 29, as consulting engineer to finally pass upon the plans as they are prepared by the staff. An application has been made to the Department of Railways for a contract under the act granting aid to certain railways, which provides for subsidies for the routes adopted. (Aug. pg. 627.)

Application has been made to the Department of Marine by the company's representatives for permission to purchase the naval property at Tufts Cove, about three miles from the Dartmouth ferry. A survey has been made at this point for a bridge across the narrows to give direct connection with Halifax. The town council has passed a bylaw granting the $50,000 bonus and other privileges asked for by the company, and this was submitted for approval to the ratepayers, Aug. 22.

A. K. Kirkpatrick, professor of Engineering, Queen's College, Kingston, Ont., consulting engineer, stated Aug. 12, that plans were being prepared and other work was being done in the of-

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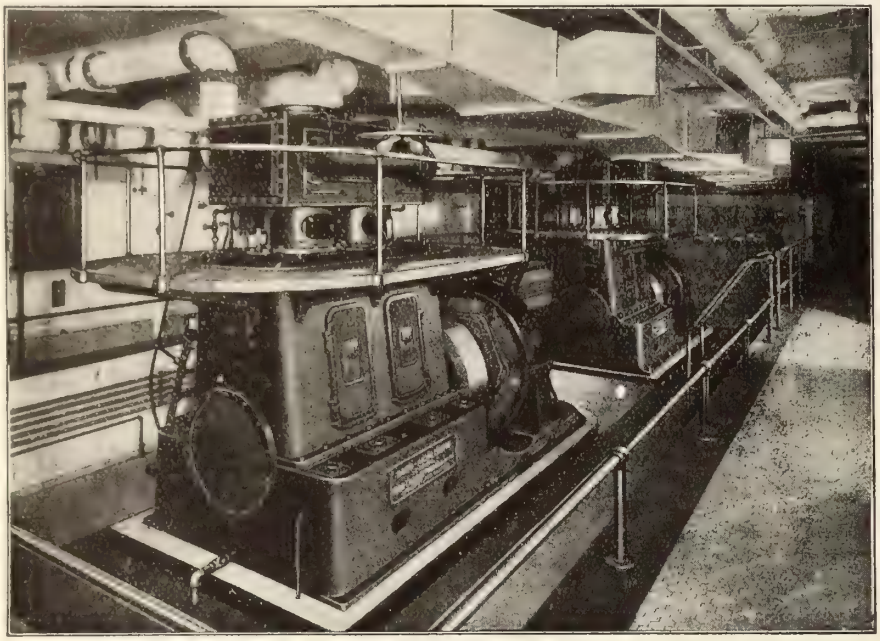

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fices at Dartmouth, in order that local contractors would be able to submit tenders for portions of the work. A beginning, he added, would undoubtedly be made by Sept. 1. W. A. Hendry is Chief Engineer in charge of surveys.

Halifax and South Western Ry.—In a recent interview at Halifax, W. Mackenzie said there was nothing new in regard to the line. Ore trains were being run almost daily over the Victoria Beach section from the iron ore mines at Torbrook to the shipping pier at Port Wade. He had just returned from an inspection over the line, including the branch to the Torbrook mines. (June, pg. 449.)

Hudson Bay and Pacific Ry.—The Chief Engineer received a letter from the Managing Director of the H. B. and P. Development Co., London Eng., Aug. 2, confirming a cable to the effect that the board authorized the statement that construction would be started on the line from Prince Albert, Sask., toward Hudson Bay during August. The letter added that the line would be built from Prince Albert to Fort Churchill, and the work completed with the least possible delay. A press dispatch, Aug. 2, says the route is laid out ready for the construction gangs for 85 miles from Prince Albert, and that further mileage is being located. A later dispatch said the General Manager, H. Spicer, was expected in Prince Albert by the end of August to initate construction work, and that all arrangements had been completed for the grading for a considerable mileage, and for the laying of about 20 miles of steel this year. (Aug. pg. 627.)

Intercolonial Ry.—The Nova Scotia Legislature has amended Chap. 98, of 1909, respecting the cost incurred by North Sydney for the extension of the Intercolonial Ry., to that town, by extending the time in which the town may borrow the money for such purpose, from 1½ to 2½ years.

Tenders are under consideration for the erection of a lumber store at Moncton, N. B.

We are advised that work has been started by Morrison & Clark, on the Chatham-Nelson cut off in New Brunswick. —. Torrance is engineer in charge.

Tenders have been called for the rebuilding of the roundhouse, repair shops and station recently destroyed by fire at Campbellton, N. B. The Government has set aside $250,000 for the work. (Aug. pg. 629.)

International Ry. of New Brunswick.—A contract has been entered into under the act granting aid to certain railways, respecting the building of 3.50 miles of the line which the subsidy voted by the Dominion Parliament in 1908 did not cover.

The Van Buren-St. Leonard's International Bridge Commission will receive tenders to Sept. 9 for the building of a highway bridge over the St. John River between St. Leonard's, N.B., and Van Buren, Me. The bridge will be 762 ft. long between back walls, and about 2,200 cubic yards of masonry will be required for the substructure, which has to be completed by Dec. 1, and is to be sufficient to carry a superstructure intended for carrying the tracks of a steam railway, as provided for in the terms of the subsidies voted by the Dominion Parliament and by the State of Maine. At present it is only designed to put up a superstructure to carry ordinary highway traffic, and this is to be completed by April 1, 1911. This is the bridge which it is expected will be used by the International Ry. of New Brunswick, now being completed between Campbellton and St. Leonard's, to make connection with U. S. railway systems at Van Buren, Me. (June, pg. 449.)

Inverness Ry. and Coal Co.—The Nova Scotia Legislature has authorized Inverness county to extend the time within which the railway, for which the country voted a subsidy, may be constructed. (June, pg. 449.)

Joliette and Lake Manuan Colonization Ry.—Route maps have been approved by the Department of Railways, for the projected railway for 108 miles from Joliette to Lake Manuan, Que. A plan was also filed with the Board of Railway Commissioners Aug. 3, showing a line from Joliette to Weymontachene, on the National Transcontinental Ry. The route as far as Lake Manuan has been approved by the company's engineers, and the location surveys for the first 10 miles completed. (Aug. pg. 631).

Kettle Valley Lines.—Work was started towards the end of July at Merritt, B.C., on the extension of the line up the Coldwater Valley, the contract for the building of which has been let to Macdonnell, Gzowski & Co., Vancouver. Chief Engineer McCullouch and —. Coley have charge of the survey which is reported to be well forward. The line follows the east bank of the river as far as possible, but in order to secure the lowest possible gradient, several bridges will be necessary. The section under construction will be about 30 miles long. A sub-contract is reported let for the first 10 miles to A. V. McDonald, and P. Gorman, and Jas Macdonnell says the rest of the line will be put in hand as fast as possible. President J. J. Warren and Chief Engineer McCullouch met the Penticton council recently. The President stated the company desired to obtain the right to cross certain streets in the town, a grant of foreshore from Winnipeg St. to Penticton Creek, and a flat rate for taxation for 20 years. It was proposed to make Penticton a divisional point, and 15 acres would be purchased for a roundhouse and machine shops. The plans laid before the council by the Chief Engineer showed that the line would follow the lake and come to Trout Creek, where probably a spur would be built to the lake. From West Point the line would begin to climb westward. After some discussion it was decided that a by-law would be submitted to the ratepayers fixing the taxation at $250 a year. The line between Midway and Merritt, President Warren stated, in an interview at Merritt, July 29, would be completed and in operation within 18 months. (Aug. pg. 629.)

Little Nation Ry.—The Quebec Legislature has approved the change of location of the projected line from that mentioned in sec. 7, chap. 86, Ed. VII., o:—From between Thurso and Monteoello on the Ottawa River to Cheneville, and northerly to Lake Nominingue, near the C.P.R.; from near Cheneville to Arundel, connecting with the Canadian Northern Ry., and northerly crossing Kiamika tp. and along the du Lievre basin to the G.T.P.R. It is provided that in the basin of the Lievre River that the line shall not be built more than a mile from the present Roman Catholic churches in Kiamika, Campbell and Pope tps. The company is also given an extension of time within which it may construct its railway. (June, pg. 451.)

Mabou Coal and Ry. Co.—The names of W. M. Fraser, Halifax, and R. P. Fraser, Pictou, N. S., have been substituted for those of W. P. Deppe and C. P. Garvie as provisional directors by the Nova Scotia Legislature. The company was also granted an extension of time within which it may build its authorized lines. (June, pg. 451).

Manitoba and Keewatin Ry.—An agreement dated June 15, between the company and the Trust and Guarantee Co., has been deposited in the office of the Secretary of State at Ottawa.

Manitoulin and North Shore Ry.—We are advised that the extension from Gertrude Mines to Crean Hill, Ont., was opened for traffic July 20. (Aug., pg. 629.)

Maritime Coal and Ry. Co.—The Nova Scotia Legislature has repealed sub-sec. G of section 2, chap. 153 of 1903-04, and substituted another which authorizes the company to build a line from Chignecto Mines to Maccan River on the headwaters of the Bay of Fundy, and from Chignecto Mines to the Maccan River, to Cold Spring Head or other point on the Northumberland Strait, to be operated by electricity or steam. (June, pg. 451).

Michigan Central Rd.—Work has been started upon the erection of a bridge at the crossing of the Welland Canal. The bridge will be 350 ft. long and will leave a clear width of 150 ft. over the canal. The piers upon which the bridge will be built will be 55 ft. deep, which will allow the canal to be deepened to 35 ft. The swing span of the bridge will be operated by electricity. (July, pg. 549.)

Montreal and Toronto Underground Lines and Terminals.—Representatives of the International Bond and Share Co. of New York have submitted offers to the city councils of Toronto and Montreal for the construction of underground railways and terminals in those cities. A. P. Gillies, C.E., who was engaged on the construction of the terminals at Tacoma, Wash., and Cincinnati, Ohio, stated in Montreal recently that all the company wanted was franchises from the cities, and it would provide all the terminal facilities required in either city.

Northern New Brunswick and Seaboard Ry.—In a recent interview, J. J. Drummond of the Canada Iron Corporation, stated that he expected the line from the Nipisiguit iron ore mines to the Intercolonial Ry. would be opened for traffic by the end of August, and that shipments of ore would be made immediately thereafter from the company's ore handling plant at Newcastle, N. B. (Aug. pg. 629.)

Pincher Creek, Cardston and Montana Ry.—Press reports from Pincher Creek, Alta., Aug. 1, stated that J. A. Taylor of New York, and others interested in this projected railway have opened an office in the town, and that a survey party is engaged locating a line to the International boundary. A contract is reported let for certain construction work to J. A. McGuire, which is to be started forthwith.

A later press dispatch states that two additional survey parties have been placed in the field, and that the whole of the survey work is being supervised by —. Fine, of Philadelphia, Pa. (Aug., pg. 629, and Aug., 1909, pg. 575.)

Port Moody, Indian River and Northern Ry.—See C.P.R. Betterments, Construction, etc. (Aug., pg. 631.)

Portland Canal Short Line Ry.—At a public dinner at Stewart, B.C., July 25, D. D. Mann said he had often been asked why he was building this railway. It was because there was an ocean port at one end of it, and a mining country at the other—an ideal transportation proposition. In addition to that, over in the Naas River Valley, there was a good farming country, with an abundant supply of coal, which it was hoped to reach with this railway in the near future. Whether the line would go through the Pear River pass or not he was not prepared to say, but the reports with regard to the pass were very favorable, and on his return he intended to send engineers to investigate the pass. He hoped to be able to build through it, and on the east to connect with all the great railway lines that reached the Atlantic coast, and also those north to Yukon and to Alaska. In conclusion he said:—"I have spent the last 30 years of my life in pushing back the fringe of civilization west and north. During that time I have been a pioneer in near-

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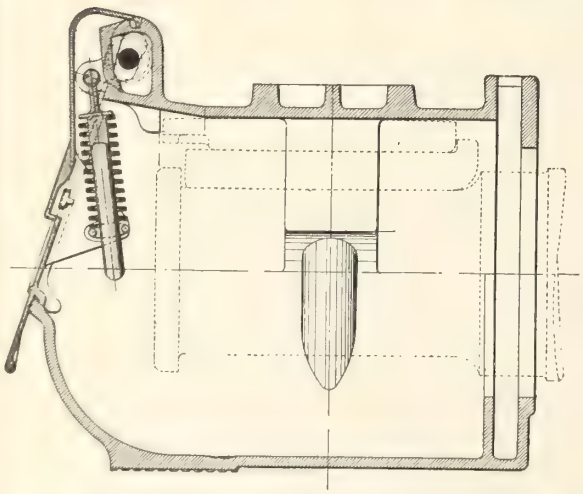

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ly every sense of the word. When I reached Winnipeg at Christmas, 1879, it was in advance of railway construction. With my own hands I prepared the railway ties which carried the first locomotive over the C.P.R., into that city. Now I have come to the Pacific Coast to help you pioneers to push the fringe of civilization eastward, and I assure you that we hope to do it." (Aug., pg. 629.)

Quebec Oriental Ry.—See Atlantic, Quebec and Western Ry.

Queen's Central Ry.—The provisional directors of this company, incorporated by the Nova Scotia Legislature are: J. G. Morton, F. S. L. Ford, Milton, N. S.; R. Barthing, Liverpool, N. S. It is authorized to build a line from Brooklyn, in Queen's County, along Liverpool harbor and river to Milton, and thence in a northerly direction to the Halifax and South Western Ry., between Pleasant River and Caledonia, to be operated either by steam or electricity. (June, pg. 451.)

Reid Newfoundland Co.—There were 2,100 men engaged in building the Bonavista Branch when W. D. Reid, President, recently made a trip of inspection over it. He was able to travel in his private car over the first 20 miles of the branch, and he inspected the rest of the route. There is a good deal of heavy rock work to be done, but it is expected to have it fully completed by the end of the year. (Aug. pg. 631.)

Temiskaming and Northern Ontario Ry.—Col. Matheson, Ontario Treasurer, on his recent return to Toronto, after an inspection of the T. and N. O. Ry., expressed his satisfaction with the line and its operation. The location was being changed in one or two places, and a bad curve at mileage 61 is to be cut out altogether at an early date. The question of the opening of the Kerr Lake branch is under consideration.

The commissioners having decided not to build a line into the Porcupine district at present, the local people have taken the matter up, and after some negotiations with the Ontario Government, a special charter for the operation of a line is to be given to A. Ferland, C. A. Richardson, W. C. Chambers, A. J. Burdette and W. A. Gordon. The branch is to start from Matheson westward to the Timagami country, and will be constructed as a standard gauge line, steam being employed as a motive power, unless electricity should be available. Survey parties were sent out to locate a route Aug. 1.

The line will be about 35 miles long, and, according to present reports, will have easy gradients. Construction is to be completed by Jan. 1911. It is to be built as a feeder to the T. and N. O. Ry., and no traffic is to be diverted to the G. T. P. R.. (Aug. pg. 631.)

Toronto, Hamilton and Buffalo Ry.—We are advised that Hamilton officials are not aware of any project for the construction of a passenger station in that city in which the T. H. and B. Ry. is interested. This statement has reference to recent press reports that a project was under consideration for the erection of a large joint terminal in the city. (Aug., pg. 631).

Toronto Industrial Spurs.—Tenders will be received by the Toronto board of control to Sept. 6, for the supply of 20,800 ft. of relaying rails, 400 oak and 4,800 cedar ties, for the spur line which the city proposes to build to the Ashbridges Bay district of Toronto.

Vancouver, Westminster and Yukon Ry.—The company has been notified by the B.C. Government that when it is ready to proceed with construction, and has sufficient funds to complete its undertaking, the Government will deal with the proposal to grant it the assurance of facilities of approach to the proposed bridge over the second narrows in Vancouver harbor. (May, pg. 355.)

The Value of Accuracy as defined by a General Manager.

G. J. Bury, General Manager of the 6,443 miles of lines which comprise the Canadian Pacific Railway's vast system from Fort William on the east to Vancouver Island on the west, has risen to his present position by sheer force of ability and hard work. Starting his railway career as a stenographer for that master mind of Canadian railways, Wm. C. Van Horne, in the eighties, and traveling with him over the whole system as it rapidly grew, he received an initial training such as falls to the lot of few young men, and with his powers of absorption, he took full advantage of it. In his first titled position, acting Superintendent of Dining, Sleeping and Parlor Car Service, he "made good," and rapidly earned promotion which placed him as Assistant Superintendent at Chalk River. In succession, he became Superintendent, first at North Bay, then at Fort William, and afterwards at Cranbrook, B.C. Returning east, he was appointed Assistant General Superintendent of the Lake Superior Division, then General Superintendent of the same division. The next move took him back west to Winnipeg, as General Superintendent of the Central Division. Then he was appointed Assistant General Manager of the Western Lines, and later General Manager of the same. Mr. Bury has been a subscriber to the Railway and Marine World since its inception, and is therefore in a position to speak authoritatively of it. Following is a letter he addressed to our Managing Director recently:—

Winnipeg, Aug. 3, 1910.

Dear Mr. Burrows,—The curse of our age is inaccuracy, or rather superficiality. In the business world, nine men who come before you have only skimmed the surface of their subject. They are like the busy little bee which flits from flower to flower, sucking the fragrance from each, never taking any thought of the roots. The tenth man has his case prepared, and he does not insult your intelligence by half truths and much verbiage; he charms it by sound argument deduced from well verified premises. Because the Railway and Marine World, like the tenth man, is always accurate, always concise, and always decisive, I esteem it.

I trust every young railway officer will learn from it the example of thoroughness and practicability and to be succinct.

Yours faithfully,

G. J. BURY.

The accuracy of the Railway and Marine World's information, attained by the expenditure of much time and money in organizing a thorough system of gathering official railway news and data, is its most valuable asset. The testimony to the value of this feature, which comes to us almost daily from subscribers among every class of railway officials from Newfoundland, from every Province of the Dominion, and right through to the Yukon, is ample compensation for the cost which such accuracy entails. During the years that passed before such a system could be perfected, we said little in these columns about it, recognizing the advisability of not going duck shooting with a brass band. Now that the system has been perfectly established, we feel we may dwell on it a little without being accused of egotism.

Mr. Bury expresses the hope that young railway officers will learn from our columns the lesson of thoroughness and practicability, and it is doubtless owing to such a desire on the part of very many of them, that our circulation is not confined to railway officials, but embraces a large number of clerks and other young men, who, in order to merit promotion, wish to keep thoroughly posted on every phase of Canadian railway work, to study the problems with which the various departments have to cope and who know that they can only do so through the columns of Canada's only railway paper.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers to distinctly understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

The Canadian Westinghouse Co. has recently issued circulars 1017, describing the Westinghouse Potential Regulators, and 1155, relating to the series arc lighting system with Cooper-Hewitt rectifier.

The Commercial Acetylene Co.'s booklet H, describes in detail, the company's Standard locomotive headlight equipment, with illustrations of the various types. The car lighting equipment is fully described in booklet C. Both pamphlets will be supplied on application.

The Brown Hoisting Machinery Co., Cleveland, O., has issued a catalogue of its modern ore and coal handling machinery, consisting of a series of fine illustrations of recent installations. The designs of the machinery and the methods adopted, are brought into strong relief, when compared with the means utilized about 20 years ago, of which a number of illustrations are also given. The catalogue contains no detailed description of the machinery, which will be given, by the company, to those interested.

The Montreal Steel Works, Ltd., which some time ago purchased property at Longue Pointe, east of Montreal, to be used for an extension of its plant, has decided, owing to the increased demand for its products being now beyond its capacity, to build a new plant, which, when completed, will have a capacity of 20,000 tons a year. It is proposed to provide $1,000,000 by the issue of bonds in this connection, and the company estimates that when the new works are completed and organized it will be able to increase its total net profit to not less than $300,000 a year. To defray the cost of land, buildings, etc., in the immediate future, $750,000 will be required, and it is proposed to issue bonds for that amount as soon as possible, and for a further $250,000 later on.

Railway Subsidy Contract.—The Department of Railways has entered into a contract with the International Ry. of New Brunswick under the act granting aid to certain railways for the building of 3.50 miles of line not covered by the subsidy voted by the Dominion Parliament in 1908.

A survey party is working from St. John, N.B., in connection with the geodetic survey of Canada. Two other parties are in the field, one in northern Ontario and the third in Manitoba.

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C.P.R. Betterments, Construction, Etc.

St. Andrews, N.B., Hotel.—It is reported that arrangements are being made for the addition of another large concrete wing to the Algonquin Hotel, St. Andrews, N.B.

Brownville, Me.—In the course of a fire in Brownville, Me., July 28, the company's repair shops were destroyed.

St. Maurice Valley Ry.—The extension of the St. M. V. Ry. from Shawinigan to Grand Mere, Que., about seven miles, has been completed. The line was turned over to the operating department Aug. 14, and a regular train service run through from Three Rivers. This gives Grand Mere a direct connection over the C.P.R. with Montreal and Quebec, in addition to the service over the Canadian Northern Quebec Ry.

Place Viger Station and Hotel.—A property known as lot 105 in St. James ward, Montreal, just east of Place Viger station was reported Aug. 5, as having been sold to the C.P.R. for $20,000.

Windsor St. Station, Montreal.—Contracts have been let to the Dominion Bridge Co. for the steel work, and to the C. E. Deakin for the masonry and general work on the annex to the Windsor St. station, Montreal. The work is to be completed by Nov., 1911. The estimated cost covered by these contracts is about $1,250,000. The contract let to the Bishop Construction Co. for certain other work in connection with the building has been completed.

Ottawa Entrance.—In connection with the company's project for rearranging its lines in Ottawa, including the construction of a tunnel on a section of the Rideau Canal, which is now under consideration, a suggestion has been made somewhat modifying the proposal, as originally submitted, but making it possible to run the Toronto-Montreal trains through the city instead of as now making Smiths Falls the point at which Ottawa passengers leave and join the Toronto-Montreal trains.

The company has secured options on certain properties adjoining its Sussex St. yards, the purchase price being fixed at $125,000. It is understood that these properties are being acquired for yard extension.

Georgian Bay and Seaboard Ry.—The question of the entrance of this C.P.R. line from Victoria Harbor into Peterboro, Ont., is being discussed between the company's officials and the council. The company's plans show that four streets will be closed and a subway constructed. As the result of a conference it was decided to amend the plans so that only Chamberlin St. would be closed, and the subway built at the corner of Romaine St. and Monaghan road. The company also agreed to give the city a right of way to the river, but an agreement could not be reached as to the price to be paid by the company for the water front land west of the present C.P.R. spur line. The committee of the council asks $15,000, and the company offers $6,000, which would represent the cost of filling it in.

Toronto Viaduct-Yonge St. Bridge.—The Imperial Privy Council has granted special leave to the C.P.R. to appeal against the orders of the Board of Railway Commissioners as to the building of a viaduct along the water front in Toronto, and a bridge to carry Yonge St. over the tracks at the foot of Yonge St.

Toronto Westerly Second Track.—Some gangs of men have been started grading westerly from Lambton station to the Humber River, south of the existing track, and an engineering party is at work taking levels and putting in stakes for a second track from the west bank of the river to Islington, where the newly completed line to Mimico starts. The existing second track from Toronto ends east of Lambton station.

Islington-Mimico Line. — Tracklaying has been completed on this short branch line connecting the Toronto-Windsor line with the G.T.R. at Mimico.

St. Thomas to Port Stanley, Ont.—A suggestion has been made that the city council of St. Thomas, which has a charter to build an electric railway to Port Stanley, make an arrangement with the C.P.R. for building the line. The idea is that the city will run a passenger service over it in connection with the street railway, the C.P.R. operating the freight trains.

A London, Ont., report states that the C.P.R. has been making enquiries with a view of obtaining running rights over the London and Port Stanley Ry., owned by the city of London, and operated under lease by the Pere Marquette Rd. The reason for this move is said to be that Port Burwell harbor is not easy of navigation owing to quicksands, and that constant dredging is necessary to keep it open. The C.P.R. operates a car ferry service between Conneaut, Ohio, and Port Burwell, for the coal traffic, which, if the proposal is carried out, would be transferred to Port Stanley.

Lake Superior Division.—Considerable work is being done this season in the way of general improvements upon this division. New rails are being put in, the track reballasted, trestle bridges are being filled in, and other bridges are being rebuilt.

Winnipeg-Brandon Second Track.—We are advised that it has been arranged that the contractor for the second track work between Winnipeg and Portage la Prairie, Man., is to continue the building beyond the latter point towards Brandon. No limit has been fixed as to the point he will reach this season. It is not the intention to lay any steel beyond Portage la Prairie this year.

Brandon Southeasterly.—The Department of Railways has approved a route map showing a line from Brandon, Man., southeasterly to tp. 6, range 10, w.p.m., 83 miles.

Osborne, Southwesterly.—The route map has been approved by the Department of Railways for a line from Osborne, Man., southwesterly to tp. 6., range 6, w.p.m., 41.9 miles.

Weyburn-Lethbridge Line.—Replying to a request from the Lethbridge board of trade that grading on this line be started from the Lethbridge end to meet the gang working westerly, Vice President Whyte stated recently that he was not favorable to the idea. It was stated in the request that farmers in the district were willing to give a free right of way if the line were completed this year. The owners of 67 quarter-sections along the line had signed the offer to give this right of way through their land.

Branch to Aldersyde.—Vice President Whyte recently wrote the Lethbridge board of trade stating that it had been decided to complete the grading of the line from Carmangay to Aldersyde, Alta., this season. A contract was subsequently let to Foley, Welch and Stewart for the work on the 26 miles between the two points. A station is being built at Carmangay.

Strathcona-Edmonton Bridge. — The contract for the erection of the substructure of and the approaches to the bridge to be built across the Saskatchewan River between Strathcona and Edmonton, Alta., has been let to J Gunn & Co., Winnipeg. Work is to be started at once.

Crow's Nest Pass Line.—The 70 lb. steel rails on this line between Fernie and Galloway, the starting point of the Kootenay Central Ry., are being replaced by 85 lb. ones. In connection with this work the sharp curves are being cut out, and the gradients are being reduced.

Revelstoke-Big Bend, etc.—In connection with press reports that the company is having a survey made in the Beavermouth district for a line along the Columbia River around the Big Bend to Revelstoke, B.C., we are advised that it has men looking over the country in the vicinity of its lines studying settlements and the necessity for providing railway service.

Kamloops, B.C.—The company has acquired about a mile of water front property in Kamloops, at a reported cost of $100,000. It is stated that the object of the purchase is to provide a new right of way, the company's line at present running along the principal business street. A considerable amount of work is being done in the way of enlarging and improving the yard facilities.

Port Moody, B.C.—We are advised that the line under construction at Port Moody, B.C., is a spur for the C.P.R., about 3.50 miles long, from the main line to the north arm of Burrard Inlet. The contractors are Macdonnell, Gzowski & Co., Vancouver, and P. M. Smith is engineer in charge of construction. The Port Moody, Indian River and Northern Ry., which was at first reported to be interested, has nothing to do with the line. That company is owned locally, C. T. Dunbar and associates, who are large land owners in the vicinity, being in control. Nothing has been done, nor will be done, we are advised, with this charter, the C.P.R. having secured a prior location.

Hotel Construction.—A large amount of building work is being done on the C.P.R. hotels in Western Canada during the current season. A new wing to the Empress Hotel at Victoria, B.C., is expected to be completed by Oct. 1. At the Vancouver Hotel, a wing containing 60 bedrooms, with 50 bathrooms, a banquetting hall and ballroom, is expected to be completed about Sept. 1. At Lake House an addition of 100 rooms will be started as soon as the hotel is closed for the tourist season. At Banff work has been started on an extension to contain 50 rooms, and a large swimming pool will be constructed. At Sicamous Jct., an extension of 40 bedrooms, with 20 bathrooms, has been completed, and a new hotel of 50 rooms, with 30 bathrooms, is under construction at Proctor.

Esquimalt and Naniamo Ry.—We are advised that nothing has yet been done in connection with the proposed Cowichan Lake Branch.

The Canadian Coal Corporation of New Brunswick, Ltd., has been incorporated under the N.B. Companies Act, with a capital of $299,000, and head office at Salmon Harbor, to take over the property and assets of the Canadian Coal Corporation, incorporated in the State of Maine; to develop coal and other properties, and in connection therewith to construct and operate railways, by steam, electricity or other motive power; to erect telegraph and telephone lines, and to own and operate steam and other vessels for the conveyance of passengers and freight. The provisional directors are F. P. Shaw, St. John; T. Beckwith, Providence, R.I.; C. Rosenthal, Boston, Mass.; W. G. Lotze, New Haven, Conn.; T. T. Hazlewood, New York City.

T. McHattie, Superintendent Motive Power and Car Department, Central Vermont Ry., St. Albans, Vt., in sending in his renewal subscription writes: —"As is the usual experience, I find the Railway and Marine World very interesting. I wish you continued success."

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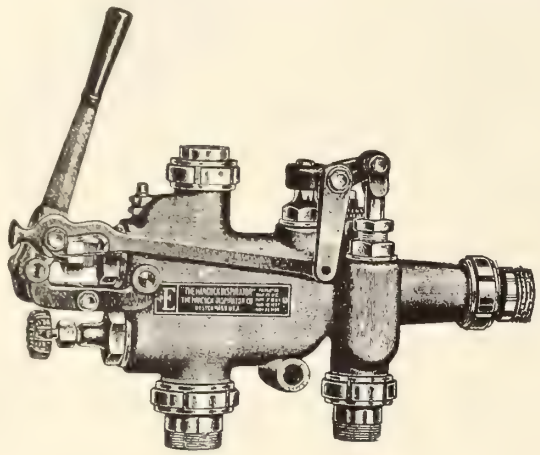

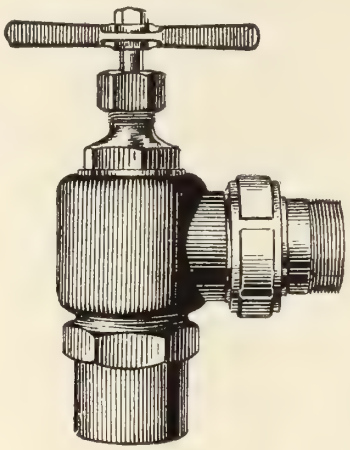

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Canadian Northern Ry. Construction, Etc.

In the course of a recent interview in Montreal, President Mackenzie said that during four and a half years the company had done nothing on its main line, but in that time it had built 1,200 miles of branch lines. This policy of keeping the branch lines well along, he said, caused the success of the C.N.R. as a freight carrier on the plains and from Lake Superior westward. There had been already laid this year about 260 miles of track in Alberta and Saskatchewan. In addition to the 60 mile contract on the Pacific section of the line, the company had also let a contract for the construction of 140 miles from Edmonton, and the work would be pushed vigorously from both ends, till the tracklayers met somewhere in the Rocky Mountains in about three years time. It might be possible also about the same time to complete the connection between the head waters of Lake Superior and the St. Lawrence River.

Canadian Northern Quebec Ry.—The question of the location of the company's shops in the city will again come up for consideration at the Sept. meeting of the Quebec council.

The branch line from near L'Epiphaine to Rawdon, 5.7 miles, has been completed and will be opened for traffic shortly. It is over 50 years ago that a railway connection was first projected at Rawdon, by the Rawdon and Industry Ry., but until the C.N.Q. Ry. built this branch line nothing was ever accomplished in the way of giving Rawdon railway connection with the outside world.

W. Mackenzie, President, left Montreal Aug. 12, after spending four days there. On Aug. 10 he had a lengthened conference with Sir Thos. G. Shaughnessy, President C.P.R., but what the subject of the conference was has not been made public. Press reports state that it had to do with an arrangement for joint terminal facilities in Montreal and Toronto, and for the settlement of a number of matters upon which the officials of the two companies in different places are not in harmony.

Canadian Northern Ontario Ry.—Work on the first section of the line from Toronto to Ottawa is well advanced as far as Trenton, Ont., to which point the first contract let carries the work. The first bridge in the Don valley, at Leslie St., Toronto, has been completed, and the rails were expected to be laid across it and through the ravine as far as Woodbine Avenue by Aug. 20. About a mile east of Leslie St., is a big cut which will take about a month of steam shovel work to get through. From this point track can be laid on the Dawes road, where the abutments for the superstructure of the overhead bridge have been completed. From there to Scarboro the work is nearly completed, and a good deal of track has been laid easterly from Scarboro. It is expected that the bridge work in York and Scarboro townships will be completed and the track laid early in Oct. The grading has been completed to the town limits of Trenton, and track has been laid along portions of the 100 mile section. The connecting up of these different sections is being proceeded with. The station and other buildings are also in course of erection.

A resolution has been passed by the Peterboro council authorizing Alderman Phalen to act with the Industrial Committee for the purpose of endeavoring to secure the entrance of the C.N.O. Ry. into the city.

H. K. Wicksteed, who has charge of locating the line between Sellwood and Port Arthur, Ont., stated recently that the route was almost all surveyed, and it was altogether likely that construction would be started in the spring. A Port Arthur dispatch of Aug. 12 stated that three parties of engineers are engaged in the work of completing the location of the line, one having its quarters near Long Lake, the second west of that point, and the third near Sellwood. The question of the entrance to Port Arthur from the east is under consideration by the city council, the plans filed showing a route along the shore of the bay on the lake side of the C.P.R. from the C.N.R. station, through to Bare Point, not being altogether approved of.

The plan, profile and book of reference of the location of the James Bay Ry., now the C.N.O. Ry., through the county of Laval, Que., mileage 38 to 40, Hawkesbury east, has been deposited in the Registry office at Ste. Rose, Que. This is a section of the proposed new short line from Hawkesbury, Ont., to Montreal.

Duluth, Winnipeg and Pacific Ry.—The tenants of the property which the company has acquired in West Duluth were given 10 days notice to vacate June 26. H. T. Hazen, the company's Chief Engineer, said, Aug. 12, that work on the 500 ft. tunnel was to be started at once. Construction camps have been established every four miles along the line between Duluth and Virginia, Minn., and work is being proceeded with rapidly.

Canadian Northern Ry.—A contract for the first section of the new roundhouse at Port Arthur has been let to S. Brown, Winnipeg, who has started work. The foundations will be of piles and concrete, the superstructure of bricks. The capacity of the section to be built will be 10 locomotives, and it is to be completed by Oct. 31.

The excavation for the Pembina St. subway at Winnipeg has been completed, and the cement work is being rapidly gone ahead with. It is expected that the work will be completed by Sept. 30. Application is being made for authority to extend an industrial spur line now terminating between Rosser Ave. and Mulvey Ave., in block 10, D.G.S., 32, St. Boniface, plan 208, across Mulvey Ave. and Fleet Ave., and to extend to the lane between Garwood and Fleet Avenues, Winnipeg. A permit has been granted by the Winnipeg city council for the building of coach shops in the west yard to cost $42,000, the contractor for the work being the Carter-Halls-Aldinger Co.

The Winnipeg city council, Aug. 6, referred the company's application respecting an elevated line at the north end of Norwood bridge to the City Engineer and City Solicitor for a report. The plans show an elevated structure from where the line leaves the Assiniboine River to an eighth of a mile south easterly. The structure would cross Main St. and Bell Ave., 14½ ft. above the street level, thus permitting street cars to pass underneath.

A Winnipeg dispatch of Aug. 18 says:—"The Canadian Northern Railway was reported today to have completed arrangements with the St. Boniface city council for extensive improvements there within the next two years, including a large roundhouse, storehouses, coal warehouses, freight sheds, the union station to be shared with the G.T.P.R., and a new traffic bridge to be built across the Red River from Winnipeg. The total improvements will cost over $1,000,000, and the company has signed a bond guaranteeing the completion of the work within two years."

A contract has been let for the erection of a station and hotel building in Brandon, Man., to Thos. Kelly & Sons, Winnipeg. A full description of the building is given on another page.

In reference to the work in progress on the company's Oakland extension, we are advised that the line is being extended to mileage 445, Jas. McRae having the contract for the grading. It has not been decided whether the line will be extended northerly to meet the Ochre River branch.

Application has been made by the C.N. Ry. to the Regina, Sask., city council for permission to build joint passenger terminals there with the G.T. Pacific Ry.

R. J. Mackenzie recently completed an inspection of the Shellbrook extension as far as Crooked Lake, Sask. The line right to the lake was expected to be completed Aug. 30.

Work on the line from Vegreville to Calgary, Alta., is being gone on with rapidly. Ballasting is being proceeded with southerly from Camrose, while northerly the station buildings, etc., are being put up. The interlocking plant at the crossing of the C.P.R. at Camrose has been installed. In connection with the entrance of the line into Calgary, M. H. McLeod, General Manager and Chief Engineer, stated July 28, that the company's line would probably be used by the G.T. Pacific Ry., and that there would be a joint station. Negotiations are being carried on with the Calgary city council on the proposal. A Calgary dispatch states that track has been laid for about 50 miles south of Stettler and that the grading on the line should reach that city by the end of Sept. Another dispatch states that contractors are being asked if they will begin work at once on the construction of a line from north of Gleichen or Strathmore, southerly to Lethbridge and Coutts. This is one of the lines for which the Alberta Government has guaranteed the company's bonds.

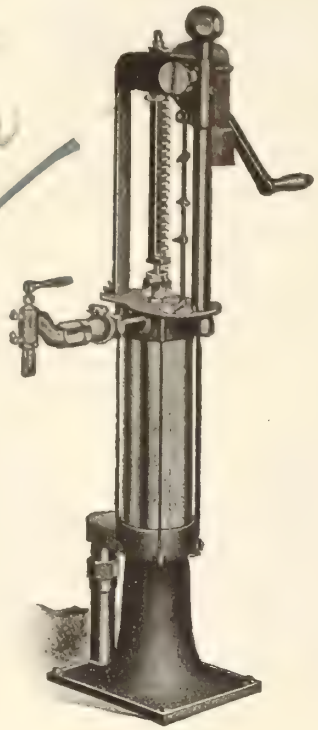
The Department of Railways has approved of a route map showing a line for about 14 miles through tps. 25 and 24, ranges 25 and 27, west of the fourth meridian.

D. D. Mann, Vice President, recently wrote to the Athabasca Landing board of trade to the effect that if it were at all possible the company's line from Edmonton, now terminating at Morinville, 23 miles out, would be completed to the Landing this year. A copy of the letter has been sent to the Edmonton board of trade.

We are advised that the contractors for building the line westerly from St. Albert, north west of Edmonton, to the Pembina River, are McMillan Bros. and Kenny. This contract covers about 140 miles, and is the line referred to by the President in the interview quoted in the first paragraph under this heading.

We are advised that the contract for the grading of the line from near Stettler westerly to the Brazeau coal fields, Alta., has been let to the Northern Construction Co., Winnipeg. The line starts from the Vegreville-Calgary line about six miles south of Stettler and runs westerly to Rocky Mountain House. It is expected to have about 30 miles graded this season. The contractors are reported to have begun work July 25. The plans shows that the line will run westerly through Alix, paralleling the C.P.R crossing the C.P.R. Calgary-Edmonton line, across part of the experimental farm and Senator Talbot's farm south of the town, then northwesterly to the Brazeau coal fields. The route plans of the line came before the Department of Railways at Ottawa, Aug. 11. A portion of the line was approved, and the company was asked to make enquiries as to the feasibility of locating a route north of Lacombe to Rocky Mountain House, instead of the one for which approval was asked, which parallels the Alberta Central Ry., now under construction from Red Deer. The A.C. Ry. Co. objected to the route asked for being approved.

Canadian Northern Pacific Ry.—Speaking at Kamloops, B.C., Aug. 4, the Provincial Premier said the C.N.P. Ry. had made overtures to the Government



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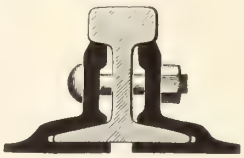

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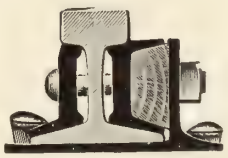

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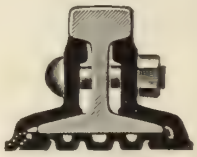

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for aid in building several hundred miles of branch lines in the province. The lines mentioned included branches into the Okanagan and Kootenay countries, and an extension on Vancouver Island to Quatsino Sound. It was essential that branch lines should be built as feeders to the main line. In all probability the question of the building of such lines would be taken up and dealt with at the next session of the Legislature.

A preliminary survey is reported to have been made from near Kamloops into the Okanagan country. The surveyed route follows the old stage route between Kamloops and Okanagan, traversing the Grand Prairie district, Campbell Creek and the Upper Salmon River Valley.

The plans for the main line show that it will pass by Kamloops, some four miles up the North Thompson River Valley. The Kamloops council and other public bodies, having discussed the matter, waited upon the Provincial Premier Aug. 4, to urge him to bring pressure to bear on the company to put the main line on the other side of the river, so that it could be taken into Kamloops. It was suggested that the Government pay two-thirds of the cost of the two bridges necessary, but the Premier said he could not promise that anything in the way suggested would be done.

The C.P.R. has entered an objection to the approval by the Government of the C.N.P.R. plans for seven miles of its line along the Thompson River, and seven miles along the Fraser River, in close proximity to the C.P.R. tracks. G. A. Mountain, Chief Engineer of the Board of Railway Commissioners, met the officials of both companies in Vancouver Aug. 11 to discuss the matter, prior to making an inspection of the two sections of the route. Mr. Mountain will report on the matter to the Board at a meeting to be held in Vancouver Sept. 5.

A New Westminster report, Aug. 8, says that beyond the cutting of the timber and the slashing of the brush no construction work had been done. The clearing work already done extends from almost directly opposite the Western Canada Lumber Mills Co. to west of Bon Accord. Gangs of men were then engaged clearing away the cut brush and getting ready for the grading which was expected to be started in the following week. The right of way has also been slashed from near Liverpool for a considerable distance, and from the Great Northern Ry. right of way to the water's edge. The exact site of the waterfront terminals has not been determined, but it is expected that they will be between Liverpool and Port Kells. D. D. Mann, Vice President, was in New Westminster Aug. 5, and is quoted as having said in an interview that Port Mann would have the largest railway yards on the coast. The townsite will embrace an area of about 2,000 acres. He was just looking over the ground, but Mr. Holt, one of the firm's engineers, would be sent out at once to make the location surveys for the line into New Westminster.

Subcontracts have been let by the Northern Construction Co., which has the general contract for the first 60 miles easterly from New Westminster, as follows:—C. J. Johnson, Seattle, Wash., 20 miles; W. P. Tierney, Nelson, B.C., from Mission east 10 miles; McDonald Bros., Vancouver, B.C., 30 miles. The last two named contractors have had their outfits on the job since July 25, and C. J. Johnson got his out Aug. 8. The engineer in charge of construction is —. Swan, at Langley, B.C., with assistants at Mount Lehman, and Port Kells.

In connection with the lines on Vancouver Island Vice President Mann had a lengthened interview with the Provincial Premier at Victoria, Aug. 2, at which the company's proposals were discussed. The route of the lines to be built under the charter of the Victoria and Barclay Sound Ry. are being laid out, and the question of additional lines, it is expected, will be arranged in time for the meeting of the Legislature. (Aug., pg. 649.)

Toronto Viaduct and Yonge St. Bridge.

The Judicial Committee of the Privy Council has granted the C.P.R. special leave to appeal from the judgments of the Ontario Court of Appeal and the Supreme Court of Canada, in the matters of the orders: (1) To construct a bridge to carry Yonge St., Toronto, over its tracks, and (2) To construct a viaduct to carry its tracks along the Toronto water front, with suitable openings for streets running north and south. The circumstances of the case were described as follows:—Both the C.P.R. and G.T.R. pass through Toronto. The G.T.R. runs along the southerly part of the Esplanade—a highway 100 ft. in width extending from east to west—which was originally constructed parallel to the shore in the waters of the harbor. The C.P.R. was constructed at a later date immediately to the south of the Esplanade on an embankment contiguous and parallel thereto. In 1904 the two railways were ordered by the Railway Committee of the Privy Council of Canada to construct a bridge carrying Yonge St. over both railways, so as to connect it with the wharves which abut on the lake. The estimated cost was about $500,000. The companies brought actions against the city of Toronto to quash that order, on the ground of want of jurisdiction. The Ontario High Court dismissed those actions, and on appeal the Ontario Court of Appeal affirmed the High Court's decision. The C.P.R. did not appeal against those judgments because the city of Toronto announced its intention of not enforcing the order, but of applying for the adoption of some other scheme. Later on the city applied to the Board of Railway Commissioners (the successors of the Railway Committee) for the elevation of all the railways along the Toronto water front upon a viaduct, with suitable openings for access to the streets running north and south. On June 9, 1909, the Board ordered that the railways should be elevated on that viaduct. The cost was estimated to exceed $6,000,000. The Supreme Court of Canada in a second suit decided that the Board had jurisdiction to make that order. From these judgments the petitioner applied for special leave to appeal.

For the petitioner, it was stated that not only was there an enormous sum involved, but there were several important questions of law, one being whether special statutes of the Dominion and Provincial Legislatures, which ratified an agreement made in 1892 between Toronto and the C.P.R. and G.T.R., did not operate to oust the jurisdiction of the Board of Railway Commissioners. In granting the petition, Lord Macnaghten said that having regard to the important interests at stake, the committee would do all it could to expedite the hearing.

Railway Lands Patented.—The following railway lands, situated in Manitoba, Saskatchewan, Alberta and British Columbia, were patented, during June:—

	Acres.
Calgary and Edmonton Ry.	4,161.42
Canadian Northern Ry.	20,524.38
Canadian Pacific Ry	1,793.445
Canadian Pacific Ry. roadbed and station grounds	517.625
Grand Trunk Pacific Ry.	55.16
Manitoba and Northwestern Ry.	162.77
Manitoba and Southeastern Ry.	1,932.12
Qu Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co.	642.00
Total	29,788.92ρ

Great Northern Ry. Lines in Canada.

Virginia, Minn., to Winnipeg, Man.—Reports are current in Duluth, Minn., that surveys are about to be made for the location of lines to connect up the G.N.R. near Virginia, Minn., with Winnipeg.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—It is expected that a contract will be let shortly for a line from Oroville on the International boundary to Penticton, B.C. The grading of the 18 mile section between Princeton and the Tulameen River, at the approach to the Hope Mountains, is expected to be completed in Oct. Just west of Princeton is a tunnel having a length of 1063 ft. Instructions have been received from St. Paul, Minn., that the gradients across the Hope Mountains must be still further reduced before any further contracts for construction will be given out. The gradient going east from Coquehalla summit and from the same summit west down to Hope, according to last year's surveys are 1% and 2½% respectively. From Princeton to Hope the distance by the route surveyed is 92 miles. The alternative to this long mileage and heavy gradient was an eight mile tunnel, but it does not seem likely that the tunnel will be adopted, as a revision survey is now in progress under J. E. Floyd. This survey party was sent out on the return of A. H. Hogeland, Chief Engineer G.N.R., and J. H. Kennedy, Chief Engineer V., V. & E. Ry. and N. Co., from a trip between Hope and Abbotsford.

Construction is in progress along a stretch of 13 miles from Abbotsford and Sumas River. There are six construction camps with a force of about 350 men. In addition to ordinary equipment the contractors are using three steam shovels and six dinkeys. Tenders for bridge construction were closed recently. The located lines of the V., V. & E. Ry. and the Canadian Northern Ry. from Sumas to Hope, 36 miles, are on the same right of way. In some instances for miles they are less than 15 ft. apart.

The amended plan, profile and book of reference for a line from the east line of section 15, township 16, to the west line of township 26, New Westminster district, a distance of 18.3 miles, certified by the Board of Railway Commissioners for Canada, has been deposited in the Registry office at New Westminster.

Work is in progress in Vancouver on five new tracks in the yards there. (Aug., pg. 623.)

Western Canada Power Co.—The company, as the successor of the Stave Lake Power Co., has secured from the B. C. government some amendments to its charter under the Water Act of 1909. This, however, does not affect its railway construction powers which are derived from a special act of the Dominion Parliament. Two gangs of men are engaged in grading the right of way from Ruskin, B. C., along the Stave River valley, to the power development site about seven miles. The line will be operated by steam until the company is ready to deliver power, when it will be electrified. The construction of the pole line from Ruskin to New Westminster, about 40 miles, is being proceeded with. In New Westminster, the company has leased 100 ft. of water frontage for storage purposes. (Aug. pg. 631.)

Liverpool and Milton Tramway Co.—The Nova Scotia Legislature has fixed the capital of the company at $250,000, and authorizes it to build a line from Milton via Greenfield and Caledonia to Bear River or other terminal point in Digby or Annapolis county. (May, pg. 351.)

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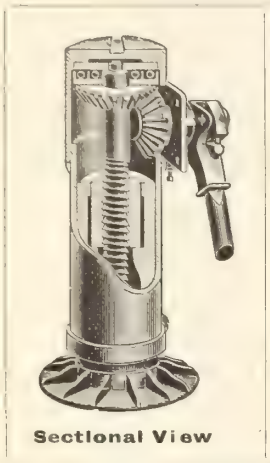
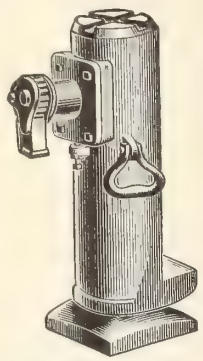

Sectional View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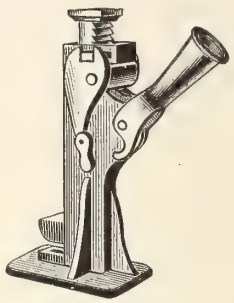
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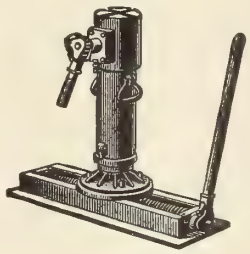
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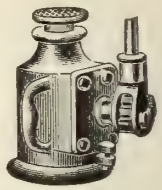
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Orders by the Railway Commissioners.

Beginning with June, 1904, we have published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed our paper have a continuous record of the Board's proceedings. No other paper has done this.

The dates given of orders, immediately following the numbers, are those on which the hearing took place and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the date assigned to them.

11161. July 14.—Authorizing Petrolea Electric Light, Heat, Power and Gas Co., to lay pipe under M.C.R. at Centre St., Petrolea, Ont.

11162. June 27.—Amending order 9726, Feb. 25, authorizing city of Brantford, Ont., to construct bridge on South Market St., by substituting Niagara, St. Catharines and Toronto for Toronto, Niagara and Western in recital and operative parts.

11163. July 13.—Amending order 10169, Dec. 8, 1909, by striking out words, "or in connection with any obligation on the part of the C.P.R. Co. to contribute to the cost of the work," in the preamble.

11164. July 14.—Extending time for construction of overhead bridge by G.T.R. between cons. 1 and 2, King tp., Ont., until Sept. 1.

11165. July 14.—Ordering G.T.R. to establish farm crossing at farm of T. Desilets, St. Celestin parish, Que.

11166. July 14.—Authorizing Orillia tp., Ont., to construct highway crossing over G.T.R. at Severn Bridge station.

11167. July 14.—Dismissing application of L. Lamontagne, St. Malachie, Que., for farm crossing over National Transcontinental Ry.

11168. July 14.—Dismissing application of residents of Norval, Ont., for order directing G.T.R., to stop train No. 9, leaving Toronto at 7 p.m.

11169. July 14.—Extending time for construction of bridge to carry Toronto Ry. and highway over G.T.R., C.P.R., and C.N.R., at Queen St. East, Toronto, until July 1, 1911.

11170. July 16.—Approving Crows Nest Southern Ry., Manitoba Great Northern Ry., and Bedlington and Nelson Ry. Standard Freight Tariffs.

11171. July 15.—Amending order 10419, May 2, by deleting all words after the word "approved" and inserting the following: "Subject, however, to the conditions (a) that if the construction of the said railway involves the crossing of Stave River Road, application to the Board for permission to make such crossing shall first be made and leave obtained; and (b) that wherever the applicant's track or right of way encroaches on said road, the road shall be put in as good condition as before construction commenced, to the Road Superintendent's satisfaction.

11172. July 13.—Authorizing C.N.O.R. to cross G.T.R. near Ottawa.

11173. June 27.—Authorizing C.N.O.R. to cross Victoria St., Colborne, by overhead bridge, the village to close that part of Queen St. east of the right of way.

11174. June 27.—Relieving M.C.R. from maintaining watchman at crossing 0.71 mile east of Woodslee station, Ont.

11175. July 15.—Authorizing city of Toronto to construct two sewers under G.T.R. at Keele St. and Indian Road.

11176. July 15.—Authorizing city of Port Arthur, Ont., to lay sewer under C.P.R. at Clarke St.

11177. July 20.—Authorizing Sherwin-Williams Paint Co., to lay pipe under C.P.R. at Atwater Ave., and St. Patrick St., Montreal.

11178. July 19.—Authorizing Queen City Oil Co., to lay pipe across G.T.R., at Muskoka Wharf, Ont.

11179. July 20.—Authorizing Petrolea Electric Light, Heat, Power and Gas Co., to lay pipe under G.T.R. between lots 12 and 13, Enniskillen tp., Ont.

11180. July 21.—Authorizing town of Maisonneuve, Que., to erect wires across Montreal Terminal Ry. at Bennett Ave.

11181, 11182. July 19.—Authorizing city of London Water Commissioners to erect wires across London and Port Stanley Ry. at Simcoe and Grey Sts.

11183 to 11192. July 19.—Authorizing city of St. Thomas, Ont., to erect wires across G.T.R. at Alma St., across M.C.R. at Metcalf and Railway Sts., across G.N.W. Telegraph Co.'s wires at Alma, Palm, Wellington and Elm Sts., and across London and Port Stanley Ry. at Elm, Wellington and Palm Sts.

11193 to 11197. July 20.—Authorizing city of London Water Commissioners to erect wires across C.P.R. at Adelaide St., across London and Lake Erie Ry. and Transportation Co., at Grand Ave. and Grey St., and across M.C.R. at Bathurst St. at two points. points.

11199. July 21.—Authorizing Saraguay Electric and Water Co., to erect wires across C.P.R. on Ontario St. East, Montreal.

11200. July 15.—Authorizing Montreal, Light, Heat and Power Co., to erect wires across G.T.R., at Broadway, Lachine, Que.

11201. July 14.—Authorizing Seymour Power and Electric Co., to erect wires across Bell Telephone Co.'s wires at lot 13, con. 1, Thurlow tp., Ont.

11202. July 21.—Authorizing Seymour Power and Electric Co., to erect wires across G.T.R. at lots 8 and 9, con. 2, Thurlow tp., Ont.

11203 to 11212. July 14.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s and Toronto Power Co.'s wires and G.T.R., in East Flamboro, West Flamboro, Etobicoke, Pelham, Nelson, Toronto, Stamford, Gainsboro tps., and Bay St., Hamilton.

11213. Aug. 19.—Authorizing C.P.R. to cross S.D. 4, lot 325, group 1, Kootenay District, B.C.

11214. July 15.—Approving location of C.P.R. branch line from Estevan to Forward, Sask.

11215. July 19.—Authorizing G.T.R. to build branch line to Laprairie Brick Co.'s premises, Laprairie, Que.

11216. July 19.—Authorizing C.P.R. to build four sidings across Tarte Ave., Foster St., Wallace St., Blair Ave., Daly Ave., Langevin St., and Tupper St., Wardner, B.C.

11217. July 19.—Approving amended agreement between Bell Telephone Co. and Hazeldean Rural Telephone Co., dated Oct. 6, approved by order 8583, Nov. 5, 1909.

11218. July 19.—Relieving C.P.R. from providing further protection at Zorra St. crossing, Beachville, Ont., and rescinding order 11136, July 8.

11219. July 18.—Rescinding order 8768, Nov. 28, 1909, re C.P.R. crossing at Mackey St., Head tp., Ont.

11220. July 18.—Authorizing city of Fort William, Ont., to build subway under street railway at James St.

11221. July 19.—Authorizing G.T.R., to build passing track across and upon Victoria and Ontario Sts., Colborne, Ont.

11222. July 19.—Approving road diversion of G.T.P.R. in s.w. ¼ sec. 1-53-27, w. 4 m., North Alberta District.

11223. July 19.—Approving C.N.O.R. plan of proposed structure at station 2467, sec. 5, division A, mileage 218.6, Pickering tp.

11224. July 19.—Authorizing C.P.R. to build across and divert highways on its Macleod to Lethbridge revision of its Crows Nest Branch from mileage 0 to 30.7, being from west boundary of sec. 36, tp. 8, r. 22, w. 4 m., to east boundary of sec. 12-9-26, w. 4 m., Alta.

11225. July 20.—Relieving Temiscouata Ry. from providing further protection at crossing at mileage 33, south of St. Louis station, Que.

11226. July 21.—Authorizing G.T.P. Branch Lines Co., to connect its Melville-Yorkton Branch with C.P.R. Northwestern Branch at Yorkton, Sask.

11227. July 21.—Authorizing C.P.R. to build between secs. 8 and 9-15-33, w. p. m., at Wapella, Sask.

11228. July 21.—Authorizing, subject to conditions of agreement between Lethbridge Brewing and Milling Co., et al, and C.P.R., April 11, the building of a spur between n.w. ¼ sec. 29-12-9, w. 4 m. and n.w. ¼ sec. 30-12-5, w. 4 m., Medicine Hat, Alta.

11229. July 21.—Authorizing C.P.R. to build spur across Scarth and Cornwall Sts., Regina, Sask.

11230. July 19.—Authorizing C.N.O.R. to operate trains over crossing of C.P.R. Arcola Branch, without first being brought to a stop.

11231. July 21.—Amending order 11093, June 28, by substituting "Dovercourt" for "Davenport," one of the streets to be crossed, in the recital.

11232. July 19.—Authorizing G.T.R. to build a branch to Western Canada Foundry Co.'s premises, Wingham, Ont.

11233. July 19.—Authorizing G.T.R. to build branch to Imperial Rattan Co.'s premises, Stratford, Ont.

11234. July 19.—Authorizing C.P.R. to build spur for Taylor Lumber Co., in lot 1879, G1, Kootenay District, B.C.

11235, 11236. July 19.—Approving, temporarily, forms of agreements between Bell Telephone Co., and Alnwick Rural Telephone Co., and Bell Telephone Co., and West Williams Rural Telephone Co., June 15 and 23, respectively, for interchange of messages.

11237, 11238. July 15.—Authorizing C.P.R. to build bridge 80.5, over Duck Creek, Sirdar Section, Western Division; and bridge 19.82 over Didgeguash River, New Brunswick Southern Ry.

11239. July 15.—Authorizing city of Fernie, B.C., to erect wires across C.P.R.

11240, 11241. July 15.—Authorizing C.P.R. to build bridge 84.1 over Little Creek, Windsor Section, Ontario Division; and to rebuild bridge 41.9 over St. Lawrence River, Farnham Section, Que.

11242. July 15.—Approving location of C.P.R. station at Shepard, Alta.

11243. July 15.—Authorizing St. Mary's Wood Specialty Co., to lay drain along C.P.R. spur at St. Mary's, Ont.

11244. July 15.—Approving G.T.R. interlocking plant to be installed at Lynden Jct., Ont.

11245. July 15.—Authorizing C.P.R. to build spur across Blackfoot Trail, and block 5, Calgary, Alta.

11246. July 14.—Authorizing C.P.R. to build branch from spur at western boundary of lot 3, block 67, sec. 15-24-1, w. 5 m.

11247. July 14.—Authorizing C.P.R. to build extension to Port Haney Brick Co.'s spur, lot 398, sec. 17, tp. 12, e.c.m., Haney, B.C.

11248. July 14.—Authorizing C.P.R. to build spur for South Alberta Lumber Co., n.w. ¼ sec. 32-8-21 w. 4 m., Lethbridge, Alta.

11249. July 14.—Relieving Windsor, Essex and Lake Shore Rapid Ry. from providing further protection at con. 6, Sandwich highway, Ont.

11250. July 15.—Relieving Boston and Maine Rd., from providing further protection at crossing at North Derby, Que.

11251. July 15.—Authorizing G.T.R. to build between lots 89 and 90, con. 1, Tiny tp., Ont.

11252. July 15.—Authorizing St. Lawrence and Adirondack Ry. to build side track near Adirondack Jct., Que., across Viau Road and Grand Trunk highway.

11253. July 15.—Approving G.T.P. Branch Lines location from north line of Saskatoon District to Battleford, Sask.

11254, 11255. July 15.—Authorizing G.T.R. to build between lot 13, con. 1, and lot 13, con. 2, and across public road on lot 92, con. 1, Tiny tp., Ont.

11256. July 14.—Authorizing C.P.R. to build spur across lane and lots 18 to 20, block 69, Calgary, Alta.

11257. July 15.—Authorizing C.N.R. to operate trains over G.T.R. crossing near Brooklin, Ont., without first being brought to a stop.

11258. July 15.—Approving C.N.O.R. strain sheets for beam span of bridge over Goforth's Creek, lot 26, con. 4, Whitby tp.

11259. July 20.—Authorizing G.T.R. to build branch from its District 19, Middle Division, to E. D. Smith's premises, across Page St., St. Catharines, Ont.

11260. July 19.—Authorizing C.P.R. to rebuild bridge 0.3 over Yamaska River, St. Guillaume Branch, Eastern Division.

11261. July 19.—Approving C.N.R. location through St. Albert, and tps. 54-55, r. 26-28, w. 4 m., mileage 0 to 15.51, from junction with Morinville Branch, Alta.

11262. July 19.—Relieving C.P.R. from providing further protection and removing speed limit of 10 miles an hour at North Boundary Road crossing east of Streetsville Jct., Ont.

11263. July 21.—Approving C.P.R. Standard Freight Tariff C.R.C. W. 1443, between stations in Saskatchewan and Alberta, west of Canmore excepted, and between these stations and stations in Manitoba and Ontario.

11264. July 18.—Authorizing village of Morse, Sask., to build crossing over C.P.R. by extending Brownlee St.

11265. July 18.—Amending order 10891, June 13, by adding 159 before 167, in line 6 of the recital; and in line 5 of operative part, the words, "and (d) the location of the applicant's second track from mileage 19 to 74."

11266. July 22.—Relieving C.P.R. from further protection at public road crossing about ¼ mile east of MacGregor, sec. 32-10-11, w. p. m., Man.

11267. July 19.—Re tell tales at tunnels snow sheds, etc. This order is given in full on another page.

11268. July 21.—Authorizing C.N.R. to build across streets in Prince Albert, Sask., and ordering that it shall make compensation to persons for damage sustained.

11269. July 23.—Approving plan of G.T.R. freight and passenger station at Three Rivers, Que.

11270. July 21.—Declaring illegal toll of $1.50 charged by C.P.R. on marble slab from Montreal to Hamilton.

11271. July 23.—Approving location of C.P.R. station building at Vernon, B.C.

11272. July 20.—Authorizing C.P.R. to build between cons. 1 and 2, lot 7, Etobicoke tp., Ont., and to join G.T.R. main line.

11273. July 15.—Approving G.T.R. track rearrangement at Cobourg, Ont., with the exception of the most northerly spur connecting the east leg of Y.

11274, 11275. July 12-15.—Authorizing C.N.O.R. to cross G.T.R. at Belleville and Cobourg, the latter crossing to be protected by [illegible].

11276. July 19.—Approving C.N.O.R. location through Belleville and Thurlow tp., mileage 133 to 135.

11277. July 18.—Authorizing C.N.O.R. to

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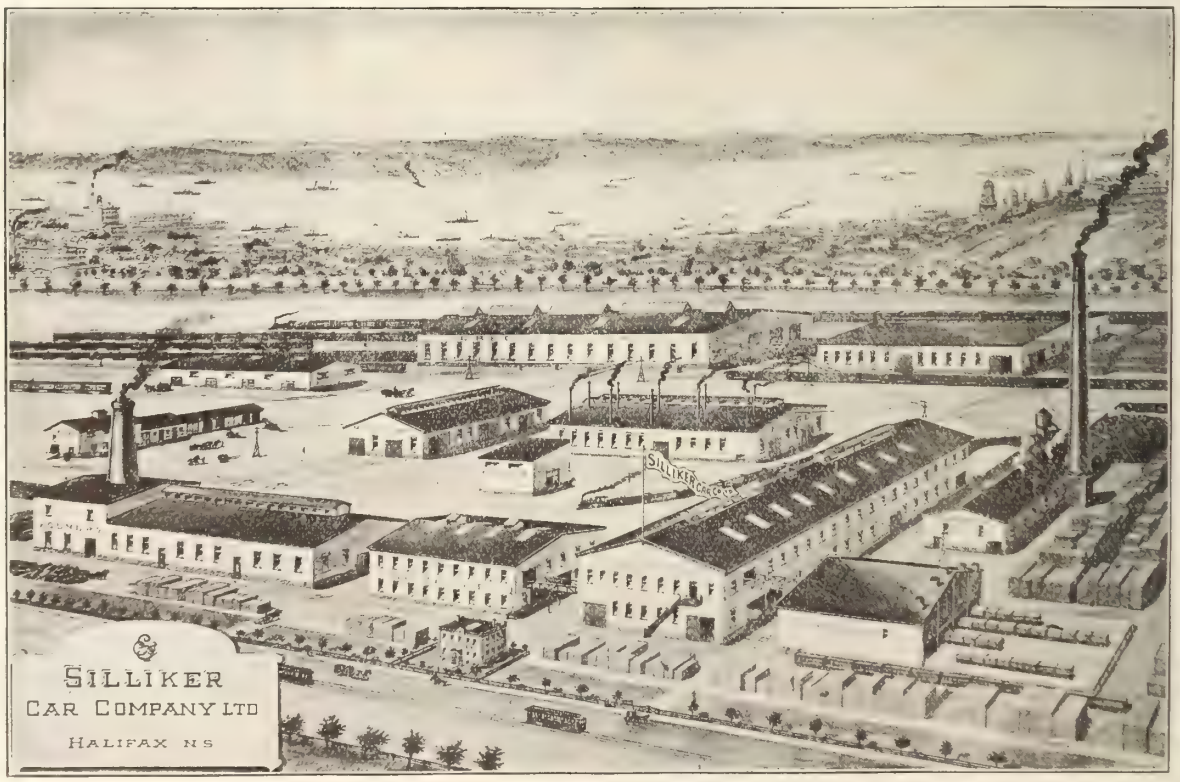

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cross Division St., Colborne.
11278. July 19.—Authorizing C.N.O.R. to cross G.T.R. overhead, and to build viaduct across Port Hope Creek, Hope tp., and rescinding order 10815, June 9.
11279. July 26.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at lots 126 and 129, Thorold tp.
11280 to 11284. July 26.—Authorizing city of London Water Commissioners to erect wires across G.T.R. at five points.
11285. July 26.—Authorizing W. J. Aikens, Dunnville, Ont., to lay pipe under Hamilton and Brantford Electric Ry., near Cainsville.
11286. July 26.—Authorizing village of Warwick, Que., to lay pipes under G.T.R. at cadastral lot 153, Tingwick tp.
11287. July 25.—Authorizing city of Winnipeg, to lay sewer under C.P.R. at Selkirk Ave.
11288. July 25.—Rescinding order 10999, June 27, cancelling order 9977, March 23; and approving portions of Alberta Central Ry., one mile west and one mile east of Red Deer, Alta.
11289. July 26.—Extending to Sept. 15, time within which C.P.R. is to improve crossing at con. 7, Millbank, Ont.
11290. July 26.—Relieving Dominion Atlantic Ry. from providing further protection at first crossing west of Port William station, N.S.
11291. July 26.—Rescinding order 11020, June 28, approving C.N.R. location through tps. 26-23, r. 24, w. 4-5, in Alta.
11292. July 26.—Relieving Dominion Atlantic Ry. from providing further protection at crossing two miles west of Weymouth, N.S.
11293. July 26.—Authorizing C.P.R. to build spur across Railway Ave, and block 32, and across Alberta Ave. and block 33, Camrose, Alta.
11294. July 22.—Relieving T.H. & B. Ry. from providing further protection at crossing between lots 18 and 19, con. 11, Ancaster tp., Ont.
11295. July 25.—Authorizing C.P.R. to build between sec. 24-16-4, and sec. 19-16-3, w. 2 m., Percival, Sask.
11296. July 25.—Authorizing G.T.R. to build spur for Sawyer-Massey Co. across Wentworth St., Hamilton, Ont.
11297. July 26.—Authorizing G.T.P. Ry. to carry traffic over portion of its line between Winnipeg and Edmonton.
11298. July 26.—Authorizing G.T.R. to build four branch lines to St. Lawrence Pressed Brick and Terra Cotta Co.'s premises, Laprairie, Que.
11299. July 26.—Authorizing C.P.R. to build spur to Wilson Paterson Co.'s premises, Montreal.
11300. July 25.—Authorizing C.N.O.R. to build between lots 12 and 13, con. A, Hamilton tp.
11301, 11302. July 27.—Approving C.N.R. location from mileage 24 to 37.22 down, and from mileage 15 to 24.7 up, the Fraser River from Yale, B.C.
11303. July 27.—Authorizing Western Canada Power Co. to build across Whonnock Road, near Ruskin, B.C.
11304. July 27.—Approving location of C.N.O.R. Sudbury-Port Arthur Division through unsurveyed territory in Sudbury Mining Division, mileage 180 to 200 from Sudbury Jct.
11305. July 25.—Relieving C.P.R. from providing further protection at Martin Street crossing, Milton, Ont.
11306. July 25.—Approving agreement between Bell Telephone Co. and G. Wright & Co., re interchange of messages.
11307. July 26.—Authorizing G.T.P. Branch Lines to cross C.N.R. in n. e. ¼ sec. 20-38-26, w. 2 m., at Dana, Sask.
11308. July 28.—Authorizing C.N.O.R. to carry freight over portion of its line from junction with its main line at Udney, to Atherley, Ont., at speed not exceeding 10 miles an hour.
11309 to 11311, July 27.—Authorizing Provincial Natural Gas and Fuel Co., to lay pipe under G.T.R. at Dain and Hellams Aves., at two points, Welland, Ont.
11312. July 28.—Authorizing city of Chatham to lay pipe under P.M.R. on London Road.
11313. July 28.—Authorizing C.N.O.R. to build between lots 7 and 8, con. 3, Hope tp., and rescinding order 9537, Feb. 14.
11314. July 28.—Authorizing C.P.R. to build spur for J. Moyse, Winnipeg.
11315. July 26.—Authorizing C.N.O.R. to build between lots 8 and 9, con. 3, Hope tp.
11316. July 29.—Disallowing the C.P.R. rate of 16c. per 100 lbs. on grain and grain products from Birtle, etc., to Fort William and Port Arthur, and requiring C.P.R. to restore the rate of 15c. per 100 lbs., to take effect not later than Sept. 1.
11317. July 29.—Dismissing C.P.R. application for order settling the questions to be argued upon Appeal to Supreme Court, now pending, from order 10340, Apr. 26.
11318. July 29.—Authorizing G.T.R. to build spurs to premises of T. F. Firth & Sons, and A. Keith, Mimico, Ont.
11319. July 29.—Ordering Boston & Maine Rd. to install electric bell, within 60 days, at main road crossing, Lennoxville, Que.
11320. July 29.—Authorizing C.P.R. to build across road allowance on west boundary of s. w. ¼ sec. 18-18-15, w. 2 m., McLean, Sask.
11321. July 28.—Ordering G.T.R. to install electric bell at crossing between lots 20 and 21, con. 1, Cramahe tp., Ont., within 90 days.
11322. July 29.—Authorizing C.P.R. to build across road allowance on west boundary of s. w. ½ sec. 32, tp. 17, r. 7, w. 3 m., Ernfold, Sask.
11323. July 28.—Authorizing Taber municipality, Alta., to build DeVeber Ave. across C.P.R.
11324. July 30.—Authorizing C.N.O.R. to build across William, Burnham, Ontario and D'Arcy Sts., and Cottesmore Ave., Cobourg.
11325. July 28.—Authorizing C.P.R. to use certain bridges in its Chapleau, White River, Nipigon and Schreiber sections, Ont.
11326. July 26.—Refusing application of Montreal Board of Trade for official classification less-than-carload ratings on rubber goods, but that restriction of first class to "carriage and waggon" in classification 14, be removed and that in the forthcoming supplement 3, this item be changed to read —"tires, solid, in packages, first class."
11327. Aug. 2.—Rescinding order 10315, Apr. 21, authorizing C.N.O.R. to build subway under public road through lot 3, con. 2, Hope tp.
11328. Aug. 2.—Approving St. Maurice Valley Ry.'s supplement 1 to Standard Passenger Tariff C.R.C. 1, applying between Shawinigan Falls and Grand Mere, Que.
11329. Aug. 2.—Amending order 11141, June 27, by inserting "at its own expense" after "authorized" in line 2 of the operative part.
11330. Aug. 2.—Authorizing city of Fort William, Ont., to build subway for street railway, under C.P.R., G.T.P.R. and C.N.R., at James St., and rescinding order 11220, July 18.
11331. Aug. 2.—Authorizing province of Alberta to build highway crossing over Calgary and Edmonton Ry. Lacombe branch, at Clive.
11332. Aug. 2.—Authorizing G.T.P. Branch Lines Co., to cross C.N.R. spur at grade, with its Yonge-Prince Albert branch, at Prince Albert, Sask.
11333. Aug. 2.—Ordering C.N.O.R. to build suitable farm crossing for J. C. Scripture, at lot 29, con. 1, Cramahe tp.
11334. Aug. 2.—Approving C.N.O.R. Hawkesbury-Montreal line revised location through Chatham tp., mileage 6.08 to 9.36 from Hawkesbury.
11335. Aug. 2.—Authorizing C.P.R. to build spur for Cranbrook Electric Light Co., at Cranbrook, B.C.
11336. Aug. 2.—Authorizing C.P.R. to use bridges on its Woodstock, Gibson and St. John sections, N.B.
11337. Aug. 2.—Authorizing C.P.R. to build bridge over the Little Bow River, at mileage 28.33-28.57, Lethbridge to Aldersyde branch, Alta.
11338. Aug. 2.—Authorizing G.T.R. to take, for construction of additional terminal facilities, and round house and shops, at Belleville Jct., certain lands in Thurlow tp., Ont.
11339. July 30.—Authorizing city of London Water Commissioners to erect wires across C.P.R. at Oxford St.
11340. July 27.—Authorizing Western Canada Power Co., to cross Heaps Timber Co.'s railway at Ruskin, B.C.
11341. Aug. 3.—Authorizing C.N.O.R. to build between lots 8 and 9, con. 4, Scarboro tp.
11342. Aug. 3.—Authorizing C.P.R. to use bridges 0.46; 19.9; 19.3; 19.74; and 33.4, on its Edmundston section, N.B.
11343. Aug. 3.—Approving Kettle River Valley location from Nicola, Kamloops and Similkameen Ry. at Merritt, 10 miles southwesterly, B.C.
11344. Aug. 3.—Extending to Sept. 30, time within which C.P.R. is required to complete station at Eganville, Ont., by order 10563, May 10, 1910.
11345. Aug. 4.—Authorizing C.N.R. to open for traffic portion of its line from Prince Albert to Sheelbrook, Sask., 28½ miles.
11346. Aug. 4.—Authorizing C.N.O.R. to build between lots 2 and 3, con. 2, Hope tp.
11347. Aug. 4.—Approving masonry diagrams of bridges on District 20, G.T.R., over G.T.R., mile post 76.02; Avon River; Wharle Creek; Thames River; and over public road at mile post 154.05, Ont.
11348. Aug. 3.—Approving C.N.R. location through tps. 5 and 6, r. 19-26, w. 2 m., mileage 147.14 to 203.85., Sask.
11349. Aug. 3.—Approving G.T.P.R. revised location from n. w. ¼ sec. 24.53-17 to s. w. ¼ sec. 2-53-19 w. 5 m., Alta.
11350. Aug. 4.—Authorizing C.N.O.R. to build between cons. 2 and 3, Hope tp., and rescinding order 10094, Apr. 5.
11351. Aug. 2.—Authorizing Public Works Department to build highway crossing over C.N.R. in n. e. ¼ sec. 29-19-21, w. 2 m., Sask.
11352. Aug. 4.—Approving Joliette and Lake Manuan Ry. location from Joliette to Lake Manuan, Que.
11353. Aug. 4.—Extending for one month from date, time within which C.P.R. was required to install electric bell at Maria St. crossing, Peterboro, Ont., by order 10771, June 4.
11354. Aug. 3.—Authorizing C.N.O.R. to build between lots 10 and 11, con. A, Haldimand tp.
11355. Aug. 4.—Rescinding order 11238, July 15, authorizing C.P.R. to construct bridge over Didgeguash River, N.B.
11356 to 11359. Aug. 4.—Temporarily approving agreements between Bell Telephone Co., and King Telephone Co., Leeds and Frontenac Telephone Co., Mallorytown Independent Telephone Association, and Weedon Telephone Co., respectively, re service.
11360. Aug. 4.—Authorizing the G.T.R. to build branch to E. Steele's premises, West Hawkesbury tp., Ont.
11361. Aug. 4.—Approving temporarily, agreement between Bell Telephone Co., and Goderich Rural Telephone Co., re service.
11362. Aug. 4.—Authorizing Algoma Central Ry. to build a bridge over Montreal River, Ont.
11363. Aug. 5.—Authorizing province of Saskatchewan to build highway across C.P.R. Wolseley-Reston branch at s. w. ¼ sec. 30-16-9, w. 2 m., Sask.
11364. Aug. 5.—Approving temporarily, agreement between Bell Telephone Co., and Lanark & Carleton Counties Telephone Co., re service.
11365. Aug. 5.—Authorizing Volcanic Oil and Gas Co., to lay pipe under Windsor, Essex and Lake Shore Rapids Ry. at Tecumseh Road, Sandwich West, tp., Windsor, Ont.
11366 to 11369. Aug. 3.—Authorizing city of Toronto to lay pipe under C.P.R. at St. Clair Ave., Van Horne Ave., and Bathurst St., and under G.T.R. at St. Clair Ave.
11370 to 11371. Aug. 3.—Authorizing Provincial Natural Gas and Fuel Co., to lay pipe under M.C.R. at Hellams Ave., Welland, and between con. 6 and 7, Crowland tp., Ont.
11372. Aug. 3.— Authorizing city of Toronto to lay pipe under C.P.R. at Ossington Ave.
11373. July 14.—Authorizing city of Winnipeg to build conduit under C.P.R. at King St.
11374. Aug. 6.—Ordering C.P.R. to install electric bell at Norman St. crossing, near mileage 2, Kenora Section, Ont., within 90 days.
11375. Aug. 6.—Authorizing Chatham, Wallaceburg and Lake Erie Ry. to build across Baldoon Road, Bearline and Winterline and along concession road, Dover East tp. Ont.
11376. Aug. 9.—Authorizing the Niagara St. Catharines and Toronto Ry. to build its Port Colborne extension across Canada Portland Cement Co.'s spur, Humberstone tp., Ont.
11377. Aug. 9.—Authorizing C.N.O.R. to build bridge over Factory Creek, Hamilton tp.
11378. Aug. 9—Authorizing C.P.R. to build bridge 9.1 over Colton Creek, Lake Superior Division, Temiskaming Branch, Ont.
11379. Aug. 9—Authorizing C.P.R. to build siding for Hinde and Dauch Paper Co. Parkdale, Ont.
11380. Aug. 9—Authorizing C.P.R. to build spur for Consolidated Mining and Smelting Co., near Boundary Falls station, Yale District, B.C.
11381. Aug. 4.—Authorizing the G.T.R. to build siding with spur into Canadian Crocker-Wheeler Co.'s premises, St. Catharines, Ont.
11382. Aug. 5. Relieving Kingston and Pembroke Ry. from keeping a watchman at Montreal St. crossing, Kingston, Ont.
11383. Aug. 9.—Authorizing Volcanic Oil and Gas Co., to lay pipe under P.M.R. at Tecumseh Road, Walkerville, Ont.
11384. Aug. 9.—Authorizing town of Wingham, Ont., to lay pipe under G.T.R.
11385. July 27.—Authorizing Provincial Natural Gas and Fuel Co., to lay pipe under G.T.R. spur line crossing Dain Ave., Humberstone tp., Ont.
11386. Aug. 6.—Authorizing C.N.O.R. to cross G.T.R. and C.P.R. near Ottawa.

The Quebec Legislature has authorized the city of Sherbrooke to fix the valuation of C.P.R. property in the city at $50,000, on the passing of a bylaw to that effect by the ratepayers.

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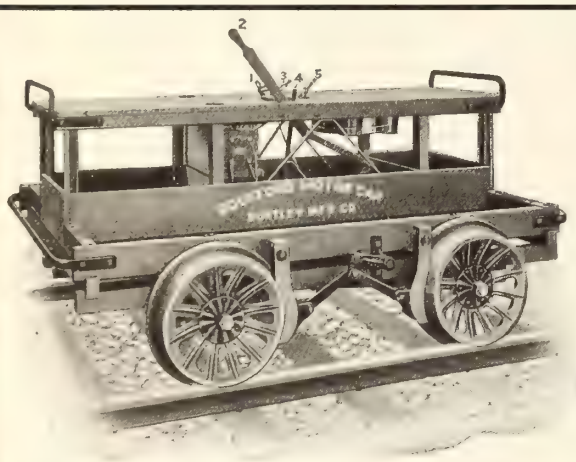

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National Transcontinental Railway.

An Ottawa dispatch of Aug. 12 says, according to reports received at the offices of the Commissioners, the line from Levis, Que., to Moncton, N.B., will be opened for traffic in the spring of 1911. Arrangements, it is said, have already been made in a preliminary way for a car ferry across the St. Lawrence, pending the building of the Quebec Bridge. From the south shore of the St. Lawrence, opposite Quebec, grading has been practically completed all the way to Moncton, and only about 40 miles of track has to be laid to complete the line between these two points. The contractors are busy completing the bridge work, and in ballasting. A temporary trestle is being erected across River Blue, but this will be replaced by a steel bridge next year. The work of providing stations and other buildings will be gone on with during the winter. The principal stations will be St. Hillare, Edmundston, St. Leonards, Grand Falls, Plaster Rock, Nopandogan, McGroney's Jct., Chipman; there will also be a number of way stations and section houses, the division point being at Nopandogan.

We have reason to believe that it will be impossible to open the Moncton-Quebec section in the spring of 1911. From reliable information we have received, we consider it hardly probable that the work in New Brunswick will be entirely completed before the end of 1911, and our information leads us to believe that the work from the New Brunswick boundary to the St. Lawrence River will not be completed before 1912.

The Minister of Railways has extended the time for receiving tenders for building the superstructure of the Quebec Bridge to Oct. 1.

The documents transferring the Champlain market property, Quebec, to the N.T.R. Commissioners were signed Aug. 12, and the tenants have to vacate by Oct. 1. The agreement, which calls for the payment of $100,000 for the property, and the expenditure of $2,000,000 for buildings, etc., has to be ratified by the Dominion Government.

The line is practically completed from Quebec for 195 miles westerly. The next construction centre is at Cochrane, Ont., and from there track has been laid east to Mistonga, 27 miles. Work is being proceeded with at different points between Mistonga and the end of track west of the St. Maurice River, but the difficulty of getting in supplies has rendered the progress made somewhat slow. Track has been laid from Cochrane westerly for 66 miles, and a construction train service is being operated as far as the Groundling River. The steel bridge over the Frederickhouse River is being completed. The work north of Lake Superior has been concentrated in the hands of O'Brien, Fowler and McDougall Co., who have taken over the interests of other contractors, and are now building a total of 490 miles. Supplies for the work are being taken in over the Sturgeon Lake route. The Ottawa dispatch, already quoted, states that the reports received justify the estimate that the mileage between Quebec and Lake Superior Jct., Ont., will be completed sufficiently to allow trains to be run through by the end of 1912.

An announcement was made at Montreal Aug. 17 that all arrangements had been completed for inaugurating a regular train service over the section of the line from Winnipeg to Lake Superior Jct., Sept. 1, when it was expected that that portion of the line would be handed over by the Dominion Government to the G.T. Pacific Ry. for operation.

GRAND TRUNK PACIFIC RY.

The question of the entrance of the company's lines into St. Boniface, Man., is under consideration, some opposition having developed to the proposal that the G.T.P.R. should come in over the Canadian Northern Ry. right of way. The plans were referred to the City Engineer for consideration and report.

In an interview at Winnipeg, Aug. 14, President Hays said representatives of Ross and MacFarlane, Architects, Montreal, were in the city preparing plans for an hotel which the company proposed to erect there. The building would be about 200 ft. square; it would contain about 500 rooms, and cost, when completed, about $2,000,000. It was expected that work would be started on the building as soon as the frost was out of the ground in the spring. The location secured is the corner of Broadway and Fort St., just west of the Manitoba Club.

A bi-weekly train service was inaugurated Aug. 1 to Edson, the first divisional point, 124 miles west from Edmonton, Alta. A site for terminal yards and divisional buildings was approved by Vice President Chamberlin on his visit of inspection July 28. The present plans provide for the laying of about five miles of siding, which will be about one-fifth of the mileage ultimately to be laid. Edson is situated about eight miles west of the crossing of the McLeod River. The next river crossing is at Prairie Creek, about 75 miles west of Edson, and tracklaying is now being proceeded with, and it is expected that it will be completed Oct. 1. The concrete substructure at Prairie Creek has been completed, and everything is ready for the erection of the superstructure, which will be gone on with as soon as the steel can be brought in. Beyond this the next point to be reached is the Athabasca River, at the entrance to the Yellowhead Pass, and it is expected that steel will be laid there by Dec. 1. This will give a completed line for 223 miles west of Edmonton.

From the Prince Rupert end of the line it was reported that 100 miles east would be ready by Aug. 22, so as to enable the Dominion Premier and the Minister of Railways to take a trip over it. At the end of July trains were running to the Grand Rapids, nine miles out, and the bridge over the river there was then nearly completed. From the end of the first 100 miles grading on an additional 140 miles had been nearly completed, and tracklaying is being proceeded with. The line is expected to be completed from Prince Rupert easterly to mileage 240, in the spring of 1911.

The regular through train service from Edmonton, Alta., via the G.T.P.R. to Winnipeg, the National Transcontinental Ry. from Winnipeg to Lake Superior Jct., and thence to Fort William over the G.T.P.R. Fort William branch, was announced to be started Sept. 1.

The question of the entrance of the line into Port Arthur, Ont., was discussed with President Hays Aug. 12, but all he would say was:—"The company made an agreement with Port Arthur, which seems to have ended in a muddle, and this complication has not been cleared up as yet."

The first branch line under construction west of Winnipeg is northerly and southerly from Melville, Sask. Northerly it is in operation to Yorkton, and grading has been completed to Canora on the Canadian Northern Ry. Southerly the line has been completed and is in operation to Balcarres, on the C.P.R. Kirkella branch, and grading is well forward on the extension to Regina.

The Department of Railways has approved route maps for an extension of the Melville-Regina branch through Regina, Sask., for a distance of about five miles. It is expected to let a contract for this mileage at an early date, and from Regina to the International boundary. The company is negotiating with the city council for an agreement in regard to the location of divisional terminals in the city. A site of over 15 acres has been secured for this purpose by the company.

The next branch starts from Tofield, and was completed in 1909 to Camrose, Alta. This year work has been carried on southerly in the direction of Calgary. The bridge across the Battle River, about seven miles south of Claresholm, has been completed. It is of trestle construction 3,100 ft. long and 115 ft. above high water mark. Track is being laid as far south as Farintosh, where the company has opened up large gravel pits for ballasting. G. H. Webster, the contractor, in an interview at Calgary Aug. 12, said there were over 500 teams on the line, and construction gangs were stretched along the line for nearly 100 miles south of Alix, and to within 50 miles of Calgary; that a big effort would be made to reach Calgary this winter, and that it was intended to build a branch from this line into the C.P.R. irrigation lands, for which plans had been filed.

The third branch line under construction is from Edson, Alta., south easterly into the Brazeau River coal fields. This branch line Vice President Chamberlin said in Winnipeg, Aug. 3, would be about 70 miles, and it was expected would be completed during the winter. The subcontractors reported to be working on the line are Phalen and Shirley, and D. Baker, the general contractors being Foley, Welch and Stewart.

Two survey parties were sent out Aug. 1 from Kamloops, to do some further work easterly and westerly on the location of the G.T. Pacific branch line to Vancouver. (Aug., pg. 661.)

The Newfoundland Telegraph Dispute.

Judgment was recently delivered by the Judicial Committee of the Privy Council in the appeal of the Reid Newfoundland Co. from the judgment of the Newfoundland Supreme Court, in its case against the Anglo-American Telegraph Co., as follows:—The Supreme Court restrained the appellant from erecting, maintaining or operating a telegraph line upon its own land for the purposes of the efficient working of its own railway. The result depended on the construction of an agreement dated Aug. 11, 1888, made between the Newfoundland Ry. Co. of the first part; Mr. Evans, receiver and manager of that company, of the second part; and the respondents of the third part. The argument on behalf of the telegraph company (an argument which was accepted by the Colonial Court) was largely based upon the use of the words "exclusive right" in the clause cited. It was not an "exclusive right" of entry, for the railway company remained in possession, and must do so in order to work its railway, which it was under an obligation to do. The exclusive right granted was to enter for the purpose of erecting, maintaining and operating telegraph lines for the business of the telegraph company. In the committee's opinion that exclusive privilege of erecting and working telegraph lines for the business of the telegraph company did not exclude the right of the railway company to erect and work telegraph lines on its own property for the purposes of its railway business. The committee was unable to agree with the view taken by the judges in the Colony, and was of opinion that the railway company was not shown to have exceeded its rights. The judgment and decree of the Colonial Court should be set aside, and the suit dismissed with costs in the Court below. The respondents would pay the costs of this appeal. —Canadian Gazette.

D. A. McLean, a sub-contractor on the G.T.P.R. branch to Regina, Sask., was found dead near Cedoux, Sask., Aug. 3.

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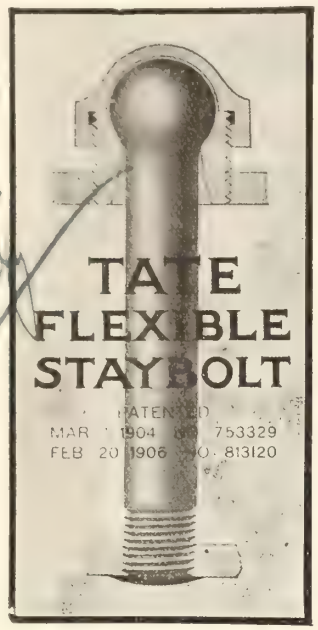

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From Bristol.	Steamer.	From Montreal.	From Bristol.	Steamer.	From Montreal.
Thur., July 7	"Royal Edward"	Thur., July 21	Thur., Aug. 18	"Royal George"	Thur., Sept. 1
Thur., July 21	"Royal George"	Thur., Aug. 4	Thur., Sept. 1	"Royal Edward"	Thur., Sept. 15
Thur., Aug. 4	"Royal Edward"	Thur., Aug. 18	Thur. Sept. 15	"Royal George"	Thur., Sept. 29

and fortnightly thereafter.

For full particulars, Rate, Booklets, etc., apply local agent, or Wm. Phillips, Acting Traffic Manager, Canadian Northern Steamships, Limited, Toronto, Canada.

Railway Rolling Stock Notes.

The Ha Ha Bay Ry. has received one Columbia locomotive from the Montreal Locomotive Works.

The Canadian Northern Ry. has ordered 25 cabooses from the Crossen Car Mfg. Co., Cobourg, Ont.

The C.P.R. has ordered one 3½ yd. Atlantic type steam shovel

The Quebec Central Ry. has received two 10-wheel locomotives from the Canadian Locomotive Co., Kingston, Ont.

The G.T.R. has ordered 500 steel underframe box cars, of 60,000 lbs. capacity, from the Silliker Car Co., Halifax, N.S.

The Canadian General Development Co., and the Nova Scotia Construction Co., have each received one steam shovel from the Montreal Locomotive Works.

Kennedy and McDonald, contractors on the National Transcontinental Ry., have purchased three 1910 40-ton Hart convertible ballast cars from the Hart-Otis Car Co., Montreal.

Cavicchi and Pagano, contractors on the National Transcontinental Ry., have ordered 10 flat cars, G.T.P.R. standard, 36 ft. long, 30 tons capacity, from the Canadian Car and Foundry Co., Montreal, through the Canadian Railway and Contractors' Supply Co.

Haney, Quinlan and Robertson, railway contractors, have received two 4-wheeled locomotives; the Belmina Mining Co., and the Maritime Gypsum Co., one 4-wheeled locomotive each, and the Dominion Nickel Copper Co., one mogul locomotive, from the Montreal Locomotive Works.

The Board of Railway Commissioners having authorized the C.P.R. to use natural gas for illuminating its cars, subject to the same regulations which govern the use of Pintsch gas, we are officially advised that the gas will be used in the same way as the Pintsch gas on cars running out of places where there is a supply of natural gas to draw from.

The Canadian Northern Ry., between July 15 and Aug. 15, received the following additions to rolling stock:—250 Hart-Otis cars from the Hart-Otis Car Co., Montreal; 80 flat cars and 14 stock cars from the Crossen Car Mfg. Co., Cobourg, Ont.; 15 box cars and three first class cars, from the Silliker Car Co., Halifax, N.S.; one dining car, 10 box cars, and 50 automobile cars from the Canadian Car and Foundry Co., Montreal.

The C.P.R., between July 13 and Aug. 17, received the following additions to rolling stock: nine wooden box cars, one second class car, three dining cars, 14 refrigerator cars, six first class and smoking cars, two first class suburban cars, two baggage cars, two vans and two D.10 locomotives from its Angus shops, Montreal; 268 steel frame box cars from the Canadian Car and Foundry Co., Montreal, and 12 N.3 locomotives from the Montreal Locomotive Works.

The Maritime Gypsum Co. has ordered one four-wheeled locomotive from the Montreal Locomotive Works, of which the following are the chief details:

Weight in working order	41,000 lbs.
Wheel base	4′ 9″
Cylinders	11″ by 16″
Driving wheels, diameter	33″
Boiler, type	Straight top
Boiler pressure	165 lbs.
Tubes, number and diameter	85; 2″
Tubes, length	8′ 3¾″
Brakes	Steam
Capacity, water	750 gals.

The Belmina Consolidated Asbestos Co. has ordered one four-wheeled locomotive from the Montreal Locomotive Works, of which the following are the chief details:

Weight in working order	24,400 lbs.
Wheel base	4′ 6″
Cylinders	9″ by 14″
Driving wheels, diameter	29″
Boiler, type	Straight top
Boiler pressure	150 lbs.
Tubes, number and diameter	56; 1¾″
Tubes, length	7′ 5 11-16″
Brakes	Hand
Capacity, water	325 gals.

Haney, Quinlan and Robertson have ordered four four-wheeled locomotives from the Montreal Locomotive Works, of which the following are the chief details:

Weight in working order	56,000 lbs.
Wheel base	6′ 3″
Cylinders	13″ by 18″
Driving wheels, diameter	36″
Boiler, type	Straight top
Boiler, diameter	41 11-16″
Boiler pressure	165 lbs.
Tubes, number and diameter	100; 2″
Tubes, length	10 ft.
Brakes	Steam
Capacity, water	1,000 gals.

We are officially advised that the five Mallet articulated compound locomotives which the C.P.R. is building at its Angus shops, as mentioned in our last issue, will be slightly different from the one which was fully described and illustrated in our April issue. On the tests then described, it was found that an improvement could be made in the boiler and connection between the two engines. The boiler, therefore, is being made larger in diameter in front, and shorter. The superheater will also be different, and instead of being located in the centre of the boiler barrel, will be in the smokebox, as with the standard type.

Following are the chief details of the four wheel saddle tank locomotive which the Canadian General Development Co., has purchased from the Montreal Locomotive Works:—

Gauge	36″
Cylinders	11″ x 16″
Driving wheel diar.	33″
Boiler, diar	37¼″
Boiler pressure	165 lbs.
Firebox	40½″ x 33″
Tubes, no. and diar.	85 — 2″
Tubes, length	8′ 3½″
Wheel base	4′ 9″
Weight in working order	39,000 lbs.
Heating surface, tubes	367 sq. ft.
Grate area	9.3 sq. ft.
Maximum tractive power	8,228 lbs.
Factor of adhesion	4.74
Capacity, water	750 gals.
Capacity, coal	600 lbs.

Following are the chief details of the four Pacific type locomotives which the Temiskaming and Northern Ontario Ry., has ordered from the Canadian Locomotive Co., Kingston, Ont., as mentioned in our July issue:—

Weight on drivers	135,500 lbs.
Weight, total	202,500 lbs.
Cylinders	21″ x 28″
Driving wheels, diar.	69″
Boiler, type	Extended wagon top.
Boiler pressure	200 lbs.
Heating surface, tubes	2,705 sq.ft.
Heating surface, firebox	162 sq. ft.
Tubes, no. and diar.	272 — 2″
Tubes, length	19′ 0″
Grate area	46 sq. ft.
Capacity, water	5,500 gals.
Capacity, coal	10 tons.
Axles	Nova Scotia S. & Co.'s open hearth steel.
Air brakes	Westinghouse E.T. 6.
Brake beams	Simplex.
Brake shoes	Steel back.
Couplers	Tower.
Headlight	Pyle National Electric.
Journal bearings	Canadian Bronze Co.
Springs	Montreal Steel Works.
Steam heat equipment	Gold system.

The Quebec Central Ry. has ordered two mogul locomotives from the Canadian Locomotive Co., Kingston, Ont., of which the following are the chief details:—

Weight on drivers	122 000 lbs.
Weight, total	141 000 lbs.
Wheel base of engine, rigid	15′ 0″
Wheel base of engine, total	23′ 0″
Wheel base of engine and tender	49′ 10⅛″
Height	14′ 4½″
Heating surface, firebox	153 sq. ft.
Heating surface, tubes	1,741 sq. ft.
Heating surface, total	1,894 sq. ft.
Driving wheels, diar.	56″
Driving wheel centres	Main, cast steel others cast iron
Driving journals	9″ by 12″
Cylinders	20″ by 26″
Boiler, type	Radial stayed
Boiler pressure	200 lbs.
Tubes, no. and diar.	280 2″
Tubes, length	12′ 6″
Safety valves	Locomotive type, muffled
Brakes	Westinghouse
Weight of tender, loaded	104,000 lbs.
Capacity, water	43,000 lbs.
Capacity, coal	9½ tons
Tank style	U-shaped, with sloping back
Truck	4-wheel with steel bolster
Wheels, diar.	33″
Journals	5″ by 9″
Wheels	Centres, w.i.; steel tires
Brake beams	Steel

In our last issue we mentioned that the C.P.R. had ordered 100 automobile cars from the Canadian Car and Foundry Co., Montreal. They will be, generally, the same as the standard 40-ton box car, except that they will be built with the new type of low truck, thus securing increased inside height. They will be equipped with security automobile side doors, giving a clear opening, when both doors are open, of 10 ft. One end of the cars will also be equipped with the C.C. & F. Co.'s design of swinging doors, in such a way that when the doors are open, vehicles of any kind can be unloaded through the end of the car. These doors will give a clear opening of practically the whole width of the car. Following are the chief dimensions, etc.:

Capacity	40 tons
Length inside	36′ 0″
Width inside	8′ 6″
Height inside, top of floor to under side of carlin	8′ 4¾″
Centre to centre of trucks	26′ 10″
Wheels	C.P.R. standard
Axles	Steel
Journal boxes	McCord
Journal bearings	Canadian Bronze Co.
Brake shoes	Steel back
Brake beams and bolsters	Simplex
Couplers	Simplex

Following are the chief details of the four Pacific type locomotives, which the Temiskaming and Northern Ontario Ry. is having built by the Canadian Locomotive Co., Kingston, Ont.:

Weight on drivers	135,500 lbs.
Weight on trailing wheels	34,300 lbs.
Weight on engine truck	32,700 lbs.
Total weight of engine	202,500 lbs.
Cylinders	21″ by 28″
Driving wheels, diameter	69″
Trailing wheels, diameter	45″
Engine truck wheels, diameter	33″
Tender wheels, diameter	36″
Driving wheel base	12′ 7″
Wheel base of engine	31′ 6″
Boiler, type	Extended wagon top
Boiler pressure	200 lbs.
Boiler diameter at waist sheet	63½″
Boiler diameter at dome course	72⅜″
Firebox	95¼″ by 69¼″
Grate area	46 sq. ft.
Tubes, number and diameter	272; 2″
Tubes, length	19′ 0″
Heating surface, tubes	2,705 sq. ft.
Heating surface, firebox	162 sq. ft.
Heating surface, total	2,867 sq. ft.
Capacity, water	5,500 gals.
Capacity, coal	10 tons
Valve gear	Walschaert
Valves	Piston type
Axles	Nova Scotia Steel & Coal Co.'s
Springs	Steel, Peech & Tozer's steel; Montreal Steel Works make.
Journal bearings	Canadian Bronze Co.
Steam heating	Gold system
Headlight	Pyle National Electric
Air brakes	Westinghouse E.T. 6

The Michigan Central Rd. has ordered eight consolidation, eight Pacific and five six-coupled locomotives from the Montreal Locomotive Works. Following are the chief details in each case::

CONSOLIDATION

Weight in working order	239,000 lbs.
Weight on drivers	214,000 lbs.
Weight on engine truck	25,000 lbs.
Wheel base, driving	17′ 6″
Wheel base, engine	26′ 5″
Wheel base, engine and tender	60′ 11″
Valve gear	Walschaert
Cylinders	23″ by 32″
Driving wheels, diameter	63″
Boiler, type	Straight top
Boiler, diameter at first ring	81⅝″
Boiler, pressure	200 lbs.
Tubes, number and diameter	446; 2″
Tubes, length	[illegible]
Air brakes	Westinghouse American
Capacity, water	[illegible] gals.
Capacity, coal	12 tons

PACIFIC TYPE

Weight in working order	246,000 lbs.

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THE ELECTRIC HEADLIGHT

The following letter was received under date of May 8, 1908, from Mr. J. W. Cleary, Travelling Engineer Pyle-National Electric Headlight Co.:

"I learn from_____the Master Mechanic here, that an engineer running between_____ and_____discovered a broken rail with the Pyle-National Electric Headlight and made the stop without ditching his train. One or two pairs of wheels got off, but that was a small affair to what it would have been where a foot of the rail was broken off. Also an engineer running east of here found some cars shoved out on the main line. He saw them with the 'Electric' and made the stop without hitting them."

PYLE-NATIONAL ELECTRIC HEADLIGHT CO.

MONADNOCK, CHICAGO

Weight on drivers	151,500 lbs.
Weight on trailer	46,500 lbs.
Weight on engine truck	48,000 lbs.
Wheel base, driving	13′ 0″
Wheel base, engine	33′ 7½″
Wheel base, engine and tender	63′ 11″
Valve gear	Walschaert
Cylinders	22″ by 26″
Driving wheels, diameter	75″
Boiler, type	Straight top
Boiler, diameter at first ring	72″
Boiler, pressure	200 lbs.
Tubes, number and diameter	394; 2″
Tubes, length	21′ 0″
Air brakes	Westinghouse American
Capacity, water	7,000 gals.
Capacity, coal	12 tons

SIX-WHEEL COUPLED.

Weight in working order	163,000 lbs.
Wheel base, engine	11′ 6″
Wheel base, engine and tender	42′ 6″
Cylinders	21″ by 28″
Driving wheels, diameter	57″
Boiler, type	Straight top
Boiler, diameter at first ring	67⅜″
Boiler, pressure	180 lbs.
Tubes, number and diameter	308; 2″
Tubes, length	16′ 0″
Brakes	Westinghouse American
Capacity, water	5,100 gals.
Capacity, coal	7½ tons

Railway Commissioners' Traffic Orders.

Summaries of other traffic orders are given on another page under "Orders by Railway Commissioners":—

MONTREAL CARTAGE CHARGE.

11270. July 21.—On the application of T. J. Stewart, of Hamilton, Ont., the Assistant Chief Commissioner gave the following judgment:—The complainant purchased a marble slab from B. & S. H. Thompson & Co., Ltd., Montreal, which was shipped to him at Hamilton by C.P.R. freight. The carting for the C.P.R. in Montreal is done by the Dominion Transport Co. under a contract by which the railway company gives the transport company the sole and exclusive right to cart outward freight to the freight sheds of the company, in Montreal, at certain rates therein enumerated, all goods which are to be shipped over the lines of the railway included in classes 1 to 5 inclusive in the Canadian classification, with certain exceptions, with which we are not now concerned. The consignors notified the transport company, whom they knew to be the cartage agents for the C.P.R. The transport company carted the marble slab to the C.P.R. freight shed and charged $1.50 for the service, which was included in the C.P.R. freight bill and paid by the consignee at Hamilton. The consignee then complained to the board that the charge for cartage was excessive. The Dominion Transport Co. is not under the Board's jurisdiction, and were it not for its contract with the C.P.R. Co. we would have nothing to say in this matter. Subsec. 5 of sec. 314 of the Railway Act, as amended by sec. 11, chap. 61, of the statutes of 1908, is as follows:—No tolls shall be charged by the company or by any person in respect of a railway or any traffic thereon until a bylaw authorizing the preparation and issue of tariffs of such tolls has been approved by the Board, nor, unless otherwise authorized by this Act, until a tariff of such tolls has been filed with and, where such approval is required under this act, approved by, the Board; nor shall any tolls be charged under any tariff or portion thereof disallowed by the Board; nor shall the company charge, levy or collect any toll or money for any service as a common carrier except under the provisions of this act.

And subsec. 30 of sec. 2 of the act as amended by sec. 9 of chap 61 of the statutes of 1908 provides that "toll or rate means and includes any toll, rate, charge or allowance charged or made either by the company or by any person on behalf or under authority or consent of the company, in connection with the carriage, shipment, transportation, care, handling or delivery of goods, and includes also any toll, rate, charge or allowance so charged or made for the collection or cartage in respect of goods transported or to be transported." In this case the $1.50 charged for cartage was under the authority or consent of the company, and therefore was a toll within the meaning of the section of the act just referred to. The company's cartage tariff E 3807, C.R.C. No. E 1305, does not contain any item covering a charge for carting marble slabs in Montreal. In fact the tariff especially excludes marble slabs. Nevertheless the company has in fact collected a toll, within the meaning of the Railway Act, which does not appear in its tariff. This is prohibited by subsec. 5 of sec. 314. I am, therefore, of the opinion that, the railway company had no legal right to collect the $1.50 toll, and that an order should go declaring that the toll charged was illegal.

GRAIN RATES FROM MANITOBA.

11316. July 29.—Re application of Birtle Agricultural Society, Manitoba, complaining against rate of 16 c. per 100 lbs. charged by C.P.R. on grain and grain products from Birtle and Foxwarren, Man., to Fort William and Port Arthur, Ont., as shown in tariff C.R.C. no. W. 1318, and applying for order directing the railway company to restore the rate of 15 c. per 100 lbs., as formerly charged on such shipments. It is ordered that the said rate of 16 c. per 100 lbs. on grain and grain products shipped from Birtle, Foxwarren, Binscarth, Millwood and Harrowby, Man., to Fort William and Port Arthur, as shown in the said tariff, be disallowed; and the railway company is directed to restore the rate of 15 c. per 100 lbs. on the said shipments from Birtle, Foxwarren, Binscarth, Millwood, and Harrowby, to Fort William and Port Arthur, the said rate to take effect not later than Sept. 1.

RATES ON RUBBER GOODS, ETC.

11326. Re application of Transportation Bureau of Montreal Board of Trade under sec. 315 of the Railway Act, on behalf of Eastern Canadian manufacturers of rubber goods, supported by the Canadian Manufacturers Association, complaining of the Canadian classification and asking for the official classification of less-than-carload ratings on rubber hose, rubber packing and rubber tires. It is ordered that the application be not granted, but that, in Canadian classification 14, the restriction of 1st class to "carriage and wagon" solid tires, be removed, and that in the forthcoming supplement no. 3 to the said classification, this item be changed so as to read: "Tires, solid, in packages, 1st class."

G.T.R. and G. T. Pacific Ry. Inspected.—A. W. Smithers, Chairman of the Board G.T.R., arrived in New York from London, Eng., Aug. 5, where he was met by C. M. Hays, President G.T.R. and G.T.Pacific Ry. Accompanied by E. H. Fitzhugh, First Vice President, the Chairman and President left Montreal, Aug. 9, on the annual trip of inspection over the G.T.R. Having completed this, Mr. Fitzhugh returned to Montreal and the Chairman and the President left Sarnia on the Northern Navigation Co.'s s.s. Hamonic, arriving in Fort William, Aug. 12, from which place accompanied by a party of British visitors, they travelled on a special train over the completed portions of the G. T. Pacific Ry., and inspected the progress of work at other points. The party went on to Vancouver, thence by G.T.P. steamship to Prince Rupert, to inspect the work in progress there.

A decision has been given in the Saskatchewan courts to the effect that the Canadian Northern Ry. must pay taxes on land in Prince Albert, Sask., valued at $70,000 which it owns, but is not now using for railway purposes.

A Railway to Hudson's Bay.

The contract for the substructure of the bridge to be built over the Saskatchewan River at the Pas Mission, Sask., in connection with the proposed railway to Hudson Bay, has been let by the Department of Railways to Mackenzie, Mann & Co., Winnipeg. The estimated cost of the work is $100,000. As a result of the letting of this contract there has arisen considerable speculation as to the building of the railway itself, and the report which gains most credence is that the line will be built by Mackenzie, Mann & Co. and operated by the Canadian Northern Ry., under an agreement similar to that under which the G.T. Pacific Ry. will operate the National Transcontinental Ry. from Winnipeg to Moncton.

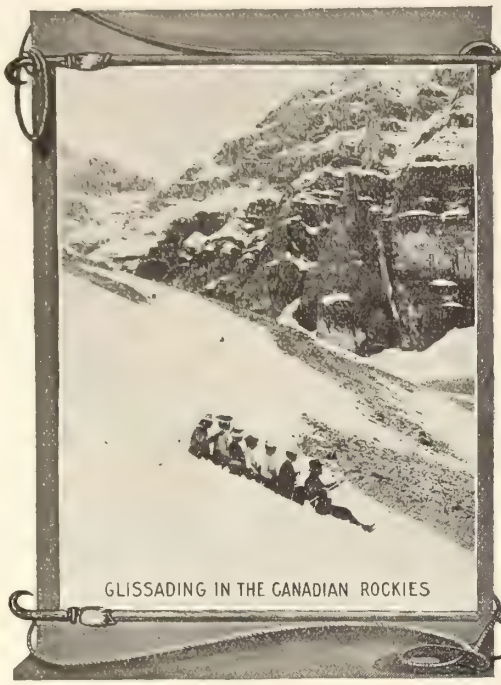
Speaking at Saskatoon, Sask., July 23, the Minister of Railways said:—"Whether the Government or a private company operate the line, the Government will maintain absolute control of the rates. We intend that whoever builds that railway will have to provide not only for carrying trade by rail to Pas Mission and Hudson's Bay, but also for a transatlantic steamship service to the markets of the old world."

D. D. Mann, Vice President, Canadian Northern Ry., met the Minister of Railways at Lloydminster, Sask., Aug. 8, and on Aug. 13 he stated that the question of the railway to Hudson Bay had not been discussed between them on that occasion, and that there was no arrangement between his firm and the Government about the construction or operation of the railway. The Minister of Railways has also issued a denial of the story that there is any agreement with Mackenzie, Mann & Co. as to the line, his denial being based on a telegraphic account of an interview in Toronto with W. Mackenzie, President, in which the latter is quoted as saying:—"The Hudson Bay line must be built at once, but the point of its operation remains to be settled by Parliament." Pressed for further particulars Mr. Mackenzie would say nothing more than that it was "probable" the new Government line would be leased to the C.N.R.

The Manitoba Free Press of July 19, contained under the heading of "Twenty Years Ago":—"Hugh Sutherland leaves this morning via the Northern Pacific for Europe on Hudson's Bay railway business. Stewart Tupper will accompany him from Montreal." (Aug., pg. 617.)

Windsor St. Station, Montreal. Contracts have been let to the Dominion Bridge Co., for the steel work, and to C. E. Deakin for the masonry and general work on the annex to the Windsor St. station, Montreal. The work is to be completed by Nov. 1911. The estimated cost covered by these contracts is about $1,250,000.

The Interstate Commerce Commission has decided in the matter of jurisdiction over rail and water carriers operating in Alaska, that the district of Alaska is not a territory of the United States in the sense in which that phrase is used in the act to regulate commerce as amended, and the Commission has therefore no authority or jurisdiction over carriers engaged in transportation of passengers or property within the district of Alaska. The general rule that a special tribunal ought not to enlarge its jurisdiction by intendment but ought to exercise only the powers clearly conferred by statute applies with special if not controlling force to the exercise by the Commission of jurisdiction in Alaska in view of the fact that under the act of May 14, 1898, power to regulate rail- [illegible] another branch of the Government.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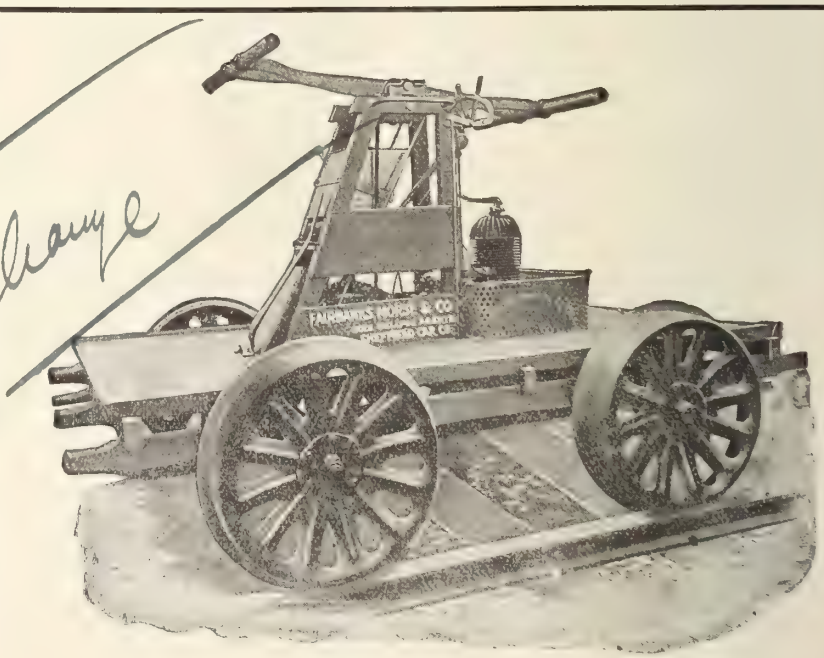

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MONTREAL ST. JOHN, N.B. TORONTO WINNIPEG CALGARY VANCOUVER

Handling Locomotives.

By H. H. Vaughan, Assistant to the Vice President Canadian Pacific Railway.

The desirability of pooling engines in place of operating them by regularly assigned crews depends, in the writer's opinion, on whether the engines are engaged in passenger or freight service, and in the latter case, on the conditions which exist.

PASSENGER SERVICE.—Where traffic conditions admit of the engine making greater mileage than can properly be run by one crew two crews assigned to one engine, or three crews to two engines, will enable the engine to make as great a mileage as is desirable. On account of the comparatively short time occupied from terminal to terminal, the crews can usually make a round trip without holding the engine longer than is required to handle it and prepare it for the return trip or to await its train. By using more than one crew to the engine, it is theoretically available on its return just as soon as though it were pooled. In practice, unless pooling is carried to the extent of sending out any engine on any train, certain engines are regularly used on certain trains or groups of trains, and it is comparatively easy to arrange the crews and engines so that a reasonable time may be allowed for repairs and yet ample service be obtained from the engine. When working with assigned crews it is of course usual to employ some extra passenger men to take the place of the regular men, who are also available in case an extra trip is required from an engine on account of specials or extra sections of regular trains. Where regular scheduled trains have to be provided for, this system is as flexible and convenient as pooling and has the additional advantage in passenger service that the men run certain trains regularly, and will consequently give better service than when handling a number of trains indiscriminately. Pooling in passenger service probably does not require much discussion. The system is not in extensive use and will presumably have few advocates. The writer would, however, state as a result of his experience with both pooled and assigned engines in passenger service, that he is most strongly opposed to pooling in this service and considers that far better results can be obtained from assigned crews.

FREIGHT SERVICE. — Here conditions are very different. The time is slow and a long time is occupied from terminal to terminal, so that crews may require a full allowance of rest on arrival, or may even have to be relieved on the road. Few, if any, of the trains run at regular hours, and in place of following a defined schedule, the demand for engines varies with the traffic. When business is heavy, engines are wanted as soon as they are repaired and ready for service, making it difficult, if not impossible, to select the engines in any particular order. By pooling, such difficulties may be more easily met, especially at large terminals. When engines are assigned the practice usually required by the agreement with the men is that engines shall be prepared and dispatched in the order in which they arrive, but if the engine is ready its use may be retarded by the time required by the crew for rest. In pooling, both these objectionable conditions vanish. An engine may be turned at once if fit for service and thus rendered immediately available, and the movement of the men being entirely independent of that of the engines, the detention of engines at a terminal can be regulated by simply increasing or decreasing the number in the pool.

Under such conditions, if pooling is not carried on in name, it will be in fact, simply because business cannot be handled unless engines are used without reference to the order of their arrival. Granted therefore that pooling is advantageous under these conditions, it should be done properly. All the features necessary to a successful pooling system must be employed, such as thorough terminal inspection independent of the engine crews, and arrangements for handling tools and engine supplies, and caring for headlights, oil cups, etc. If pooling is resorted to when business is especially heavy, or when traffic is disturbed by storms or by other causes, without proper arrangements being made, the results are most objectionable. Under these circumstances the condition of the power will depreciate rapidly and the service rendered will be exceedingly inefficient. The maxim is frequently stated: "If you pool, pool," and its wisdom has been demonstrated by experience. The real question about pooling is therefore whether there are conditions under which it is preferable to adopt the alternative practice, that of running engines with assigned crews. This depends on the results obtained from the two systems which are in the writer's experience as follows:

MILEAGE.—It is possible to obtain somewhat greater average mileage per engine under the pooling system, but the increase does not exceed ten per cent when traffic is being handled smoothly and without excessive congestion and delays.

REPAIRS.—When running successfully under the assigned engine system repairs are less than when similar conditions exist with pooled engines. A man running an engine regularly keeps up the smaller details and knows what work is required at once and what must be looked after in due time. His inspection reports are more reliable than those of a man who has had an engine for one trip only. As he has to run the engine next trip as well he will handle it with greater care and avoid any action that will cause him trouble in the future. Men who have been accustomed to running pooled engines will not do all this at once but they most certainly will if assigned to an engine for any length of time and the difference is noticeable in engine houses where some engines are assigned and some are pooled.

Engines are sometimes taken care of by the headquarters station system the work required to maintain the engine in proper condition being done at the terminal designated as the home station, while at the other terminal the only work done is that necessary for the return trip. With this arrangement, even with pooled engines, the same crew will, if possible, make the round trip; but when they are changed, practically as much work is required at the away station as at the home station. The result is a considerable increase in the cost of repairs, for there is not as a rule very much difference in the cost at the home station.

When the assigned engine system proves inadequate for traffic demands, the results change. Men will endeavor to book enough work against the engine to hold it until they have rested, and on the other hand engines are liable to be wanted before repairs that are actually required are completed. Under these conditions engines may be better and more cheaply maintained when pooled; but under normal conditions the writer's experience would show that with assigned crews the cost of running repairs may be reduced five to ten per cent. and better mileage obtained from the engines between shoppings.

FUEL.—It is almost impossible to determine the fuel consumed by an engine on an individual trip and consequently difficult when pooling to keep any record of the amount of coal used by different men. A record may be kept by engines, but it is then impossible to locate the responsibility for any excessive consumption. The practical result is that on pooled engines, individual fuel records are of comparatively little use. With assigned engines, while trip records may not be individually accurate, the average of several consecutive trips soon becomes so, as the variation of the amount of coal left on the tender, while important on one, is of comparatively small importance on a number of trips. There is no doubt in the writer's mind that individual coal records, whether by trip or by period, are an important factor in obtaining economical results in fuel consumption, both from men and from engines, and he ascribes the good results that have been obtained on the C.P.R. largely to the careful way in which the records have been watched.

Apart from the records, the familiarity of the men with the engines has an important bearing on fuel consumption. Most engines vary slightly in the way they burn the coal, in the nature and intensity of the draft, and in the best position for the throttle and reversing lever. Crews knowing an engine thoroughly learn about these peculiarities, while they do not when running a different engine each trip. One crew will obtain from an engine results that are impossible for another crew, and thus the result with assigned crews is a tendency to higher efficiency than when every engine has to be drafted and adapted to do the work with the poorest crew on the division. It is only necessary to watch the difference in the way an engine is handled by a regular crew and by a pooled crew, to realize the advantage of the former, and important results have been clearly shown with the same men and engines, on divisions where the two systems have been in effect.

SERVICE.—The remarks that have been made in connection with repairs and fuel apply with almost equal force to the class of service obtained from the engines, with reference to failures, breakdowns and ability to make the time required. A crew that knows the engine will get more out of it than one that does not. They will notice any difference in its working and will take more interest in getting any defect rectified. They will keep their equipment in better condition and will pay more attention to bearings which show signs of heating, etc. All these conditions lead to better and more efficient service.

ENGINE HOUSE EXPENSES.—Inspection, the care of tools, the filling of lubricators, headlights and cab lamps, are commonly looked after on assigned engines by the crews. When engines are pooled this work has to be done by the engine house force. At a large terminal this expense is not large, but when the number of engines handled is small, it is difficult to arrange the duties of the men doing this work to prevent its becoming a serious item. Conditions vary on different roads in this respect, but the fact remains that this work is not in any way burdensome to men having a regular engine, while it is burdensome if they are required to prepare a different engine each trip, and consequently they object to it very strongly. In the majority of cases this work constitutes an additional charge on engines that are pooled.

CONCLUSIONS.—The writer considers that in passenger service pooling is objectionable under any conditions and should be avoided if possible.

In freight service pooling is advisable if conditions are such that engines can not be run with assigned crews and probably on divisions where business is so heavy that 60 engines per day or over are dispatched from the terminal;

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but the writer's experience is that where assigned crews can be used on engines, the cost of repairs, the amount of fuel consumed, and the class of service obtained, will all be more satisfactory.

He therefore regards pooling as a practice that may be necessary under certain conditions, but that is certainly not desirable if the alternative system can be satisfactorily carried out.

The preceding paper was read before the American Society of Mechanical Engineers and the Institution of Mechanical Engineers at Birmingham, Eng., recently.

Canadian Northern Ry. Earnings, Etc.

Gross earnings, working expenses, net profits, increases or decreases from 1908-09, from July 1, 1909:

	Earnings.	Expenses.	Net Earnings.	Net Increase or Decrease.
July	$ 843,500	$613,900	$229,600	$ 26,700+
Aug.	807,100	602,700	204,400	18,300+
Sept.	1,076,800	765,300	311,500	60,400+
Oct.	1,384,200	903,500	480,700	60,600+
Nov.	1,517,600	970,100	547,500	134,000+
Dec.	1,160,300	825,900	334,400	49,300+
Jan.	792,200	669,700	122,500	22,200+
Feb.	698,900	567,400	131,500	38,100+
Mar.	934,100	661,800	272,300	67,800+
Apr.	1,153,100	821,900	331,200	107,300+
May	1,224,900	856,300	368,600	185,700+
June	1,228,700	935,900	292,800	60,300+
	$12,821,300	$9,194,400	$3,626,900	$831,500+
Inc.	$ 3,152,400	$2,320,900	$831,500	.....

Approximate gross earnings for July, $1,225,100, and for two weeks ended Aug 14, $481,800, against $843,500 and $378,400 for same periods 1909.

C.P.R. Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits, increases or decreases over 1908-9, from July 1, 1909:

	Earnings.	Expenses.	Net Profits.	Net Increase or Decrease
July	7,140,029.93	4,660,159.20	2,479,870.73	205,297.48+
Aug.	7,426,984.62	4,462,926.75	2,964,057.87	385,159.16+
Sept.	8,323,178.03	4,891,288.86	3,431,889.17	1,317,281.40+
Oct.	9,744,596.87	5,358,299.68	4,386,297.19	1,731,030.48+
Nov.	9,075,963.93	5,383,625.98	3,692,337.95	1,471,258.60+
Dec.	8,214,758.04	5,099,334.94	3,115,423.10	918,671.53+
Jan.	6,104,426.90	4,787,830.51	1,316,596.39	926,846.56+
Feb.	5,992,052.14	4,505,032.90	1,487,019.24	724,874.46+
Mar.	7,796,337.54	5,085,164.15	2,711,173.39	907,465.26+
Apr.	7,985,230.21	5,004,119.08	2,981,111.13	837,603.61+
May	8,378,114.62	5,821,850.47	2,556,264.15	629,403.66+
June	8,807,817.50	6,089,901.94	2,717,915.56	829,490.77+
	$94,989,490.33	$61,149,534.46	$33,839,955.87	$10,884,382.97+
Inc.	$18,676,169.37	$7,791,786.40	$10,884,382.97	.....

The net result of the company's operations for the year ended June 30, are as follows:—

Gross earnings		$94,989,490
Working expenses		61,149,534
Net earnings		$33,839,956
Net earnings of steamships in excess of amount included in monthly returns		909,236
Income from other sources		2,425,477
Total net income		$37,175,669
Deduct fixed charges		9,916,941
Surplus		$27,258,728
Deduct amount transferred to steamship replacement account	$900,000	
Contribution to pension fund	80,000	
		980,000
Net revenue available for dividend		$26,278,728
Surplus for year carried forward, after payment of all dividends		$13,896,000

Approximate gross earnings for July, $8,660,000, and for two weeks ended Aug. 14, $4,064,000, against $7,004,000 and $3,213,000 for same periods 1909.

DULUTH, SOUTH SHORE AND ATLANTIC RY.—Operating revenue for June, $302,980.55; expenses $203,629.17; net operating revenue $99,351.38, against $269,483.81 operating revenue; $204,868.41 expenses; $64,615.40 net operating revenue for June, 1909. Aggregate operating revenue for 12 months ended June 30, $3,302,147.03; expenses $2,269,247.84; net operating revenue $1,032,899.19, against $2,719,337.86 aggregate operating revenue; $1,979,518.07 expenses; $739,819.79 net operating revenue for same period 1908-09. Approximate gross earnings for July, $313,502, against $297,564 for same period 1909.

MINERAL RANGE RD.—Operating revenue for June, $62,737.46; expenses $57,695.53; net operating revenue $5,041.93, against $70,569 operating revenue; $65,124.13 expenses; $5,444.87 net operating revenue for June 1909. Aggregate operating revenue for 12 months ended June 30, $826,499.55; expenses $738,669.21; net operating revenue $87,830.34, against $826,375.46 aggregate operating revenue; $701,033.34 expenses; $125,342.12 net operating revenue for same period 1908-09. Approximate gross earnings for July, $56,651, against $73,257 for same period 1909.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RY.—Operating revenue for June, $1,338,367.22; expenses and taxes, $851,129.19; operating income, $487,238.03, against $1,072,626.47 operating revenue; $669,699.53 expenses and taxes; $402,926.94 operating income for June, 1909. Aggregate operating revenue for 12 months ended June 30, $15,407,179.40; expenses and taxes, $9,026,601.21; operating income, $6,380,578.19, against $12,609,299.17, aggregate operating revenue; $7,970,810.13 expenses and taxes; $4,638,489.04 operating income for same period 1908-09. Approximate gross earnings for July, $1,903,208, against $1,711,948 for same period 1909.

CHICAGO DIVISION.—Operating revenue for June, $795,561.74; expenses and taxes, $581,659,93; operating income, $213,901.81, against $654,211.38 operating revenue; $489,865.68 expenses and taxes; $164,345.70 operating income for June 1909. Aggregate operating revenue for 12 months ended June 30, $8,928,224.58; expenses and taxes $6,262,495.86; operating income $2,665,728.72, against $7,556,603.11 aggregate operating revenue; $5,502,270.18 expenses and taxes; $2,054,332.93 operating income for same period 1908-09.

Grand Trunk Ry. Earnings, Expenses, Etc.

Subject to audit, the accounts for the half year ended June 30, show the following results:

Gross receipts		£3,321,600
Working expenses, including £120,000 in reduction of the engine and car renewal suspense account		2,456,000
Net receipts		£ 865,600
Income from rentals, outside operations and car mileage balance		58,100
Total net revenue		£ 923,700
Net revenue charges for the half year, less credits		507,000
Balance		£ 416,700
Deduct Canada Atlantic Ry. deficit for the half year	£34,900	
Deduct Detroit, Grand Haven and Milwaukee deficit for the half year	34,600	
		69,500
Surplus		£ 347,200

This surplus, added to the balance of £11,800 from Dec., 1909, makes a total of £359,000 available for dividend, which will admit of the payment of the full dividend for the half year on the 4% guaranteed stock and first and second preference stocks, leaving a balance of about £12,600 to be carried forward.

The accounts of the Grand Trunk Western Ry. for the year ended June 30, including the balance brought forward from the previous year, show a surplus sufficient to provide for the interest on the first mortgage bonds, and leave a balance of about £17,200.

Approximate earnings for July, $3,179,896, and for two weeks ended Aug. 14, $1,603,660, against $3,491,184 and $1,700,877 for same periods 1909.

TRAFFIC RECEIPTS OF THE SYSTEM.

Aggregate from July 1 to July 31:

	1910	1909	Decrease
Grand Trunk	£521,589	£559,037	£37,448
Canada Atlantic	25,887	30,672	4,785
G. T. Western	81,032	96,760	15,728
D. G. H. & M.	24,895	30,898	6,003
Totals	£653,403	£717,367	£63,964

J. A. Seguin, a Montreal barber, was fined $20, Aug. 12, for scalping C.P.R. commutation tickets.

A new wage scale has been adopted and has gone into effect on the Intercolonial Ry., as affecting freight handlers, parlor and sleeping-car conductors; dining-car conductors, cooks, etc.; stationare boiler men, machinists, and other employes having to do with the operation of trains.

J. P. Mabee, representing the Board of Railway Commissioners and M. A. Knapp, representing the Interstate Commerce Commission, met in New York, Aug. 11, for a preliminary discussion on matters connected with an agreement for the regulation of international commerce between Canada and the U.S.

Too Late for Classification.

Arnprior and Pontiac Ry.—A United States railway paper published the following recently: "The A. & P. Ry. Co. advises that it will begin construction this season on its projected 75-mile electric railway which is to connect Ottawa, Fitzroy Harbor, Arnprior and Campbells Bay. The line will connect with the C.P.R. at Campbells Bay and Arnprior and with the G.T.R. at Graham's Bay. Power station and repair shops will be located at Fitzroy Harbor. Arthur Price 75 Somerset St., Ottawa, is Chief Engineer."

We are officially advised that it is not likely than any construction will be done on this projected line this year. The proposal is to build the railway in connection with the development of the Chats Falls in Fitzroy township. The scheme is not fully developed as yet, but our informant says that it has good prospects. The chief engineer is A.H.N. Bruce, of Ottawa, not Arthur Price, as stated in our contemporary.

Canadian Northern Ry.—It was announced Aug. 19 that arrangements had been completed with the St. Boniface, Man., city council, for extensive improvements within the next two years, to include a roundhouse, store house, coal warehouses, and freight sheds, and that the station at St. Boniface would be a joint one with the G.T.P.R., also that a new bridge would be built across the Red River, between Winnipeg and St. Boniface.

C.P.R. Guelph Station.—The Secretary of the Guelph Junction Ry. has received a letter from General Superintendent Oborne stating that the C.P.R. was only awaiting the settlement of the level crossing question before proceeding with the erection of the new passenger station at Guelph.

G.T.R. Port Huron Shops.—E.H. Fitzhugh, First Vice President, on a visit of inspection to Port Huron, Mich., Aug. 11, is reported to have stated that the addition to Block 1 of the shops there would be started as soon as material and workmen could be secured; that the new building would include a wood mill with 10,000 ft. of floor space, a blacksmith shop with 8,000 ft. of floor space, a lumber shed and dry kiln, and that it was estimated to cost about $120,000.

Hudson Bay and Pacific Ry.—A London, Eng., cable, Aug. 19, says the directors have authorized the statement that the Hudson Bay and Pacific Development Co.'s circular in which it was said that the railway company's bonds had been guaranteed by the Dominion Government was unauthorized by the railway company.

Intercolonial Ry.—The buildings to be erected to replace those burned at Campbellton, N.B., include a two-storey passenger station with covered platforms; a freight shed, 20-stall locomotive house with annex for a repair shop, rest house for trainmen, ice house, track scale and other necessary buildings for a divisional point. The coal chute was the only building not destroyed in the recent fire, and it will remain as at present.

Midland Ry. of Manitoba.—An engineering party is making a survey from the G.N.R. track in St. Vincent, Minn., to the Northern Pacific Rd. station at Pembina, N.D., over which it is said the G.N.R. will run its trains to a more direct connection with the Canadian Northern Ry. than at present.

The Board of Railway Commissioners, at its operating sittings at Ottawa, Oct. 4, will consider the matter of a regulation, requiring each and every passenger car of railways subject to its jurisdiction, to be equipped with a tool box, containing saw, sledge and axe, and located in a convenient place in each car.

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G.T.R. Betterments, Construction, Etc.

Belleville Roundhouse.—Work was started Aug. 10 on the new roundhouse at Belleville. It is located close to the junction of the main and the Midland Ry. lines, just out the city limits, and will contain 42 stalls. When the new building is completed the present roundhouse will be torn down, and the tracks east of the station removed.

Allandale Buildings.—We were recently advised that it was intended to rebuild the transfer shed and weigh scales which were recently destroyed by fire at Allandale, Ont., on the old site. Plans had not then been prepared, but the intention was to practically duplicate the former buildings.

Toronto Station Building and Viaduct.—When in Toronto Aug. 9, in company with A. W. Smithers, Chairman of the Board, President Hays said there was nothing new to report as to the building of the Union station and the viaduct along the water front, but when he came back from his tour of the G.T. Pacific Ry. he would probably have a good deal to say.

In connection with the viaduct question, we are advised that it is the second main part of the work of grade separation in Toronto, the first of which is referred to below. This viaduct part of the work extends from Bathurst St. on the west to Logan Ave. on the east, but owing to the C.P.R. appeal from the Board of Railway Commissioners' order this part of the work is yet undetermined.

Grade Separation, Toronto.—The preparatory work for the separation of the grades on the G.T.R. from Bathurst St., Toronto, as far west as Sunnyside, on the Toronto-Hamilton line, has been in progress for some time, and it is reported that all the property necessary for the work has been acquired. The work is being done under the terms of an order of the Board of Railway Commissioners, the cost being apportioned between the company, the city of Toronto and the township of York. The first part of the grade separation work in Toronto extends from Bathurst St. on the east to Mimico on the west, six miles. The depression commences at the C.P.R. crossing just west of Bathurst St. and continues to a point east of Queen St. (Sunnyside) crossing, the new grade of the railway passing under Dufferin St., Dunn, Jamieson and Dowling avenues, without altering the grades of these streets. From the point east of Sunnyside crossing the new grade will cross the following streets overhead: Queen St., Indian Rd., Howard Ave., Ellis Ave., Windermere and Jane streets, and the public highway known as Queen St. West. The bridges carrying streets over the railway track will be of steel and concrete, and will provide a vertical clearance of 22½ ft. above the base of rail. The subways carrying the railway tracks over the various streets will be of steel and concrete, and will provide 14 ft. vertical clearance for the highways. The work will consist principally of open cutting and embankment, except where it passes the exhibition grounds, where a concrete retaining wall will be used. Walls will also be used at Parkdale and other points where local conditions require it. There will be four through main tracks for the entire distance, and such other additional tracks as may be required for serving industries. The gradients will be 0.40% in each direction. J. R. W. Ambrose, Engineer of Grade Separation, is in charge of the work for the G.T.R. and E. L. Cousins, formerly District Engineer G.T.R., Toronto, represents the city council.

Chatham to Windsor, Ont.—Work is in progress between Windsor and Chatham, Ont., preparing for the replacing of the present 80-lb. steel with 90-lb. rails. (Aug., pg. 639.)

Brandon Hotel and Station C. N. R.

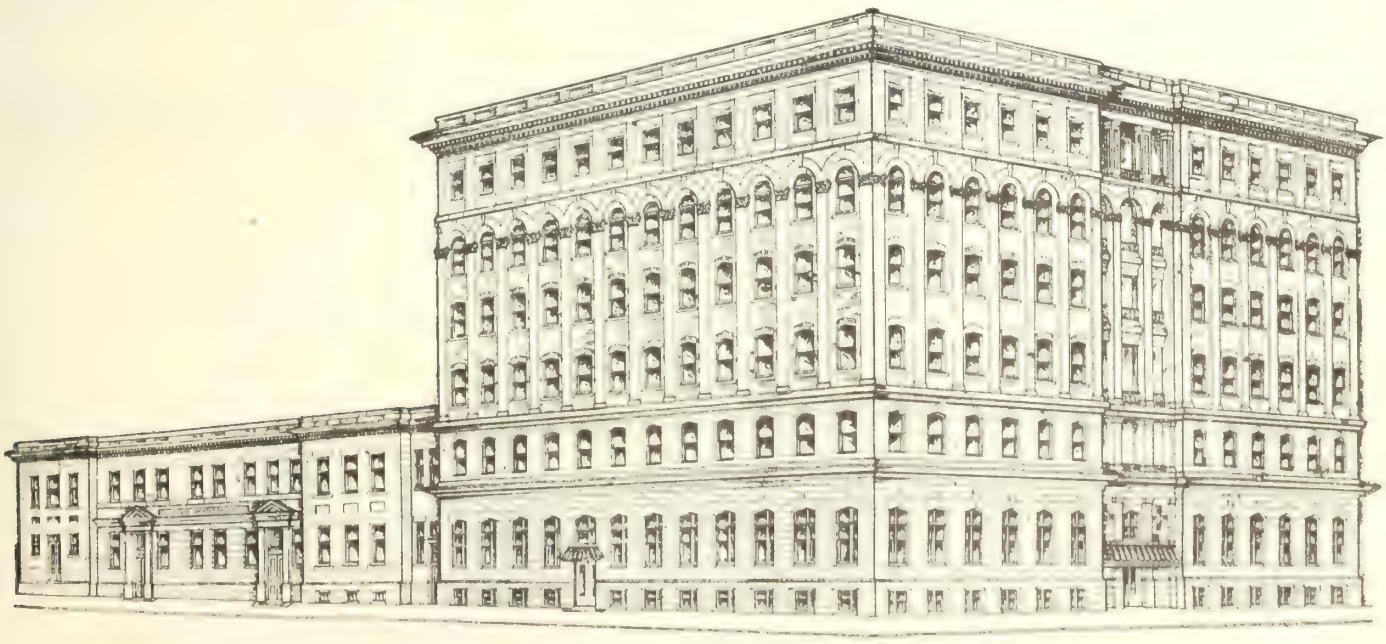
The Canadian Northern Ry. has let a contract for building a hotel in Brandon, Man., with a frontage on Princess St. of 120 ft., by 100 ft. on Ninth Ave. South of the hotel and adjoining will be a new station, two stories and basement, 190 by 36 ft. The station will be built of stone and brick in classical style. It will have a large general waiting room, ladies' waiting room, ticket lobby, express office, telegraph office and express and baggage room on the ground floor. and staff offices on the first floor. These will be reached from a separate entrance on Ninth Ave. Passing through the station the concourse will be reached with three stub end tracks for passenger service. The concourse will extend to the rear of the hotel, with an entrance into the main rotunda.

The hotel will be 90 ft. high, seven stories and basement. In the basement will be located the billiard room, barber shop, and public baths, lavatories, store rooms and machinery room, and provision will also be made for a future grill room and cafe. On the ground floor, adjoining the station, will be the bar-room, which will be finished in fumed oak with red tile floors. The rotunda will occupy all of the corner of the hotel and front on the two streets. It will be 76 by 62 ft., and in it will be located the office, manager's office, check room and news stand. To the west of it will be the dining room, 39 by 63 ft., which will be panelled in mahogany. This room will be free from columns, so as to give an unobstructed floor for assemblies. To the rear of the dining room will be the kitchen, about 35 by 39 ft., pantries, etc. The drawing room on the first floor will be 32 by 48 ft., and off it a writing room. The bedrooms will be ranged both single and en suite, about half of them being the latter way and supplied with bathrooms. On the top floor will be the servants' quarters and 10 large sample rooms. The latter will be well lighted and ventilated. Two elevators will be provided in the building for passenger service, and one of them arranged to handle trunks to the sample rooms and other floors.

The building will be heated by steam from the Brandon Electric Light Co.'s plant. A ventilating system will be installed, also a refrigerating system for the kitchen, larders and bar-room. The building will be lighted throughout with electricity, and will have an independent pump for fire protection purposes. The building will be of steel cage construction, with re-inforced concrete floors. The exterior walls will be of stone and brick. The floors of waiting rooms and ticket lobby, and of the rotunda, billiard room, etc., in the hotel will be of tile. The plans were prepared by Pratt & Ross, architects and engineers, under the direction of M. H. McLeod, General Manager C.N.R.

A Montreal press report states that the C.P.R. has recently completed a census of its employes in Montreal. The number given is 11,092, and the average earnings per head is given as $3 a day making an annual distribution of about $12,000,000.

An order in council has been passed relaxing the immigration regulations, in respect of cash qualification on entry, so far as they concern men who are fit, and willing to work on railway construction, and who are guaranteed work by railway companies or railway contractors.



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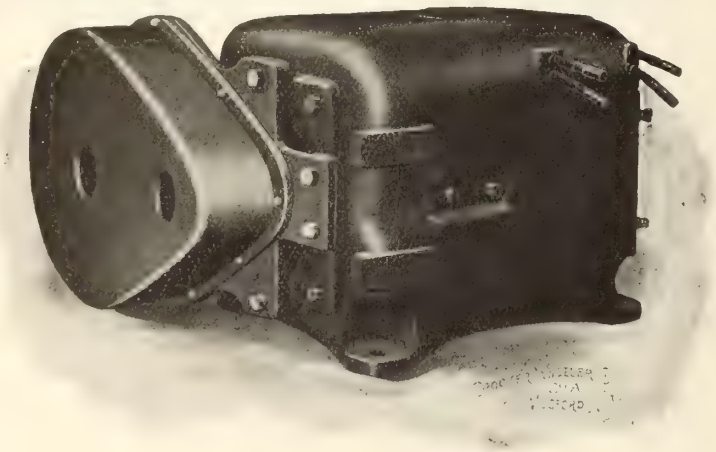

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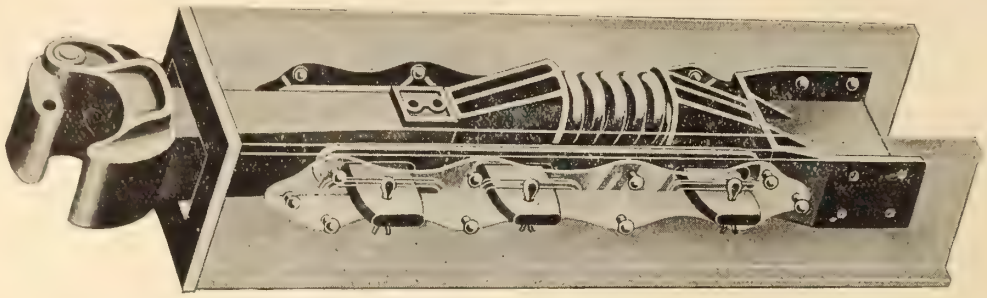

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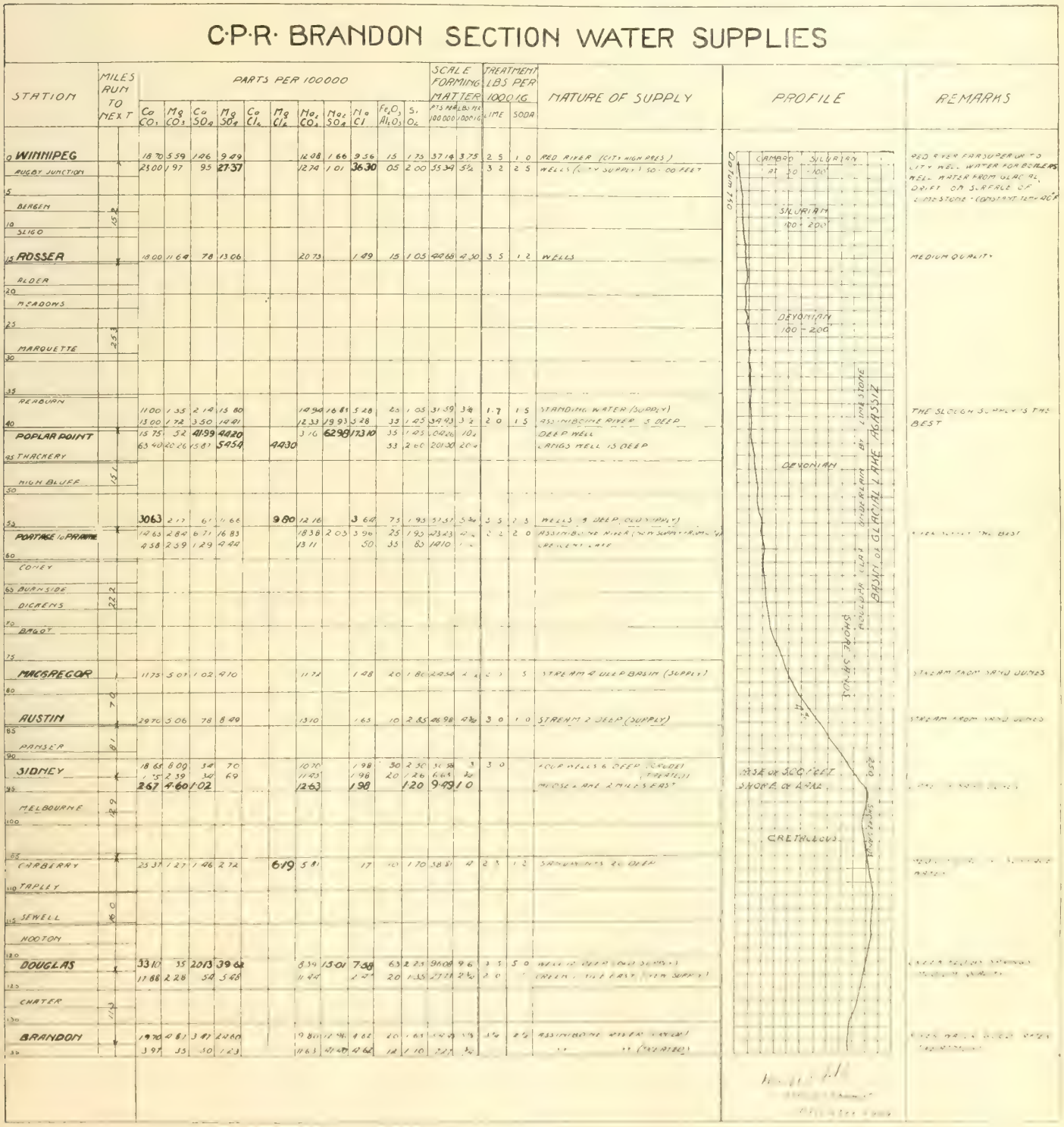
WATER SUPPLY FOR RAILWAYS.

By H. B. Lake, Chemist C. P. R. Western Lines.

Although a railway is anxious primarily to secure water which will produce steam for its locomotives with as little trouble and expense as possible, yet in its capacity as a great public servant its interests lie in obtaining, early in its inception, supplies of water, not only good for steam production; plentiful for future developments, and harmless to live stock, but at certain points free from suspicion of pollution, clear and brilliant for the consumption of its patrons. Years ago when the richness of the west was discovered, and the earliest moment at which a train could be run was all important, anything liquid was commandeered, but as development and competition ensue, the economy of applying special study to the water supplies from the time of location, becomes an ever increasingly economical factor. Proper selection of water supplies involves immediately the costs of operation of the whole system, and indirectly the the speed of the trains; the safeguard of the health of the traveling public, of the company's employes, and of the live stock shipped; and finally it gives a new argument to the freight and passenger salesmen, as to the superiority of the railway's water supplies. Therefore, when selection or improvement of water supplies is being made, the problem does not conform to selecting the supply which will involve the least initial capital expenditure or maintenance. The advantages just recited must be considered, and properly weighed in with the debit and credit of the financial considerations and the water supply becomes an efficient part of an economic system.

As soon as a new line is projected it will be economical to make a survey of the available water supplies, noting the observations coincidently with a profile of the topography, and geology. If possible analyses should be made, and the results tabulated opposite a reduced profile, giving the mileage graphically. The method of tabulating this work is shown in fig. 1, the relative distances between supplies is seen at a glance, the main summits on the profile are pronounced, and complete mineral analyses are given. This information, if prepared and collated at the time of constructing new lines, would be valuable in selecting terminals, and considering the eventual necessity for drinking and live stock supplies. When it is revealed that some supplies are 2, 4, 6,



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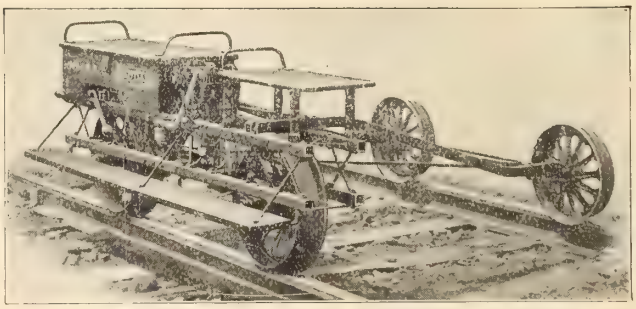

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8 and 10 times better in quality than others available, then the advantages become more apparent. The chart of columns in fig. 2 gives some idea of the variations in the scale forming ingredients of a few supplies. This chart also shows the enormous advantages of intelligent prospection, by which far superior supplies were discovered.

Whereas, on a projected line, especially through a region limited in water supply, quantity would rank first; yet, on a developed line, whereon traffic had increased and competition entered, then quality takes precedence. Hence, knowledge of quality and range of seasonal variation, not only of the supplies in use, but of all supplies available, becomes essential to economy. Fig. 3 shows the average cycle of seasonal variation. During the fall all surface waters gradually increase in concentration of salts, and after freezing over in the middle of November they are largely shut off from surface tributaries. Not only so, but any subsequent precipitation is in the solid form of snow, which thaws inappreciably. The body of water being thus approximately gas tight, bubbles of gases, such as oxygen liberated by the vegetation and carbonic acid by the aquatic life, are confined, and during this period I think the increased solvency of the waters enables them to attack and dissolve the shells of the millions of crustacea, and larger quantities of limestone. About the middle of March this concentration is suddenly arrested by the breaking up of the ice, dissolved gases escape and the supply is enormously diluted by snow water, and soon after by rains, which keep the supply relatively low in mineral contents, and is assisted to no small extent by the new swarms of crustacea, and revivifying of all vegetation and life which absorb chalky matter from the water, and, moreover, any carbonic acid is largely free to escape. During this period of less matter in solution there are, in some cases, enormous quantities carried by the streams in suspension. After this the gradual process of concentration again proceeds, and the cycle is repeated. These changes should be known for every large and important supply, as each supply has its own peculiar periods and variations, but the curve illustrates the general character of the seasonal cyclic variation. Therefore, analyses of supplies along main lines should be made constantly and tabulated, together with profile, mileages, and available quantities, as already referred to in fig. 1. Where visible supplies are lacking, or low in quality or quantity, prospection should be conducted by boring and drilling, and careful notes kept of all formations and waters encountered for immediate and future guidance, as shown in fig. 1. Such systematic investigation results in the abolition of the worst supplies, and the introduction of better

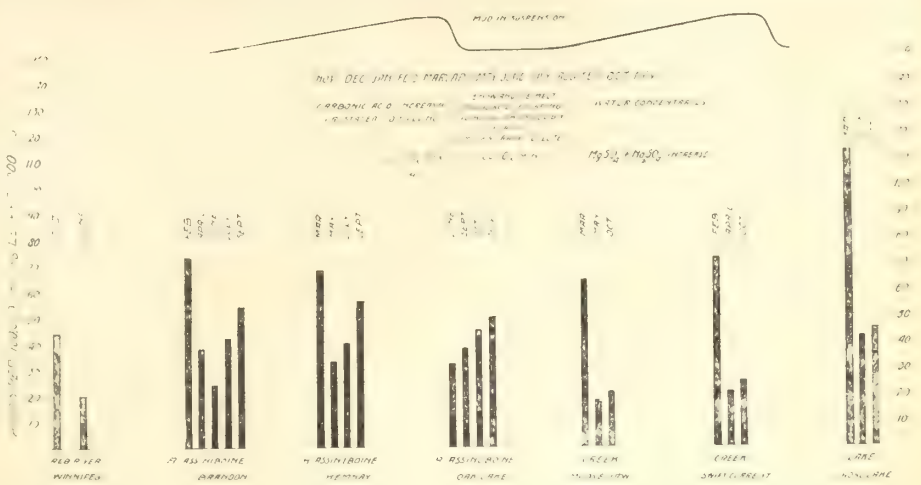

Diagram showing extreme seasonal variation in the scale forming matter of surface water.

supplies. Numerous cases could be given where the improvement has been effected at small expense, compared with the advantages gained, as shown in fig. 2.

Only after the systematic prospection outlined above has failed to reveal supplies of sufficient quality and quantity should special treatment be considered. The economical point is reached when the financial and other advantages accruing would show a good interest on the capital, plus any extra cost of operation necessary to effect the improvement. When large quantities of good water are required at a point where the present supply is bad or inadequate, then considerations of improvement may be so great as to overwhelm the immediate financial considerations, and make the selection of a supply involving special treatment essential. Such a conclusion would be reached when the existing supply was inadequate, with the alternative of hauling water, or attempting to use a supply of such quality that engine failures would be imminent; when the possible new supply would, without treatment, fill the firebox legs with mud or form heavy scale rapidly. If supply for the coaches or hotels, or the watering of live stock were involved, the advantages of treatment would be manifestly increased.

Fig. 4 shows graphically the difference in the amount of scale forming matter in a number of cases before and after softening in a simple form of plant in use on the C.P.R. Western Lines. Also the relation of soap destroying powder to the scale forming matter, showing that it is not a constant, as sometimes stated. It is evident therefrom that the amount of possible scale taken at terminals many times outweighs a small quantity of much harder water at less important points. The amount of scale contained in the original water in several cases would have exceeded 10 tons a month. By assuming the scale as equal in density to limestone, the number of engines at 10 per day, and the average heating surface at 2,300 sq. ft., then the deposit would have equalled 1-16 in. thick in one month. And if we assume 50% removed as mud by washing out, then it would be 1-16 in. in two months, which is generally admitted to be equal to an increase of 10% of fuel required to produce the same evaporation, to say nothing of overheated plates and tubes, and pitting consequent on decomposition of scale.

The different temperature of portions of the heating surface, and the fact that some salts in water are deposited at different temperatures, accounts partly for the fact that analyses shown in fig. 5 of scale removed from various parts of the boiler, vary in composition. The other influencing condition is the overheating of already deposited scale resulting in decarbonation, and there is no doubt that the CO_2 thus liberated accelerates pitting and corrosion of any clean metallic surfaces, or those which occasionally become suddenly exposed by expulsion of scale by overheating and other causes. Therefore, we can formulate three general rules:—Firstly—The supply. Waters may be muddy constantly or periodically, yet suitable otherwise. In such cases treatment must be directed to the removal of the matter in suspension. If only for boiler use some form of sedimentation, with or without coagulent, may be sufficient. But if for drinking purposes as well, then filtration in addition will be necessary, and it is quite possible to adopt these processes in the wrong order. If the water is not only muddy at inter-

Diagram showing some instances of improvement effected by prospection. Columns represent proportion of scale forming matter.

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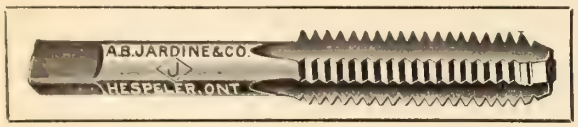

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vals, but also possesses considerable scale forming matter in solution, then the removal of the scale forming matter would be paramount, since the proper kind of softening plant would not only remove the scale forming matter, but incidentally, without any additional expense the mud also. Whether filtration were also necessary, or an especial part of the softening plant, would depend upon whether the water was also required for drinking purposes.

If the water is sufficiently hard to come within the economic and conditional limits already outlined, then it will pay to treat it, and a suitable softening plant will be a good investment. There are many kinds of softening plants, and, like other devices, they vary in efficiency. Some types are more suitable than others for a given water and conditions. Generally if mud has to be removed as well as hardness, or the water is especially high in permanent hardness, then a plant in which the water intermittently stands for considerable periods is the better. But in cases where water is already purchased or supplied at a pressure, then a plant through which the water can pass continuously, and be treated en route, will possess great advantages. There are other considerations, such as the kind of salts to be removed, some take much longer than others. Temperature also affects results, and the form in which the re-agents are added. Highly important is the location and kind of plant, as a properly designed plant may enable the existing pumpman to attend to the treating plant, which is very desirable, since plants attended to by persons whose second duty it is to charge and care for them may sound ecomonical, but they will prove inefficient.

That some of the waters derived from sloughy sources are more or less corrosive in nature is well known by their pitting action in the boilers. This property is, however, possessed by some of such waters in their cold natural condition, and they attack and eventually destroy the pipe lines or distributing system. Generally this ability to dissolve metals is possessed by the softest waters, and it has been established by careful experiment that pure soft water boiled free from air, and carbonic acid gas, will dissolve iron, and more readily steel. Where such waters are derived from peaty sources they appear to carry in solution certain vegetable compounds, which increase their slightly acid reactions. In such cases it is necessary to treat the water with a sufficient quantity of lime to neutralize the acid tendencies, and also, what is equally important, to remove any free carbon dioxide, as this gas always present in waters accelerates, although not essential to, corrosion.

By alkaline I mean waters which contain an excess of carbonate of soda, and by saline those which contain a predominance of soluble salts, not immediately precipitated by boiling, namely, sulphates of magnesium and sodium, and chlorides of sodium, and occasionally of magnesium and calcium. On the prairie there are supplies which contain varying quantities of these salts, probable combinations of chlorine ions with calcium and magnesium cation, are fortunately rare, and can usually be avoided. In the laboratory a small experimental boiler is kept wherein we can test the action of these waters, and pure boiled water containing 5 parts of $MgCl_2$ per 100,000, equal to only ½ lb. per 1,000 I.G., was capable of depositing a thick coating of copper on a piece of steel cut from the crown of a locomotive firebox, immersed therein for an hour at 200 lbs. steam pressure per sq. inch. Carbonate of sodium is a far more common constituent of natural waters than is generally shown by the conventional methods of reporting the analyses, but its presence can be proven, and, moreover, in the presence of calcium sulphate, although some text books and authors state that this is impossible. When sodium carbonate and sulphate of sodium predominate, then the water tends to foam in a boiler, especially, unfortunately, when the boiler is being most heavily drawn upon, as on a long or steep grade. The exact physical causes underlying this foaming or lifting of the water have not as yet been fully discovered. Matter in suspension, such as vegetable matter or mud, seems to accelerate the foaming action, hence one reason why boiler compounds are unsound in principle. However, that solutions of sodium carbonate boil with irregular ebulition and tendency to "bump" over is well known, so that there must be another reason in the physical condition of a sodium carbonate solution. Therefore, we can formulate three general rules regarding special treatment of supplies: 1st—The supply should be amenable to successful treatment, and afford a resultant water better in quality than any available of sufficient quantity. 2nd—It should be adequate in quantity for present consumption with a reserve for future development. 3rd—Every supply involves special study as to the kind of treatment and type of plant to obtain good results economically.

SUBSTANCE	BOTTOM of BARREL			SIDE of BARREL			CROWN OF FIRE BOX
	SMOKE BOX PLATE	CENTRE PLATE	FIRE BOX PLATE	SMOKE BOX PLATE	CENTRE PLATE	FIRE BOX PLATE	
SILICA	3 9	4 5	6 0	21 6	19 1	18 6	5 5
OXIDES OF IRON AND ALUMINA	71 5	60 0	26 5	9 9	24 9	6 9	3 0
SULPHATE OF LIME	2 1	5 8	48 8	1 9	4 8	2 2	68 8
CARBONATE OF LIME	16 0	18 3	4 2	21 5	15 3	10 7	0 4
LIME OTHER THAN CARBONATE OR SULPHATE CALCULATED AS HYDRATE				29 9	10 1	34 1	
CARBONATE OF MAGNESIUM	7 0	5 6	7 4				9 0
HYDRATE OF MAGNESIUM		5 7	7 1	12 5	26 0	21 1	14 0
TOTAL	105 5	93 9	100	97 3	100 2	93 7	99 9

The provision of supplies free from pollution, perfectly clear, and of good color at certain points for watering coaches, is highly important, and has not been given the special attention which it is necessary to bestow to ensure water on the tables of the dining cars, and in the coach reservoirs, of clear appearance and undoubted purity. Periodically the reservoirs and filters on the coaches and dining cars should be sent to the laboratory to test their cleanliness and freedom from disease germs. A systematic control of the water supplies as outlined herein would result in increased efficiency, and eventually in water supplies of such quality that they would be an advertising asset of the railway system.

The foregoing paper was read before the Western Canada Railway Club recently.

Diagrams showing effects of softening.

A HISTORY OF THE PAY-AS-YOU-ENTER CAR

AND ITS LESSON

The following cities are using Pay-As-You-Enter Cars: Chicago City Railway, 839 cars; Chicago Railways, 1,328; Public Service Corporation of New Jersey, 466; New York City Railway, 555; Third Avenue Railroad, New York, 550; International Railway, Buffalo, 200; Buffalo & Lake Erie Traction Co., 10; Washington Ry. & Elec. Co., Washington, D.C., 100; Capital Traction Co., Washington, D.C., 51; Municipal Traction Co., Cleveland, Ohio, 180; United Rys. Co. of St. Louis, Missouri, 310; Portland Ry., Lt. & Pwr. Co., Portland, Ore., 25; Columbus Ry. & Lt. Co., Columbus, Ohio, 10; Wichita R.R. & Lt. Co., Wichita, Kan., 14; Jacksonville Elec. Co., Jacksonville, Fla., 5; Dallas Elec. Co., Dallas, Texas, 20; Houston Elec. Co., Houston, Tex., 41; Northern Texas Trac. Co., Ft. Worth, Texas, 25; Ithaca Street Ry., Ithaca, N.Y., 2; Peoria Street Ry., Peoria, Ill., 13; Urbana & Champaign Ry., Champaign, Ill., 3; Mutual Lt. & Water Co., Brunswick, Ga., 4; Rochester Ry. Co., Rochester, N.Y., 25; Ft. Dodge, Des Moines & So. R.R. Co., 2; Muskogee Elec. Trac., Muskogee, Okla., 6; Union Traction Co., Dubuque, Ia., 4; Topeka Ry. Co., Topeka, Kas., 12; United Rys. & Elec. Co., Baltimore, Md., 32; Detroit United Ry., Detroit, Mich., 225; Cincinnati Traction Co., Ohio, 50; Montreal Street Railway, 400; British Columbia Elec. Ry., 30; Calgary Street Railway, 18; Metropolitan Street Ry., Kansas City, Mo., 50; Edmonton Radial Ry., 4; San Antonio Traction Co., San Antonio, Tex., 6; Rockford & Int. Ry., Rockford, Ill.; Cairo Street Ry. & Lt. System, 6; Des Moines City Railway, Iowa, 12; Macon Ry. & Lt. Co., Macon, Ga.; Virginia Ry. & Power Co.; Columbia Elec. St. Ry. & Lt. & Power Co., Columbia, S.C.; Aurora, Elgin & Chicago Ry., Chicago, Ill.; Wichita Falls Traction Co., Wichita Falls, Tex.; Ottawa Electric Ry. Co., Ottawa; Bloomington & Normal Ry. & Lt. Co., Bloomington, Ill.; Corsicana Transit Co., Corsicana, Tex.; Compania Electrica y de Ferrocarriles, Mexico; The Milwaukee Elec. Ry. & Lt. Co., Milwaukee, Wis.; Springfield Street Ry. Co., Springfield, Mass.; Lynchburg Traction Co., Lynchburg, Va.; Chicago & Southern Traction Co., Chicago, Ill.; Calumet & South Chicago Ry. Co., Chicago, Ill.

THE LESSON

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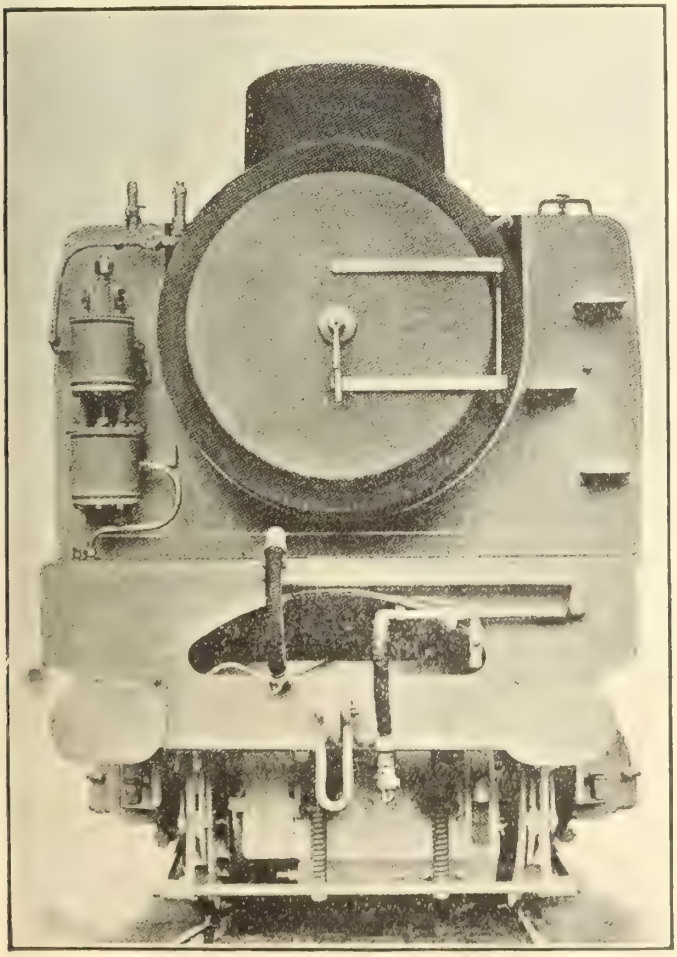
Steam Turbine Electric Locomotive.

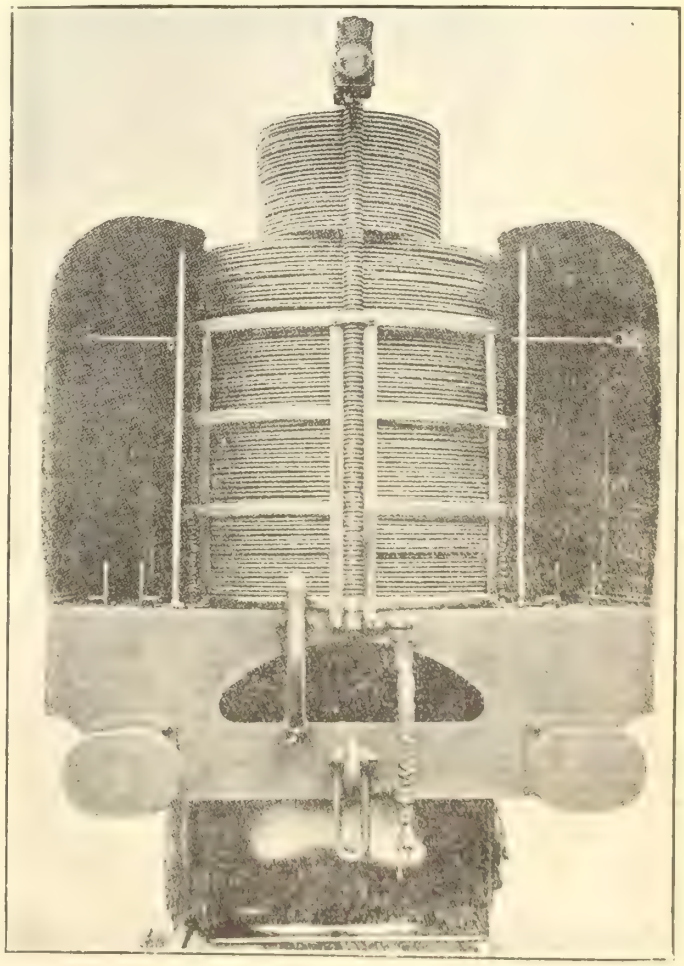
In our issues of Jan. and Feb. we gave some particulars of the Reid Company's steam turbine locomotive, which was under construction, and was described by Hugh Reid in his presidential address to the Glasgow University Engineering Society. The locomotive has made its preliminary trial on the main lines of the Caledonian and the North British railways, with a saloon carriage attached, and the following additional particulars are now available:—

Steam is generated in a boiler of the ordinary locomotive type, which is fitted with a superheater, and the coal and water supplies are carried in the side bunkers and side water tanks at both sides of the boiler. The steam from the boiler passes into a turbine of the impulse type running at a speed of 3,000 revolutions a minute, to which is directly coupled a continuous-current, variable-voltage dynamo. The dynamo supplies current up to 600 volts to four series-wound traction motors, the armatures of which are built on the four driving axles of the locomotive. The exhaust steam from the turbine passes into an ejector condenser, and is, together with the circulating condensing water, delivered eventually to the hot well. As the steam turbine, unlike the reciprocating steam engine, requires no internal lubrication, the condensation water is free from oil, and consequently is returned from the hot well direct to the boiler by a feed pump. The water evaporated by the boiler is therefore returned to the boiler again and again, and the supply of water carried in the tanks is actually circulating water for condensation purposes. This condensing water is circulated within a closed cycle by small centrifugal pumps driven by auxiliary steam turbines placed alongside the main turbine and dynamo. The cycle of condensing water is from the tanks through the first pump, then through the condenser, where it becomes heated in condensing the exhaust steam, and then to the hot well. From the hot well it passes through the second pump to the cooler, situated in front of the locomotive, where the full benefit of the blast of air caused by the movement of the locomotive, aided by a fan, is utilized for cooling the hot circulating water. After passing through the cooler, the water is returned to the supply tanks ready for further condensation duties.

It is obvious that the condensation of the exhaust steam deprives the locomotive boiler of the usual exhaust blast which induces the draft through the firebox and boiler tubes. In the experimental locomotive, the induced draft is



Rear end.



Front end.

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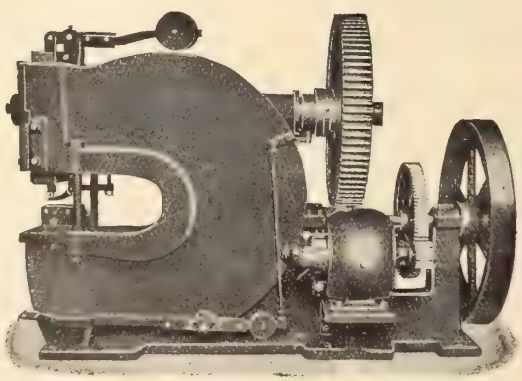

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replaced by forced draft provided by a small turbine-driven fan. The fan is placed within the cooler, so that it will deliver hot air to the boiler fire and at the same time assist the current of air through the cooler. The small switchboard and the instruments required, the controller for grouping the four motors in series—series parallel and parallel, according to the draw-bar pull to be exerted—and the regulator for controlling the voltage in the electrical circuit, and consequently the speed of the train, are all within easy reach of the engineman.

The foregoing comprises the main and auxiliary machinery of this experimental locomotive. The whole is mounted on a strong underframe, which is carried on two eight-wheel articulated trucks, that will easily negotiate curves. Each truck carries two of the four driving motors already referred to. As the engine is intended for express passenger main line work, it is hoped to obtain comparisons from its actual working with the performances of the reciprocating steam locomotives, especially as regards the relative consumption of fuel and water, the efficiency of transforming the energy of steam into drawbar pull, and the relative rapidity of acceleration. Most of the component parts of this locomotive have already proved themselves effective and efficient in other applications; the novelty lies in the combination of the different elements.—Railway Age Gazette.

TRANSPORTATION APPOINTMENTS.

The information under this head, which is almost entirely gathered from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian Pacific Ry.—N. R. DesBrisay has been appointed Travelling Passenger Agent, St. John, N.B.

The St. Maurice Valley extension from Shawinigan Falls to Grand Mere, Que., was taken over by the Operating Department, Aug. 14, and the service placed under the direction of G. Hodge, Superintendent District 3, Eastern Division, Montreal.

C. W. P. Ramsey has been appointed Division Engineer of Construction, Montreal, vice A. McCulloch, resigned to enter the Kettle Valley Ry. Co.'s service.

A. McArthur, heretofore Locomotive Foreman at Brandon, Man., has been appointed Locomotive Foreman at Fort William, Ont., vice G. Pratt, transferred to Souris, Man.

With further reference to the recent re-organization of the three grand divisions of the Western Lines into four for operating purposes, we are advised that the Freight Department is not affected thereby. The Western Lines are divided as follows for freight traffic purposes—

CENTRAL DIVISION.—Comprising main line and branches, Port Arthur to Swift Current and Rossyth, inclusive. Agents report to R. E. Larmour, General Freight Agent, Winnipeg.

WESTERN DIVISION. Comprising main line and branches, Beverley to Laggan and Burmis, inclusive, also Wetaskiwin section, including Hardisty. Agents report to J. Halstead, General Freight Agent, Calgary, Alta.

KOOTENAY AND BOUNDARY DIVISIONS.—Comprising Crow's Nest line and branches, Passburg to Kootenay Landing, inclusive, also rail and water lines, Kootenay Landing to Midway, inclusive, and south of Arrowhead, B.C. Agents report to W. R. Haldane, General Freight Agent, Nelson, B.C.

PACIFIC DIVISION.—Comprising main line and branches, Stephen to Vancouver, inclusive, and Okanagan Lake. Agents report to W. C. Bowles, General Freight Agent, Vancouver, B.C.

F. A. Wilkin has been appointed Assistant Engineer, Winnipeg, vice H. Rindal, appointed Division Engineer Pacific Division.

R. H. Hart has been appointed Electrical Foreman, Winnipeg shops.

G. Pratt, heretofore Locomotive Foreman at Fort William, Ont., has been appointed Locomotive Foreman at Souris, Man., vice A. Peers, transferred to Brandon.

A. Peers, heretofore Locomotive Foreman at Souris, Man., has been appointed Locomotive Foreman at Brandon, Man., vice A. McArthur, transferred to Fort William, Ont.

T. F. Patterson, heretofore District Master Mechanic, Moose Jaw, Sask., has been appointed District Master Mechanic, Saskatoon, Sask., vice J. Scott transferred.

J. Scott, heretofore District Master Mechanic, Saskatoon Sask., has been appointed Trainmaster District 2, Saskatchewan Division, Saskatoon.

W. E. Lovelock has been appointed city ticket agent, Saskatoon, Sask.

J. V. McNab has been appointed Resident Engineer, Moose Jaw, Sask., vice H. B. Sims transferred.

Jas. Black, heretofore chief clerk to Freight Claims Agent, Central Division, Winnipeg, has been appointed Freight Claims Agent Saskatchewan Division. Office, Moose Jaw.

G. Whitely has been appointed District Master Mechanic, Moose Jaw, Sask., vice T. F. Patterson transferred.

A. Halkett, heretofore Assistant Trainmaster District 2, British Columbia Division, Kamloops and W. R. Boucher, have been appointed Trainmasters District 1, Saskatchewan Division, Moose Jaw.

E. G. Ranney and A. B. Burke have been appointed Travelling Passenger Agents for New England Territory, vice W. H. Snell and J. Burden. Headquarters, 362 Washington St., Boston, Mass.

Jas. Burden, heretofore Travelling Passenger Agent, has been appointed city ticket agent, Boston, Mass.

Grand Trunk Pacific Ry.—R. Johnston has been appointed acting Roadmaster between Punnichy and Kinley, Sask., vice P. Desmond, on leave of absence.

N. B. Walton has been appointed Trainmaster Districts 4, 5 and 6, including Tofield-Calgary branch, vice H. McCall, transferred to Edmonton. Office, Wainwright, Alta.

H. McCall, heretofore Trainmaster at Wainwright, Alta., has been appointed Trainmaster District 7. Office, Edmonton, Alta.

The following agents have been appointed:—Lazare, Man., S. C. McDonald; Fenwood, Sask., J. O. Deshaye; Punnichy, Sask., W. House; Semans, Sask., G. M. McGuire; Venn, Sask., A. Donnelly; Allan, Sask., J. A. Hamelin; South Saskatoon, Sask., E. H. Harkness; Viking, Alta., J. L. Dodds; Holden, Alta., W. C. Stedman.

Grand Trunk Ry.—G. E. Gogo, heretofore operator, has been appointed General Yardmaster at Brockville, Ont., vice J. Hatton, Yardmaster, appointed General Yardmaster at Belleville, Ont.

J. Hatton, heretofore Yardmaster at Brockville, Ont., has been appointed General Yardmaster at Belleville, Ont.

D. J. Quinlan has been appointed Chief Dispatcher, Districts 11, 12, 13 and 14, Allandale, Ont., vice W. J. Piggott, appointed Trainmaster.

O. F. Clark, heretofore Trainmaster at Durand, Mich., has been appointed Trainmaster P.O. & N. Rd., and District 29 (Michigan Air Line), Western Division. Office, Pontiac, Mich.

F. G. Bement, heretofore Trainmaster at Battle Creek, Mich., has been appointed Trainmaster Districts 25 (G.S. & M.), 27, 28 and 29 (Detroit Division), Western Division, vice O. F. Clark, transferred. Office, Durand, Mich.

T. G. Akers has been appointed Trainmaster Districts 25 and 26, Western Division, H. W. Matthews, Trainmaster District 26, having been assigned to other duties. Office, Battle Creek, Mich.

The following agents have been appointed:—Hamilton, King St. (Pass.), F. W. Wilkinson; Dunnville, R. E. Elgie; Otterville, A. J. Madgett; Aubrey, H. A. Switzer; Sault Ste. Marie, Mich. (outside), F. R. Price; Cornwall Jct., H. C. Bouck; South River, J. J. Carey; Callender, D. H. Thompson; Nipissing Jct., G. Jardine; Mimico, M. J. O'Donnell; Vineland, C. L. Painter; London (Pass.), H. M. Hayes; Belle River, F. H. Burthwick; Simcoe, F. C. Faskin; Burgessville, R. W. Loftus; Wingham, G. Lamont; Whitechurch, G. E. Smith; Hawkesbury, H. B. Partridge; Barry's Bay, P. J. Lawlor; Madawaska, S. N. Milligan; London (outside), R. E. Ruse; Port Carling (outside), W. J. Bradley; Hemmingford, Que. (outside), R. W. Blair. Except where otherwise stated, the places mentioned are in Ontario.

Intercolonial Ry.—By the omission of this sub-heading in the transportation appointments published in our August issue, the appointments of H. H. Melanson and G. A. Fernley appeared as though they were to the Halifax and South Western Ry. The context, however, showed that this was not so.

Kettle Valley Ry.—A. McCulloch, heretofore Division Engineer of Construction C.P.R., Montreal, is reported to have been appointed Chief Engineer K.V.R., with office at Merritt, B.C.

New York Central and Hudson River Rd.—C. H. Hogan has been appointed Assistant Superintendent of Motive Power. Office, Albany, N.Y.

Prince Edward Island Ry.—The position of car foreman is vacant, owing to the death of F. Dammerell, on Aug. 5. T. Aitken, who was appointed acting car foreman some months ago, when Mr. Dammerell was taken ill, is still discharging the duties of the position.

Reid Newfoundland Co.—A. Hartery, heretofore Locomotive Foreman at Bay of Islands, has been appointed Travelling Engineer, vice J. Pitt, deceased.

J. Pumphrey has been appointed Locomotive Foreman at Bay of Islands, vice A. Hartery, appointed Travelling Engineer.

Toronto, Hamilton and Buffalo Ry.—E. A. Wigren, Auditor of Disbursements Michigan Central Rd., has also been appointed Auditor of Disbursements T.H. & B.R. Office, Detroit, Mich.

T. Eedson, Auditor of Freight Accounts, Michigan Central Rd., and heretofore Freight Accountant and Freight Claim Agent T.H. & B.R., has been also appointed Auditor of Freight Accounts and Freight Claim Agent T. H. & B.R. Office, Detroit, Mich.

H. J. Broderick, Auditor Passenger Accounts, Michigan Central Rd., and heretofore Ticket Accountant, T.H. & B.R., has been also appointed Auditor of Passenger Accounts, T.H. & B.R. Office, Detroit, Mich.

The Intercolonial Ry. has received three consolidation locomotives from the Canadian Locomotive Co., Kingston, Ont.

The assessment on the G.T.R. yards between Bathurst St. and Dovercourt Rd., Toronto, has been decreased from $8,500 to $7,500 an acre. The area covered is about 25 acres.

The G.T.R. has issued passenger and freight tariffs covering the rates to be charged on the 11 miles of the Chicago, Kalamazoo and Saginaw Ry., over which it has acquired running rights. The G.T.R. has its own terminals in Kalamazoo, Mich.

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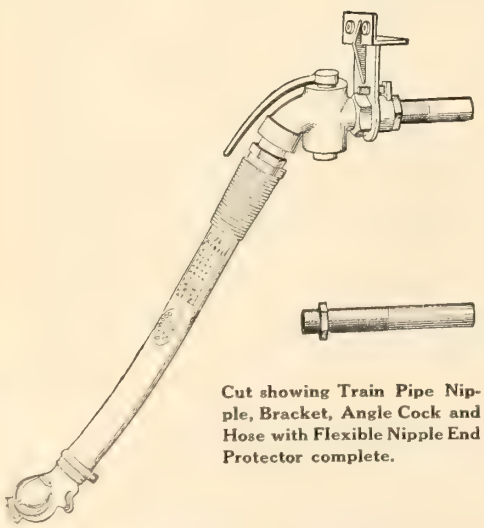

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MAINLY ABOUT PEOPLE.

Lord Strathcona celebrated his ninetieth birthday, Aug. 6.

Lord Strathcona has contributed $5,000 to the Campbellton fire relief fund

Sir Wm. C. Van Horne has been appointed a member of La Commission Metropolitaine des Parcs for Montreal.

Sir Wm. C. Van Horne and Sir Thos. G. Shaughnessy are among the incorporators of the Montreal Association for the Blind.

F. Dammerell, car foreman Prince Edward Island Ry., died at Charlottetown Aug. 5, aged 66, of cancer, after several months illness.

J. Wanless, formerly timber and tie inspector, C.P.R., but who retired on the pension fund some time ago, died at Toronto, Aug. 22.

H. Shearer, Superintendent Canadian Division M.C.R., St. Thomas, Ont., was married recently to Miss M. H. McDermott, at Marshall, Mich.

N. Curry, President Canadian Car & Foundry Co., has been elected a director of the Canadian Light & Power Co., Montreal.

Miss Jessie Field, daughter of J. G. Field, C.P.R. Ticket Agent at Tavistock, Ont., was married recently to C. N. McKinnon of Okotoks, Alta.

R. C. Desrochers, heretofore Assistant Secretary Department of Public Works, has been appointed Secretary, vice N. Tessier, deceased.

Hugh A. Allan, who spent some time in England in connection with the reorganization of the Allan Line, returned to Canada at the end of August.

A. W. Smithers, Chairman of the G.T.R. board of directors, arrived in Canada, Aug. 6, for the annual trip of inspection of the system.

Mrs. Honora Merry, mother of Mrs. Wm. Mackenzie, wife of the Canadian Northern Ry. President, died at Kirkfield, Ont., Aug. 21, aged 79.

A. Piers, Manager C.P.R. Steamship Lines, Liverpool, Eng., was in Montreal, during Aug., on his annual visit in connection with the Atlantic service.

J. Courturier, who has been in I.C.R. service since 1874, latterly as chief clerk at Levis, Que., is reported to be retiring from the service on account of ill health.

A. Butze, General Purchasing Agent G.T.R., returned to Montreal, Aug. 13, much improved in health, after spending two months at Battle Creek, Mich.

M. K. Cowan, ex-Solicitor G.T.R., who is now residing in Toronto, and Mrs. Cowan, have been at Lake Champlain and Lake Timagami for the holidays.

A. E. Morrison, brakesman C.P.R., has received a gold watch from one of the passengers, whom he assisted when a C.P.R. train was wrecked at Spanish River last January.

G. Moth, Trainmaster C.P.R., Moose Jaw, Sask., was presented with an address, a diamond scarf pin and some cut glass, by the staff there, recently, on his transfer to Calgary, Alta.

A. M. Fenton, formerly General Agent Omaha Rd., in Winnipeg, is reported to have been appointed Assistant General Freight Agent same road, with office at Minneapolis, Minn.

O. F. Jordan, for many years in M.C.R. service as Roadmaster and Division Superintendent, at St. Thomas, Ont., and latterly in the railway supply business, died at Jackson, Mich., Aug. 2.

E. Dent, President, and A. R. Bremner, Vice President, Quebec Central Ry., arrived in Canada towards the end of August, from London, Eng., for an inspection of the company's property.

J. T. Arundel, General Superintendent Manitoba Division C.P.R., Winnipeg, who recently returned from England, was confined to his home for a few days by illness, but has since resumed his duties.

J. E. Hutcheson, Superintendent and Purchasing Agent Ottawa Electric Ry., who went to England as Adjutant in charge of the Canadian Bisley team, returned to Ottawa at the end of August.

A. M. Jones, formerly Resident Engineer C.P.R., Ottawa, Ont., has been appointed engineer in charge of surveys in connection with the Quebec bridge reconstruction.

Ancillary probate of the will of Sir Robert G. Reid, President of the Reid Newfoundland Co., has been granted in the Halifax probate court. The value of the estate in Nova Scotia is given as $16,000.

G. O'Farrell, formerly superintendent of lighthouses, and latterly on the National Transcontinental Ry. engineering staff, died in one of the camps, about 100 miles west of La Tuque, Que., July 25.

J. A. McGillivray, Superintendent Inverness and Richmond Ry. Coal Co., is a provisional director of the Inverness Amateur Athletic Association recently incorporated by the Nova Scotia Legislature.

W. Richards, of Biddeford, P.E.I., President of the Charlottetown Steam Navigation Co., sailed from Quebec by the s.s. Royal George, Aug. 4, on a visit to England, expecting to return in October.

Jas. Ross, Montreal, and a party of friends left St. Andrews, N.B., Aug. 7 for Sydney, N.S., in the steam yacht Shielah, and thence proceeded for a tour of the St. Lawrence River and the Great Lakes.

I. G. Ogden, Vice President C.P.R., has been elected a director of the Minneapolis, St. Paul and Sault Ste. Marie Ry., and the Duluth, South Shore and Atlantic Ry., in place of Sir Wm. C. Van Horne, resigned.

H. E. Elmer, senior dispatcher Toronto, Hamilton and Buffalo Ry., Hamilton, and who had been acting Chief Train Dispatcher since last winter, died there, recently. He was formerly in M.C.R. service at St. Thomas, Ont.

Sir Thos. G. Shaughessy is Honorary President, and L. R. Johnson, Assistant Superintendent of Motive Power C.P.R., Montreal, is a member of the executive committee of the Canadian branch of the St. John Ambulance Association.

The Governor-General presented the silver medal of the Order of the Hospital of St. John of Jerusalem, at Ottawa, recently, to T. Reynolds, C.P.R. conductor, in recognition of his conduct in the Spanish River accident, Jan. 21.

F. H. Clergue, the moving spirit in the establishment of the various industries, and allied railways and steamship companies at Sault Ste. Marie, Ont., now owned by the Lake Superior Corporation, arrived in New York from England Aug. 5.

L. B. Archibald, Superintendent Parlor, Sleeping and Dining Car Service Intercolonial Ry., who is Supreme Grand Master for the year, attended the annual convention of the Knights Templar branch of the Masonic Order in Canada, at London, Ont., Aug. 4.

M. J. Butler, General Manager Canadian Steel Corporation, and formerly Deputy Minister of Railways and Canals, lectured on the transportation problem in Canada, at the Summer School of Science of the St. Francois Xavier University, Antigonish, N.S., Aug. 1.

A. H. Egg, son of W. F. Egg, formerly City Passenger Agent C.P.R., Montreal, has been awarded the diploma of Associate of the Royal College of Organists, London, Eng. He had previously won the Strathcona scholarship at the Royal College of Music.

C. B. K. Carpenter, Managing Director New Canadian Co., building the Atlantic, Quebec and Western Ry., and C. B. Hibbard, Sherbrooke Ry., and Power Co., are provisional directors of the Soulanges Power Co., Ltd., recently incorporated by the Quebec Legislature.

H. H. Vaughan, Assistant to the Vice President C.P.R., contrributed papers which were read at the International Railway Congress at Berne, Switzerland, and at a joint meeting of the Institute of Mechanical Engineers and the American Society of Mechanical Engineers, in London, Eng.

J. V. McNab, who was recently appointed Resident Engineer C.P.R., Moose Jaw, Sask., was born at Ayr, Ont., June 11, 1884, and entered C.P.R. service in 1906, since when he has been, to 1907, transitman at Kenora, Ont.; 1907 to July 15, 1910, transitman maintenance of way at Kenora, Brandon and Fort William.

G. A. Mountain, Chief Engineer Board of Railway Commissioners, who has relieved H. A. K. Drury, Assistant Engineer Board of Railway Commissioners, at Winnipeg, while the latter was on a vacation, during August, will inspect the G.T.P.R. and other lines under construction in the prairie provinces and British Columbia, during Sept.

J. J. Gilbertson, formerly Liverpool agent C.P.R., has commenced business at 28 Chapel St., Liverpool, Eng., as a general commission merchant, freight, passenger and insurance agent. The Liverpool Journal of Commerce recently published an appreciation of him, in which it spoke of him as "one of the best known and most highly esteemed of Liverpool shipping men."

R. Forget, President Quebec Ry. Light, Heat and Power Co., and Richelieu and Ontario Navigation Co.; J. N. Greenshields, director Quebec Ry. Light, Heat and Power Co.; H. A. Lovett, director Pacific Coast Coal Mines Ltd., and J. W. Pyke, dealer in railway supplies, Montreal, are directors of the City Central Real Estate Co., recently incorporated in Montreal.

W. Maughan, C.P.R., Toronto; M. Kinton, C.P.R., Huntsville, Ont.; C. D. Truemen, C.P.R., Midland, Ont.; L. Lavergne, Drummond Counties Ry., Arthabaskaville, Que.; J. Merriman, C.P.R., Hamilton, Ont., and G. E. Waller, Hamilton, Grimsby and Beamsville Electric Ry., Hamilton, Ont., are among those who have recently become members of the Canadian Ticket Agents' Association.

W. C. Starke, whose appointment as Travelling Car Service Agent G.T.R., Montreal, was announced in our last issue, was born at Montreal, Mar. 9, 1867, and entered G.T.R. service Sept 18, 1881, since when he has been, to Mar. 1, 1898, in Car Accountant's office; Mar. 1, 1898, to July 1, 1901, Car Distributor; July 1, 1901, to July 18, 1910, chief clerk to Superintendent of Car Service.

Mrs. Grundy, wife of F. Grundy, Vice President Quebec Central Ry., died somewhat suddenly at Sherbrooke, Que., Aug. 11, aged 72. Mr. Grundy himself has been in feeble health for some time. Among the surviving children are—Robert, Traffic Manager Egyptian State Railways, Cairo; E. O., General Passenger Agent Quebec Central Ry., Sherbrooke; G. G., General Manager Temiscouata Ry., Riviere du Loup, Que.

G. Pepall, whose appointment as Assistant Foreign Freight Agent G.T.R., Toronto, was mentioned in our last issue, was born at High Wycombe, Bucks, Eng., Jan. 15, 1849, and entered Canadian railway service, Mar., 1880, since

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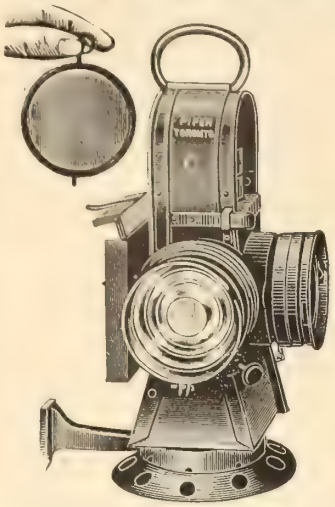

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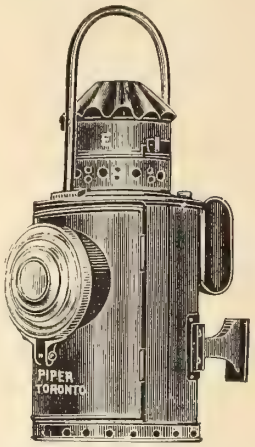

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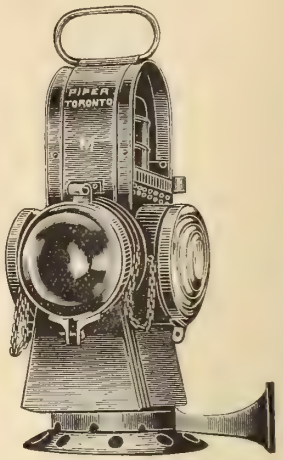

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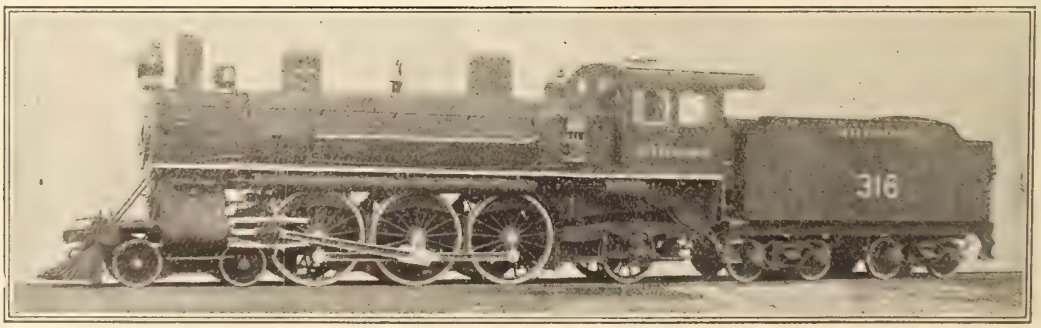

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when he has been, to Feb., 1884, clerk G.T.R. freight office, Toronto; Feb., 1884, to Apr. 1, 1898, chief clerk in charge of freight station, G.T.R., Yonge St., Toronto; Apr. 1, 1898, to July 15, 1910, Canadian Agent National Despatch-Great Eastern Line, Toronto, which position he still holds, in addition to that of Assistant Foreign Freight Agent G.T.R.

R. C. Vaughan, who was recently appointed Assistant to Third Vice President Canadian Northern Ry., and to Second Vice President Canadian Northern Steamships, Ltd., Toronto, was born in Toronto, Dec. 1, 1883, and entered railway service Oct. 3, 1898, since when he has been, to Mar., 1902, office boy, clerk and stenographer, General Freight Agent's office, C.P.R., Toronto; July to Dec., 1902, in Freight Department G.T.R., Toronto; Jan., 1903, to July 1, 1910, clerk, secretary to Third Vice President and General Manager, and chief clerk to Third Vice President, Canadian Northern Ry., Toronto.

A. B. Spencer, who has been appointed Chief Dispatcher Reid Newfoundland Ry., St. John's, Nfld., was born at Harbor Grace, Nfld., Oct. 21, 1882, and entered Reid Newfoundland Co.'s service Oct., 1900, since when he has been, to June, 1901, operator at Harbor Grace: June, 1901, to Feb., 1902, operator at Ouinette, now Notre Dame Jct.; Feb., 1902, to Jan., 1903, agent at various points; Jan., 1903, to Apr., 1905, third trick dispatcher: Apr., 1905, to May, 1907, second trick dispatcher; May, 1907, to Jan., 1910, first trick dispatcher; Jan. to July 15, acting Chief Dispatcher.

A. R. Holtby, whose appointment as Master of Bridges and Buildings, Mountain Division, G.T.P.R., Prince Rupert, B.C., was announced in our last issue, was born at Rawdon, Que., Mar. 23, 1859, and entered railway service in Sept., 1881, since when he has been, to Oct., 1904, engaged in construction, bridges and buildings and wrecking departments, and also as General Car Foreman, Canada Atlantic Ry., and remained in that position, on the taking over of the Canada Atlantic Ry. by the G.T.R., to Dec., 1907; Dec., 1907, to Feb., 1909, General Car Foreman Canadian Northern Quebec Ry., Shawinigan Jct., Que.; Feb., 1909, to July, 1910, General Car Foreman, Canadian Northern Quebec and Quebec and Lake St. John Rys., Quebec.

Wm. Sargeant Poole, Mechanical Superintendent, Prince Edward Island Ry., whose portrait appeared in our July issue, was born at Burslem, North Staffordshire, Eng., July 20, 1844. He entered railway service in 1857 as apprentice in the Earl Granville's works at Hanley, Staffordshire, and served in other capacities until 1866, when he came to Canada. After spending a short time at other work he entered the service of Schreiber & Burpee, contractors for the construction of the P.E.I.R., and on the completion of the line from Charlottetown to Tignish, in 1875, he entered its service as a mechanic, becoming successively round house foreman, foreman of erecting shop and locomotive foreman. On Aug. 31, 1901, he was appointed Mechanical Superintendent.

Alfred Price, General Superintendent Alberta Division C.P.R., Calgary, whose portrait appears on the first page of this issue, was born in Toronto, Dec. 6, 1861, and entered railway service Sept., 1879, since when he has been, to 1881, operator, messenger and clerk Credit Valley Ry.; 1881 to 1882, car accountant same road, Toronto; 1882 to 1884, operator and relief dispatcher C.P.R., Toronto; 1884 to July, 1888, train dispatcher same road, Toronto; July, 1888, to May, 1896, car distributor same road, Toronto; May, 1896, to Aug., 1898, car distributor and Chief Train Dispatcher same road, Toronto; Aug., 1898, to May, 1901, Superintendent same road, Toronto; May, 1901, to Sept., 1902, Superintendent Districts 8 and 9, same road, Toronto; Sept., 1902, to May, 1903, Superintendent Districts 10 and 11 same road, Toronto; May, 1903, to 1905, Superintendent same road, Fort William, Ont.; 1905 to Feb., 1907, Superintendent of Transportation Western Lines, same road, Winnipeg; Feb. to Dec., 1907, General Superintendent Central Division same road, Winnipeg; Dec., 1907, appointed General Superintendent Western Division same road, Calgary, Alta., which division, with some slight alterations of territory, has now been re-named the Alberta Division.

A Railway Club President's Appreciation.

A. E. Cox, Storekeeper Canadian Northern Ry., who has entire charge of the stores of that large system from its eastern terminus at Port Arthur west, took an active part in the establishment last year of the Western Canada Railway Club, which has its headquarters at Winnipeg. He was its first Vice President and this year was unanimously elected President. Following is an extract from an unsolicited letter received from him recently:

"I would like to take this opportunity of offering you sincere congratulations on your publication, it is certainly up to date and contains a fund of useful and desirable information. I was particularly pleased to see that you were able to find room to print some of the papers given by members of the Western Canada Railway Club. It is very gratifying to us the good showing we have been able to make, our membership now being over the 400 mark. You have my best wishes for the continued success of the Railway and Marine World."

Owing to the comprehensiveness of its matter, every department of railway work being dealt with, the Railway and Marine World's circulation includes the officials of all railway departments. As an evidence of this it may be mentioned of the Canadian Northern Railway, in whose service Mr. Cox is, that every official, without a solitary exception, in the executive, engineering, purchasing, construction, maintenance, operating, mechanical and traffic departments is on our subscription list.

British Investments in Canada.

R. M. Horne-Payne, speaking at the annual meeting of the British Empire Trust Co., of which he is President, in London, Eng., recently, said in part:—Our efforts in the past have been and still mainly are connected with Canada. It is now no longer lack of knowledge, but rather too much knowledge, confusion of information, or misinformation, which is now holding back the British investor. The work of this company is to seek out and put forward in convenient form, with all possible safeguards, investments in the colonial dominions, offering smaller or greater profits with small or greater risks. The securities with which we are at present associated give a yield varying from 3 to 6%, and offer other advantages. It may take a longer or it may take a shorter period for our companies to attain their full success, but so far they are one and all progressing rapidly, and we have every reason to be proud of their record.

Having referred in detail to the recent issue of securities of the Duluth, Winnipeg and Pacific Ry., of the Canadian Western Lumber Co., and the Canadian Northern Ry. 5% convertible debenture stock, which were fully noticed in our July issue, Mr. Horne-Payne went on to say that he had bought C.P.R. ordinary shares at 42⅝. Referring to the Canadian Northern Ry., he said within five years' time it will be a transcontinental system, or, rather, a world-wide system, as fully equipped by land and water as the C.P.R. is today. The younger system will, for some years to come, have many disadvantages compared with the older system, and it will also have several advantages over the older system. They will not interfere with each other to any great extent. Canada is a big country, and I prophesy, confidently, that in two or three years after the completion of the transcontinental line, the C.N.R. shares will have gone a long way towards catching up the price of C.P.R. shares.

From time to time we read warnings, even strong protests in the press against what the writers call the enormous amount of money which is being poured into Canadian investments. No more misleading nor more unpatriotic cry could be raised, and I suspect that it is not an altogether disinterested cry. The fact is that out of £212,000,000 of British capital raised by public subscription in this country during our financial year, only £34,500,000 went to Canada—an exceedingly moderate sum when we come to think that in the United States, three railway systems alone have recently raised or are raising £30,000,000 without adverse comment. During our financial year only £71,000,000 of our money went into colonial investments altogether, whilst £94,000,000 went to foreign countries, and of this £35,000,000 were invested in South America and £23,000,000 in the United States. It is safe to say that a very great deal more than £23,000,000 was invested by Americans in Canada at 6 to 10%, so that what we have done in effect is to lend the Americans £23,000,000, probably at under 5%, and they have re-invested our money in Canada at a profit to themselves.

Montreal East Boulevard Co.—The Quebec Legislature has incorporated a company with this title. Among the powers asked for was the right to build and operate an electric railway along the boulevard, but the act as passed does not give it this power. The municipalities, however, may acquire rights over the road to be laid out, so that existing street railways may obtain franchises from them. (May, pg. 399.)

Montreal Street Ry. The Quebec Legislature has authorized the company, in addition to its present charter rights, to build an underground railway throughout the city, subject to obtaining the necessary permission of the city, to be embodied in a bylaw and approved by the ratepayers. The work is to be started and $2,000,000 expended thereon within four years. (Aug., pg. 683.)

Dominion Ry. and Plaster Co.—A small block of the stock of this company, which was authorized to build an electric railway in the vicinity of Sydney, N.S., is being offered for public subscription. (June, pg. 495.)

Maritime Coal and Ry. Co.—The Nova Scotia Legislature has authorized the company to build, in addition to its steam railways, an electric street railway in Amherst, Springhill, Parrsboro and Oxford, and between any or all of these places, subject to the Government's approval.

Nova Scotia Hydraulic Co.—The Nova Scotia Legislature has incorporated a company with this title to develop water powers on any rivers in the province and to distribute electric power. The company may also build, buy, lease and operate electric tramways or railways. The provisional directors are:—J. A. Clark, W. T. Allan, Halifax; A. M. Covert, Canning, N.S.

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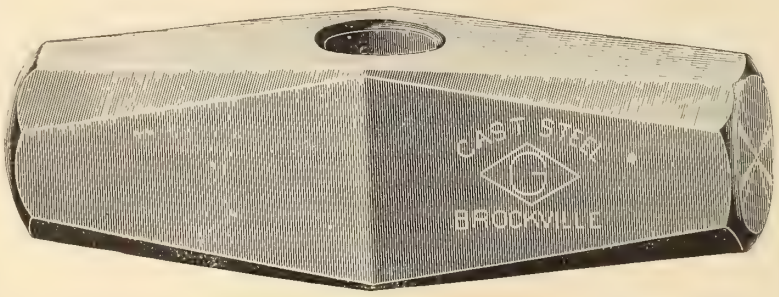

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Railway Finance, Meetings, Etc.

Acadia Coal Co.—Following are the officers and directors for the current year:—President, Sir H. Montagu Allan; Vice President, E. Francqui, Brussels, Belgium; other directors, C. R. Hosmer, Hon. R. Dandurand, A. A. Allan, C. Campbell, B. J. Allan, Montreal; M. Chevaller, H. Siemans, L. Jadot, Brussels, Belgium. The company owns 16 square miles of coal area in Pictou county, N.S., and has power to construct railways. Negotiations were at one time entered into with the N.S. Government for the construction of the Dartmouth-Guysboro-Country Harbor line in connection with the development of the colliery areas.

Ainslie Mining and Ry. Co.—A winding up order has been made by the N.S. Supreme Court with the Eastern Trust Co., Halifax, as liquidator. All claims were ordered to be filed by Aug. 19. The company was incorporated by the N.S. Legislature in Mar., 1904, with power to build a railway from Whycocomagh, to Scottsville, and from Scottsville to Margaree Forks and Eastern Harbor, in Inverness county. The provisional directors were:—H. R. and H. H. Harrison, A. W. Redden, Halifax; M. J. Doucet, Grand Etang, N.S.; J. K. McDonald, Whycocomagh. No work has been done.

Alberta Ry. and Irrigation Co.—Approximate net profits from all sources, exclusive of land sales, for June, $32,166, against $16,263 for June, 1909. Cumulative net profits, as above, for 12 months ended June 30, $465,824. Railway traffic receipts for July, $27,982. against $27,041 for July, 1909.

Atlantic and Lake Superior Ry.—The Dominion Government, Aug. 5, sanctioned the sale by the Royal Trust Co. to the Quebec Oriental Ry., of the line between Matapedia and Paspebiac, Que., operated as the Atlantic and Lake Superior Ry. The line was originally constructed as the Baie des Chaleurs Ry., then it was transferred to the Atlantic and Lake Superior Ry., and when the bondholders took possession it was extended. The Quebec Oriental Ry., is the Quebec charter under which the Atlantic, Quebec and Western Ry., will operate the line, and the extension from Paspebiac to Gaspe, now under construction. The old titles which are associated with the C. N. Armstrong enterprises now pass out of existence.

The trust deeds deposited, Aug. 13, with the Secretary of State at Ottawa in connection with the transfer of the lines to the Quebec Oriental Ry., secure an issue of 5% first mortgage bonds for $974,000, and 5% second mortgage bonds for a similar amount as part of the purchase price of the railway.

Crows Nest Coal Co.—A dividend of 1%, was paid Aug. 10, the first for two years. The company owns the Morrissey, Fernie and Michel Ry.

Cuba Rd.—The gross earnings for the year ended June 30, were $2,559,335; net profits $1,107,299 and surplus $672,089. There were gains of $402,170 in gross receipts, $157,210 in net profits, and $121,290 in surplus, as against the previous year. The fixed charges were increased by $35,920.

Dominion Atlantic Ry.—Gross earnings for June, $108,300, against $112,854 for June, 1909. Aggregate gross earnings for 12 months ended June 30, $1,184,850, against $1,159,459 for same period, 1908-09.

Grand Trunk Pacific Branch Lines Co.—The London, Eng., Stock Exchange appointed Aug. 5, a special settling day for a further issue of £1,270,500 of 4% first mortgage sterling bonds, repayable in 1939, and guaranteed by Saskatchewan. These bonds are quoted on the Stock Exchange official list.

Grand Trunk Pacific Ry.—Application has been made to the London, Eng., Stock Exchange to list £2,000,000 of 3% stock; £21,600 of 4% stock; and £105,100 of 4½% stock.

The issue of £2,000,000 of 3% first mortgage sterling bonds, the principal and interest guaranteed by the Dominion Government, placed on the London, Eng., market, by the Bank of Montreal, recently, at 82½ was taken up as to 26% by the public, and the balance by the underwriters. The bonds form part of an amount, of which £5,200,000 has already been issued, created to provide funds for construction, and is redeemable at par Jan. 1, 1962.

Grand Trunk Ry.—G.T.R. officials in the U.S. are reported to have made formal announcement that an agreement has been entered into between the company's U.S. corporation and the Chicago, Kalamazoo and Saginaw Rd., whereby the G.T. Western Ry. secures an entrance into Kalamazoo, Mich., over the C., K. and S. Rd., from Pavillion to Kalamazoo, 11 miles. The agreement provides that the G.T.R. and the New York Central and Hudson River Rd., which controls the C., K. and S. Rd., are to form a closer alliance in the future.

We are officially advised that the G.T. Western Ry. has leased the portion of the C., K. and S. Rd. extending from Pavillion to Kalamazoo, Mich. The G.T. Western Ry. has acquired its own terminals in Kalamazoo, which were in the first place under the name of the Kalamazoo Terminal Ry.

Lake Superior Corporation.—At a meeting of directors at Sault Ste. Marie, Ont., Aug. 16, it was decided to pay on Oct. 1 a dividend of 2½% on the $3,000,000 of outstanding income bonds. This is one-half of the annual rate of interest, and is the first dividend paid since Oct., 1906.

New Brunswick Coal and Ry. Co.-Central Ry. of N.B.—Judgment has been reserved by the N.B. courts in the case of Hon. W. Pugsley against the company for an accounting. There were a number of dealings of the two companies as separate concerns, and after the C. Ry. of N.B., had been absorbed by the N.B.C. and Ry. Co., and the N.B. Government, Hon. W. Pugsley being Premier, and also acting in his private capacity as a lawyer, a Royal Commission made an investigation into the affairs of the company and reported. Mr. Pugsley now desires to have a judicial accounting.

New Brunswick Ry.—Following are the directors for the current year:—Lord Strathcona, Sir Thos. G. Shaughnessy, R. J. Meighen, J. Turnbull, W. T. Whitehead, F. S. Meighen, Col. H. H. McLean, G. S. Cantlie, R. W. Reford. The new directors are Sir Thos. G. Shaughnessy and R. W. Reford, who take the places of the late J. S. Kennedy, and S. Thorne, New York. Subsequently R. Meighen was re-elected President, and W. T. Whitehead, Vice President. The railway is part of the C.P.R., but the company owns 1,600,000 acres of land in New Brunswick, part of its land grants. The income for the year enabled the company to increase its dividend from 3 to 4%.

Phillipsburg Ry.-Missisquoi Marble Co.—Following are the officers and directors for the current year:—President, H. W. Richardson, Kingston, Ont.; Vice President, R. J. Dale, Montreal; Manager, H. Timmis; other directors:—W. J. Morrice, S. H. Ewing, W. Mann, J. W. McConnell, Montreal; Jas. Playfair, Midland, Ont.; G. R. Crowe, Winnipeg.

Port Hood-Richmond Ry.—The Nova Scotia Legislature has ratified an agreement made Sept. 13, 1909, readjusting the company's bond issue, and authorizing the carrying of it into effect. The agreement specifies that the $350,000 prior lien bonds shall constitute a first lien on the property, and provision is made for the issue of 1,540 bonds of $500 each, at 4% upon a second mortgage, repayable Aug., 1926.

Quebec Central Ry.—Gross earnings for June, $119,899.98; expenses $81,220.87; net earnings $38,679.11, against $92,127.20 gross earnings; $66,687.84 expenses; $25,439.36 net earnings for June, 1909. Aggregate gross earnings for 12 months ended June 30, $1,104,919.92; expenses $758,664.01; net earnings $346,255.91, against $1,021,682.40 aggregate gross earnings; $724,918.25 expenses; $296,764.15 net earnings for same period 1908-09.

Subject to audit, the accounts for the year ended June 30, show gross receipts, including interest earned, $1,110,520; working expenses. $758,664; net receipts $351,856; interest on first and second debenture stock $165,873, leaving a balance of $185,983. From this is deducted the full interest on the 7% income bonds, payable Oct. 1, leaving a surplus of $70,838. This surplus added to the $46,232 brought forward from the previous year, shows $117,070 available for dividend, from which is recommended a dividend of 2% on the share capital. This is the first distribution on this issue since the company was formed.

Quebec & Lake St. John Ry.—After prolonged and tedious negotiations between the committees representing respectively the prior lien bondholders and the first mortgage and income bondholders on the one hand, and the Canadian Northern Ry. Co. on the other, a settlement has been arrived at which received the ratification of the three classes of bondholders present at meetings in London, Eng., on Aug. 8. The difficulties which presaged considerable loss to the several interests involved arose out of the inability of the Q. & L. St. J. Ry. Co. to meet its fixed charges, and the consequent failure of the company to pay the interest due on the first mortgage bonds on Jan. 1 last, and subsequently the interest due on the prior lien bonds on April 1. Committees were appointed by the prior lien and first mortgage and income bondholders to safeguard their interests, and a new scheme has been evolved, the rejection of which would, it was claimed, after due consideration of the fullest information obtained from private, public and official sources concerning the past, present, and future of the company, involve in serious loss not only the income and first mortgage bondholders, but the prior lien bondholders as well. Under this scheme a new 4% debenture stock of the Q. & L. St. J. Ry. Co. is to be created and guaranteed unconditionally, both as to principal and interest, by the Canadian Northern Ry. Co. The prior lien bondholders will receive in exchange for each £100 bond, with the Oct. 1, 1910, and all succeeding coupons attached, an equal amount, or £100, of the 4% guaranteed debenture stock, the first mortgage bondholders for each £100, with all unredeemed coupons attached, £70 of the new stock, and the income bondholders £13 of such stock, interest accruing in all cases as from Jan. 1, 1911. This is the agreed result of discussion and mutual concessions, and of a supreme effort to arrive at an amicable and satisfactory solution of a knotty problem. When it is remembered that the original offer of the C.N.R. Co. was to pay to the first mortgage bondholders £60, and the income bondholders £12, the substantial advantages secured by the committees for their different interests will be apparent.—Canada.

Reid Newfoundland Co.—The issue of £800,000 of 3% stock of the Newfoundland Government, placed on the London, Eng., market, July 14, through Glynn, Mills, Currie & Co., and Coates, Son &

Co., at 97½, has been taken up. The arrangements with the underwriters, the Premier states are such that the Government will receive 96% of each £100 certificate. The proceeds of the issue are to be used to subsidize the building of 30 miles of branch lines, under the terms of an act passed last session.

St. Maurice Valley Ry.—A meeting of the shareholders has been called to be held in Montreal Sept. 17 to consider a proposal to lease the company's line to the C.P.R., by which it has been operated since construction, and pass resolutions respecting the issue of bonds and the form of mortgage to be given to secure the issue of such bonds. C. C. Pangman, of the C.P.R. Secretary's office, is Secretary of the company.

White Pass and Yukon Ry.—Gross earnings for July, $214,337, against $223,657 for July 1909.

I. C. R. Gas Plant at Moncton.

We are officially advised that arrangements have been completed for the installation of one more unit for the generation of producer and water gas at the Intercolonial Ry. shops at Moncton, N.B. The new outfit will be a duplicate of the one which has been in operation during the last two years, and which supplies producer gas to the gas engines in the power house and water gas to the furnaces in the shops. The new outfit will supplement the older one when more gas for power and heat is required, and it can also be used as a reserve unit in the event of repairs to the older unit being carried out. Each unit has capacity for gasifying 1,500 lbs. of bituminous coal per hour, and from this amount of coal 82,500 cu. ft. of producer gas and 24,000 cu. ft. of water gas are hourly produced. It is generally agreed about the shops that there is no more coal consumed in the new gas house than there was in the old style shop furnaces, and, that the producer gas for the engines and the power obtained from the latter, represent the gain that has been secured by burning the coal in the gas generators, instead of the old style boilers and furnaces.

It is said that Moncton is to be supplied with natural gas within a reasonable time, and if this desirable commodity becomes available for use at the I.C.R. shops—and the selling price is right—it is altogether likely that the gas generating plant above referred to will simply be held as a very valuable auxiliary plant.

Canadian Ticket Agents' Association.—Secretary de la Hooke has issued one of his characteristic circulars to members, giving full particulars of the annual outing which will be held at Quebec on Oct. 5 to 7. The headquarters will be at the Chateau Frontenac, where the business meeting will open on Oct. 5 at 10 a.m., when the mayor will welcome the visitors. G. A. Cullen, G.P.A., Delaware, Lackawanna and Western Rd., and N. Mooney, G.A., New York Central Lines, will also speak, the former as representative of the American Association of General Passenger Ticket Agents. At 8.30 p.m. there will be a smoker for the men and another entertainment for the ladies. Oct. 6 and 7 will be devoted to pleasure trips and sightseeing, including probably, trips to the Plains of Abraham, Montmorency Falls and Ste. Anne de Beaupre, and a reception on the C.P.R. s.s. Empress of Ireland. The White Star-Dominion s.s. Megantic is expected to leave Quebec for Montreal on the morning of Oct. 8, and members have been invited to make the trip on her.

J. H. Bacon, G.T.P.R. harbor engineer at Prince Rupert, B.C., was married recently in Philadelphia, Pa., to Miss B. Tysen.

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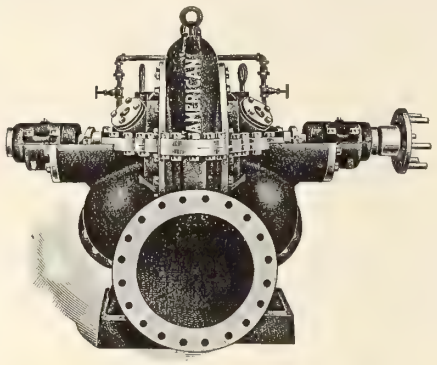

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The Hudson's Bay and Pacific Railway.

We have received the following letter from the Secretary of the Hudson's Bay and Pacific Ry. Development Co., Ltd., dated London, Eng., Aug. 17:—

"I am instructed to write you that at a meeting of the board of this company, held yesterday, the attention of the directors was called to an article in your issue for August, referring to the recent circulation of a printed offer of shares in this company, based upon certain statements as to the position and prospects of the company, and followed by a list of the names of directors. I am further requested by the board to say that the circular in question is absolutely unauthorized, and was published without their knowledge and consent. We trust that in fairness and justice to this company, you will give this the same publicity as you have given to the statements contained in your issue."

The prospectus referred to in our August issue, which purported to be issued from the company's office, 56 Moorgate St., London, and to be signed by the directors, stated among other things that the H.B. & P. Ry. Co. was authorized to issue 4% gold bonds, guaranteed by the Dominion, both as to principal and interest, to the amount of $20,000 a mile; that it was entitled to a land grant of 5,000 acres of land per mile and to subsidies estimated at $6,000 a mile. We pointed out that the Dominion Parliament had not authorized the Government to guarantee the bonds, that it had not granted any cash subsidy, and that no grant of land had been authorized to the H.B. & P.R. Co.

There is no doubt whatever that the prospectus referred to was issued, and we would suggest to the H.B. & P.R.D. Co. directors that it would be well for them to definitely state who issued it. Surely they must have seen or heard of it, even if it was issued without their knowledge or consent. If so, did they take prompt steps to repudiate it, or did they wait until we had exposed its unreliability, and this had been followed by Sir Wilfrid Laurier's public denial of some of its statements?

Portland Canal Short Line Railway.

We are officially advised that the line has been located from the wharf site on the tidal flats at Stewart, B.C., to the Red Cliff mine near the junction of Bear River and American Creek, 13.45 miles, and surveys are about to be made up Bear River over the divide into the Nass Valley, and up American Creek. On Aug. 12 there were 10 miles under construction, and it was expected that the balance of the distance will be covered early in September. Tracklaying should commence about Sept. 10. All the necessary track material is on hand at Stewart. The entire mileage should be completed this year. The maximum curvature is 10°; the maximum gradient going north is 1.40% for three-quarters of a mile; the balance of the line being an average of 0.8%. There is no adverse gradient going south. With the exception of one and a half miles of fairly heavy rock work and a short tunnel of 100 ft., the grading consists of a light embankment of alluvial gravel.

The wharf approach at Stewart is 5,960 ft. long and is a pile trestle constructed for heavy loading. The wharf, with deck elevation of 4 ft. above extreme high tide, is located so as to provide 22 ft. of water at extreme low tide at face of wharf. It is very strongly constructed, and will carry a safe loading of 600 lbs. per sq. ft. The dimensions of the wharf as built are 160 by 60 ft., to be extended later. All timber of Douglas fir, with hemlock piles. The wharf and approach should be completed Sept. 10, and tracklaying should commence about that date, all the necessary track material being now at Stewart. In addition to the wharf approach above mentioned, there will be about 1,300 ft. of pile trestling. A freight shed has been built at Stewart and a station is being built. It is also intended to build a locomotive shed, turntable, water tank and coaling plant at Stewart. Stations will also be built at Glacier, mileage 5.5, Bitter Creek, mileage 9.5, and Red Cliff, mileage 13.45.

W. H. Grant is Manager of construction. The sub-contractors under the Cassiar Construction Co. are the Westholme Lumber Co., Ltd., Stewart, and Gillett & McDonald, Stewart.

Weeds on Railway Right-Of-Way.

The Secretary of the Board of Railway Commissioners has issued the following circular:—

The Railway Act provides as follows:

"Sec. 296.—Every Company shall cause thistles and all noxious weeds growing on the right of way and upon land of the company adjoining the railway, to be cut down or to be rooted out and destroyed each year, before such thistles or weeds have sufficiently matured to seed.

"Sec. 297.—The company shall at all times maintain and keep its right of way free from dead or dry grass, weeds and other unnecessary combustible matter."

Complaints continually come to the Board that these sections are not observed by some of the companies. Casual observation in some parts of the country shows that sec. 297 is being entirely overlooked. It is clear that many fires are communicated to adjacent lands by reason of companies not complying with these provisions of the law, entailing enormous loss. The Board deems it to be its duty to see that these sections are enforced, and to that end has given instructions that all railway lands shall be periodically inspected and full reports made of the conditions found to exist. This is a matter of vast moment in the preservation of timber lands, as well as the protection of property of all kinds along railway lines, and steps will be taken to enforce the law, unless voluntarily complied with.

Telegraph and Cable Matters.

W. G. Barber has been appointed Inspector G.N.W. Telegraph Co., at Toronto.

E. Paterson has been appointed Manager C.P.R. Telegraphs at Vancouver, B.C., vice M. T. Quigley, deceased.

The Dominion Government is reported to have decided to erect a wireless telegraph station at Lawn Hill, Queen Charlotte Islands.

The Canadian Northern Telegraph Co., has opened offices at Totogan, Man., and Laird, Sask., and has closed its office at Erwood, Sask.

J. Beauchamp has been appointed Chief Inspector G.N.W. Telegraph Co. at Quebec, and R. G. Morean has been appointed Assistant Inspector.

J. Fletcher, heretofore chief operator, has been appointed Superintendent C. P.R. Telegraphs at Vancouver, B.C., and has been succeeded by F. Swift.

R. H. Hathaway, chief clerk of the press and commercial news department, G.N.W. Telegraph Co., Toronto, has been appointed superintendent of that department, vice R. F. Easson retired.

C. E. Lillie has been appointed Manager G.N.W. Telegraph Co.'s office at Quebec, vice E. Pope, Superintendent, retired. The position of Superintendent has been abolished.

The C.P.R. has issued a notice to the effect that business messages of newspapers between points in Canada, heretofore charged at half day rates, will, from Sept. 1., be charged at regular message rates.

J. F. Fraser, who was recently appointed Superintendent Direct United States Cable Co., at Halifax, N.S., was born in Scotland, in 1854, and has been connected with the telegraph and cable service in Great Britain and the U.S. since 1870.

J. Wilson, who recently resigned the position of Superintendent C.P.R. Telegraphs at Vancouver, B.C., will spend some time in California for reasons of health. He held the position named for about 10 years, and was in C.P.R. telegraph service for 25 years.

The Maritime Telegraph and Telephone Co., Ltd.., has been incorporated by the Nova Scotia Legislature, with a capital of $500,000, which may be increased from time to time, to $5,000,000, and office at Halifax, to erect telegraph and telephone lines throughout the province, and to enter into agreements with other companies. The provisional directors are: S. M. Brookfield, W. H. Covert, Halifax, N. S.; A. E. Ings, Charlottetown, P. E. I.

The C.P.R. has opened telegraph offices at Cedar Cottage, B.C.; Acme, Alderside, Banff Springs Hotel, Bittern Lake Hughenden, Irricana, Namaka, Redcliffe, and Whitla, (night only), Alta.; Kelloe, Ludiatt, Pettapiece, and Winnipeg Beach, Man.; St. Andrews, N. B.; Beamsville, Burwash, Erindale, Lakeside, Petewawa, Pickerel and Silverdale, Ont.; Abbotsford, Acton, Bedford, Brome, Chelsea, Drummondville, Kingsbury, Kipawa, Knowlton, Knowlton station, L'Ange Gardien East, Lawrenceville, Mansonville, Racine, Routhier, Roxton Falls, St. Guillaume, St. Hugues, St. Simon, St. Pie, South Bolton, South Roxton, Stanbridge, Valcourt, Val Morin, Warden, Wickham, and Windsor Mills, Que.; Biggar, Bridgeford, Colonsay, Forward, Glenside, Markinch, Rokeby, Senlac, Strongfield, Swinbourne, Traynor and Webb, Sask.

Among the Express Companies.

The Canadian Northern Ex. Co., has opened offices at Ste. Ursule, Que., Totogan, Man., and Brock, Sask.

The Dominion Ex. Co., having closed its offices at Shubenacadie and Stewiacke, N.S., these places are now exclusive offices of the Canadian Ex. Co.

H. S. Whisler, who was sentenced to three years in the Kingston penitentiary, last fall, for complicity in the robbery of the Canadian Ex. Co., at Niagara Falls, Ont., has been released.

W. C. Muir, heretofore Superintendent Canadian Northern Express and Telegraph Companies, has been appointed General Superintendent Canadian Northern Express and Telegraph Company, with office at Winnipeg, Scott Griffin, heretofore Manager at Toronto having been appointed Manager Canadian Northern Steamships Ltd., London, Eng.

In a recent case against the American Ex. Co., in the U.S., it was decided that the title to an article shipped c.o.d., passed from the seller to the buyer, immediately the shipment was delivered to the company, and that if the goods are ordered to be shipped from one point to a buyer at another point, c.o.d., by a common carrier, the sale is complete at the point of shipment. In contradistinction to this decision, under Canadian law, it is held that in the case of express companies carrying liquor into local option areas, c.o.d., the sale shall be deemed to be complete at the point of delivery.

Grain Elevator Notes.

The British North American Elevator Co. is arranging to erect an elevator at Wadena, Sask.

J. G. King, owner and operator of King's elevator at Port Arthur, Ont., died there recently, aged 67.

The name of the Andrews Gage Grain Co., Ltd., registered under the Dominion Companies Act, has been changed to the International Elevator Co., Ltd.

The Imperial Elevator Co.'s elevator at Crossfield, Alta., was burnt recently, with about 10,000 bush. of grain. The fire is locally supposed to have been the work of an incendiary.

The B.C. and Prairie Milling and Elevator Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $500,000, to conduct business in any part of the world.

The Swift Current Farmers' Milling and Elevator Co., Ltd., has been incorporated under the North West Territories Companies Ordinance, with a capital of $50,000, and office at Swift Current, Sask.

The Manitoba Grain Growers Association, at its recent annual meeting, discussed the question of the public ownership of terminal elevators, and later sent a delegation to meet the Dominion Premier at Brandon, when representations were made on the subject.

The St. Lawrence Flour Mills Co., of Montreal, is reported to have decided to erect an elevator there, with capacity for about 500,000 bush. It is also stated to be considering the question of erecting flour mills and elevators in the prairie provinces.

The Fox Bros. Cereal, Milling and Feed Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $500,000, to take over the business carried on at Vancouver by Fox Bros. and Co., and in connection therewith, among other things, to build, own and operate grain elevators, warehouses, etc.

Press dispatches from Calgary state that an understanding has been arrived at among the elevator companies operating in southern Alberta, by which, at many points, only one elevator will be opened, and where a company has about 35 or 40 elevators, only about 10 will be opened for business this year.

G. W. Stephens, Chairman Montreal Harbor Commissioners, in dealing with the grain situation at Montreal recently, stated that even with the additional elevator capacity at present under construction there, he believed, that within a few years they would fall short of the requirements of the port. He advocated the building of a number of storage elevators in Montreal.

The Alberta Pacific Elevator Co. is at present building elevators at Bow Island, Winifred, Seven Persons, Barnwell, Purple Springs, Olive, Tees, Halkirk, Burdett and Castor, Alta., and is reported to have secured sites for further erections at Lougheed, Hardisty, Prevost, Brandt, Acme, Cluny and Bassano. Facilities for handling grain will also be provided at Crowfoot, Brooks, Carlstadt and Irricana.

The Manitoba Elevator Commission is reported to have taken over 14 elevators from private owners at Gretna, Hartney, Souris, Hamiota, Swan Lake, Somerset, Shoal Lake, Strathclair, Dominion City, McGregor, Roland, Snow Flake and Lauder. The elevator which it is erecting at Dufresne will have capacity for 30,000 bush., and it is expected that it will be completed in time for this year's crop. It has been stated that the commission will have about 75 elevators under its control this year.

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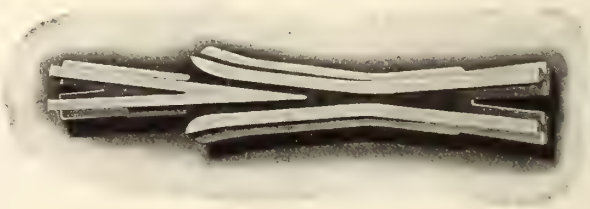

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ASSISTANT SECRETARY, Aubrey Acton Burrows, Secretary and Business Manager, Railway and Marine World.

OFFICIAL ORGAN, THE RAILWAY AND MARINE WORLD.

Repairs and Testing of Motor-Driven Compressors.

By A. M. Lindsay, Assistant to Superintendent of Rolling Stock, Montreal Street Railway.

The task of describing the methods of repairing, overhauling and testing motor driven air compressors on the Montreal St. Ry. system is a comparatively easy one owing to the simplicity of the straight air system, and the apparatus required for it.

The construction of the motor driven compressor is doubtless familiar to all your readers, consisting as it does of a small high speed d.c. motor, which takes power direct from trolley without the use of a starting resistance of any kind, and which is geared through helical or herringbone gears with a duplex compressor. The pistons are driven through connecting rods from a crank shaft with cranks at 180° to each other, gears and crank shaft running in oil. The motors, with the exception of one type, are completely enclosed and are dust and water proof, and can be placed underneath the car without any additional protection.

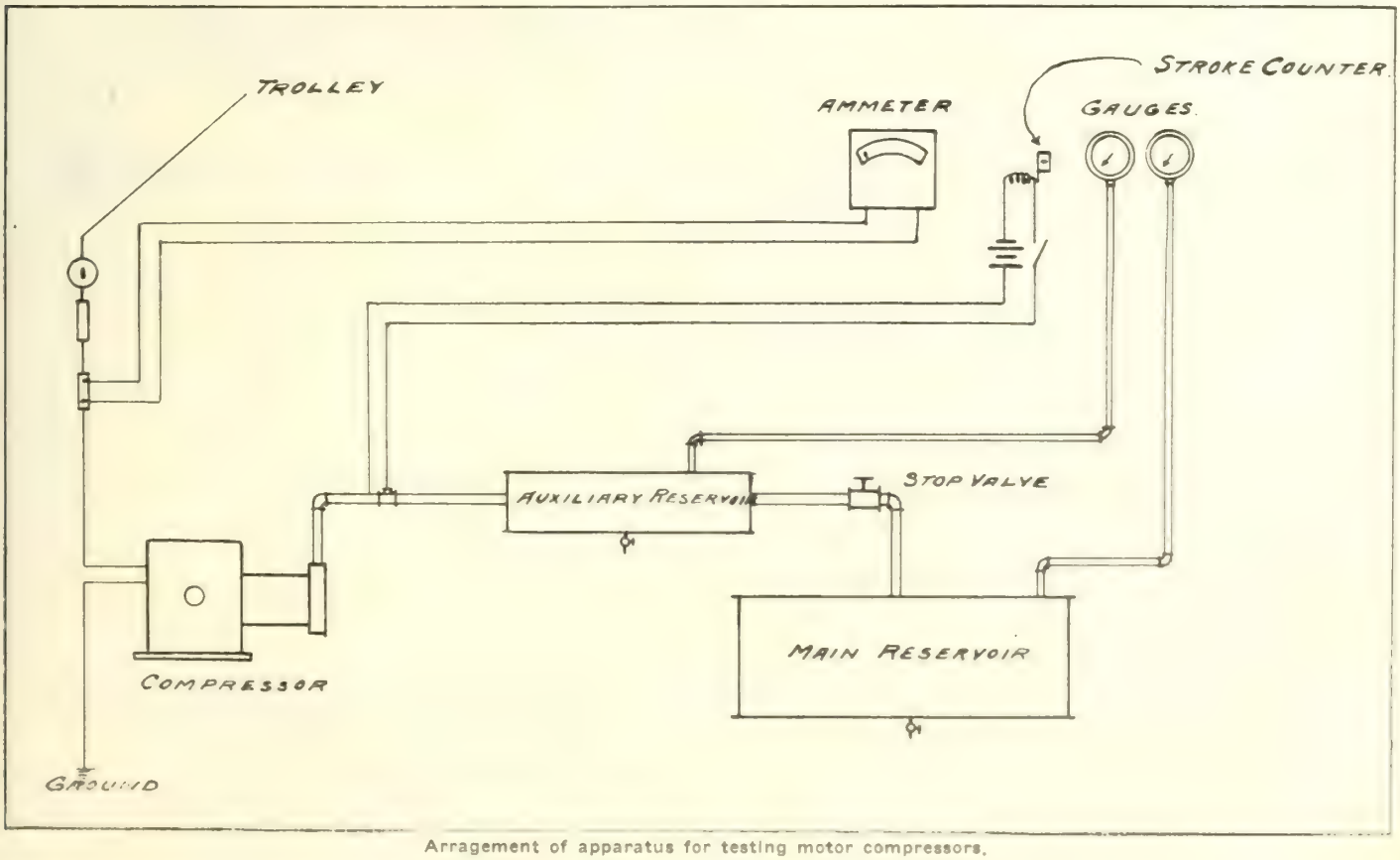
Most of this company's compressors are placed in the front vestibules of the car, a position which has some advantages as regards inspection and accessibility, but which has some disadvantages in regard to the air supply, which is taken from inside the car. In winter the air inside the cars is considerably moister than the outside air, and as a result there is considerable condensation in pipes and reservoirs which often results in pipes becoming frozen solid, necessitating a pull into the car barn.

In ordinary service compressors are inspected every two weeks. This inspection consists of testing the motor for electrical troubles, wiping off the commutator, and renewing the brushes when necessary, seeing that the oil supply for armature, bearings, gears and cranks is at the proper level in each case, adjusting the governor, and seeing that the pressure holds up to the standard required. A drop of 2 lbs. in the pressure in five minutes is the most allowed. If the drop is greater than this, the source of loss has to be located and the necessary repairs made.

The whole air brake equipment on the cars is given a complete overhaul once a year. This work is done in the summer time, as far as possible. Overhauling once a year means on a mileage basis about 35,000-45,000 car miles. An old car is fitted up as a workshop and all overhauling is done in this car by the air brake crew, the car being moved about from barn to barn as the work demands. The car is fitted with a traveller running from end to end along one side and the compressor is picked up at the doors at either end of the car and moved into position on the overhauling trestles. There is also a portable traveller which is used to pick up the compressor from the oil pans in the car vestibules and carry them to the door of the overhauling car. On the other side of the car are the work bench, armature rack, testing reservoirs and the fixings for mounting governors and engineers valves upon, in order to test them. No machine work, such as trueing commutators, boring out connecting rod ends, etc., is done on the car, but all such work is sent down to the machine shop. A small emery wheel is the only machine tool in the car.

The overhauling and testing is carried out as follows:—There is a spare compressor of each type on the air brake car, and the compressor which is to be overhauled is taken off its car and immediately replaced by the spare compressor of the same type, which has previously been overhauled and put in good shape. In this way it is not necessary to hold a car out of service for more than an hour or two. As a matter of fact, there are almost always cars held in the shop for repairs to some part of their equipments, and the change-over of the compressor is made at the same time, so that it is quite unusual to have to pull in a car off the road to keep the air brake crew working.

When a compressor is taken off a car it is placed on the overhauling bench and tested by the method described a little later, to see whether there are any very noticeable defects, either electrical or mechanical. It is then dismantled, any parts requiring machine work done are sent to the machine shops, and the rest of the machine is thoroughly cleaned and put together again, particular attention being paid to tightening of bolts, proper adjustment of bearings, connecting rod ends, and gearing. Care is also taken to have the direction of rotation of the armature correct. It frequently happens that an armature when repaired in the winding room is connected up so that for the same brush position the armature will rotate in the opposite direction to that in which it turned before repair. Rotation in the wrong direction is hard on the gears and also reduces the efficiency of the compressor, because the centre line of the crankshaft is, in most types of compressors, below the centre line of the cylinder, in order that the push on the connecting rod on the compression stroke may be as straight as possible.



Arragement of apparatus for testing motor compressors.

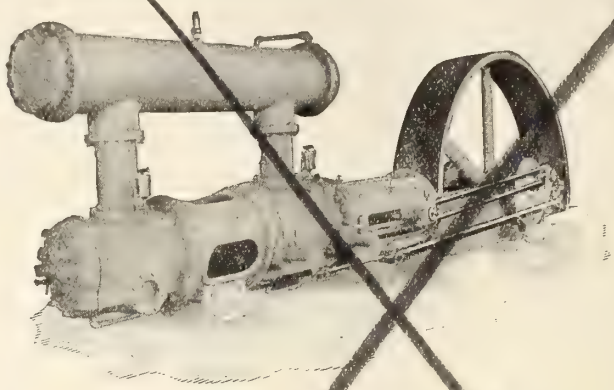
and if the direction of rotation is wrong then the connecting rod is at an increased angle to the horizontal on the compression stroke. The oil taken from the crank case and gear case of the compressor is cleaned by being passed through a centrifugal cleaner, and is then ready for use again. A note is taken of all faults found by the preliminary test, and during the dismantling of the machine, and these are embodied in a report sent in to the Superintendent of Rolling Stock. The changing of armatures which may have developed faults between the overhauling periods is done by the not very skilled class of labor, usually employed in car barns, and a very large percentage of the defects found at the overhauling period is due to improper handling by the car barn employes.

When the machine is reassembled it is connected up for testing, as shown by the accompanying diagram. The compressor is connected by a flexible hose to a small freight auxiliary reservoir, and this again is connected through a globe stop valve with the main reservoir. Both reservoirs are provided with pressure gauges. The compressor is raised to 75 lbs. per sq. in., the maximum pressure used on the system. The tester then closes the switch, which sets the stroke counter in operation, and at the same time opens the stop valve just enough to keep the pressure in the auxiliary reservoir constant at 75 lbs. sq. in. till the main reservoir pressure is raised to 75 lbs. per sq. in. The operation of the stroke counter is as follows: —The rush of air through the discharge pipe with each stroke of the pistons presses the flexible vane A, which is made of light sheet brass, against the insulated contact point B, thus closing the circuit through the magnet coil when the switch C is closed. The plunger D is pulled down against the action of the spring E, and by its movement actuates the counter, which thus records the actual number of strokes of the compressor. This automatic stroke recorder was designed by the mechanic in charge of the air-brake car and works very satisfactorily.

Standards of the average number of strokes for each type of compressor required to fill the tank with valves and pistons in good order have been established, and if a machine fails to come up to the particular standard for its type it is subjected to a further examination, and the defects are remedied till the machine comes up to standard. This method of testing has been in operation for a short time only, and it has been found to be a very severe test. The method previously used was to take the time required to fill the tank from 0 to 75 lbs. pressure, no account being taken of variable voltage, which is very usual around a car barn, or any electrical effects which might influence the speed of the motor considerably. This new method of testing determines accurately the condition of the pistons and valves to perform their functions properly, and is practically independent of variations in the motor end of the compressor. An ammeter in the motor circuit shows the current taken by the motor while under test. Standards of current drawn from the line have also been set for each type, and if a machine takes much more than the normal current when under test, electrical or mechanical faults, such as short circuited coils, tight bearings, etc., are looked for.

In addition to this complete test the valves are tested separately by applying pressure as in actual work and noticing whether there are any leaks which are sufficient to require grinding of the valves. In this connection it has been the experience of this company that the spherical valve seat gives much better results than the coned valve seat. The

RAND Compound Straight Line Power Driven Air Compressors



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Sustained high efficiency through the reduction of clearance losses.

A simple reliable Corliss Inlet Valve motion combining efficiency with endurance.

IMPERIAL TYPE "E" CHIPPERS and RIVETERS

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experiment is being tried of putting a sort of propeller on the under side of some of the valves, so that the air being forced past the under side of the valve causes it to be kept turning on its seat.

When the machine has been tested and passed it is ready to be put into a car. When installed the governor is adjusted, gauge tested, engineers' valve overhauled, and all leaks located and stopped, so that pressure does not drop by more than 2 lbs. in 5 minutes.

The following figures give some idea of the average cost of (1) overhauling alone, (2) overhauling and changing:—

Type	Average Mileage between Overhauls.	Average Overhauling Time.	Average Cost Material for Overhauling.	Average Total Cost Overhauling.	Average Overhauling and Changing Time.	Average Total Cost Overhauling & Changing.
No. 1	38610	13.3 hrs.	21c.	$2.60	20.3	$3.86
No. 2	38943	15.9 hrs.	32c.	$3.15	23.5	$4.23

Types	Compressors	Average Mileage	Average Overhauling Time Only.	Average Material Cost.	Average Total Cost Overhauling and Changing.
1, 2 & 3	52	.....	17.3 hrs.	27c.	$3.25

In connection with the last set of figures it should be said that the compressors had been in service for over two years, and the average mileage would be about 90,000 miles. From these figures it will be seen that the average cost of overhauling is small, and works out at about .007 of a cent per car mile. The average cost of material is very low, which is due to the fact that a large percentage of the compressors have not been in service long enough to require the renewal of very many parts. With proper inspection and maintenance the cost of material per compressor should not be greatly increased for some years to come.

The foregoing paper was read before the Montreal Air Brake Club recently.

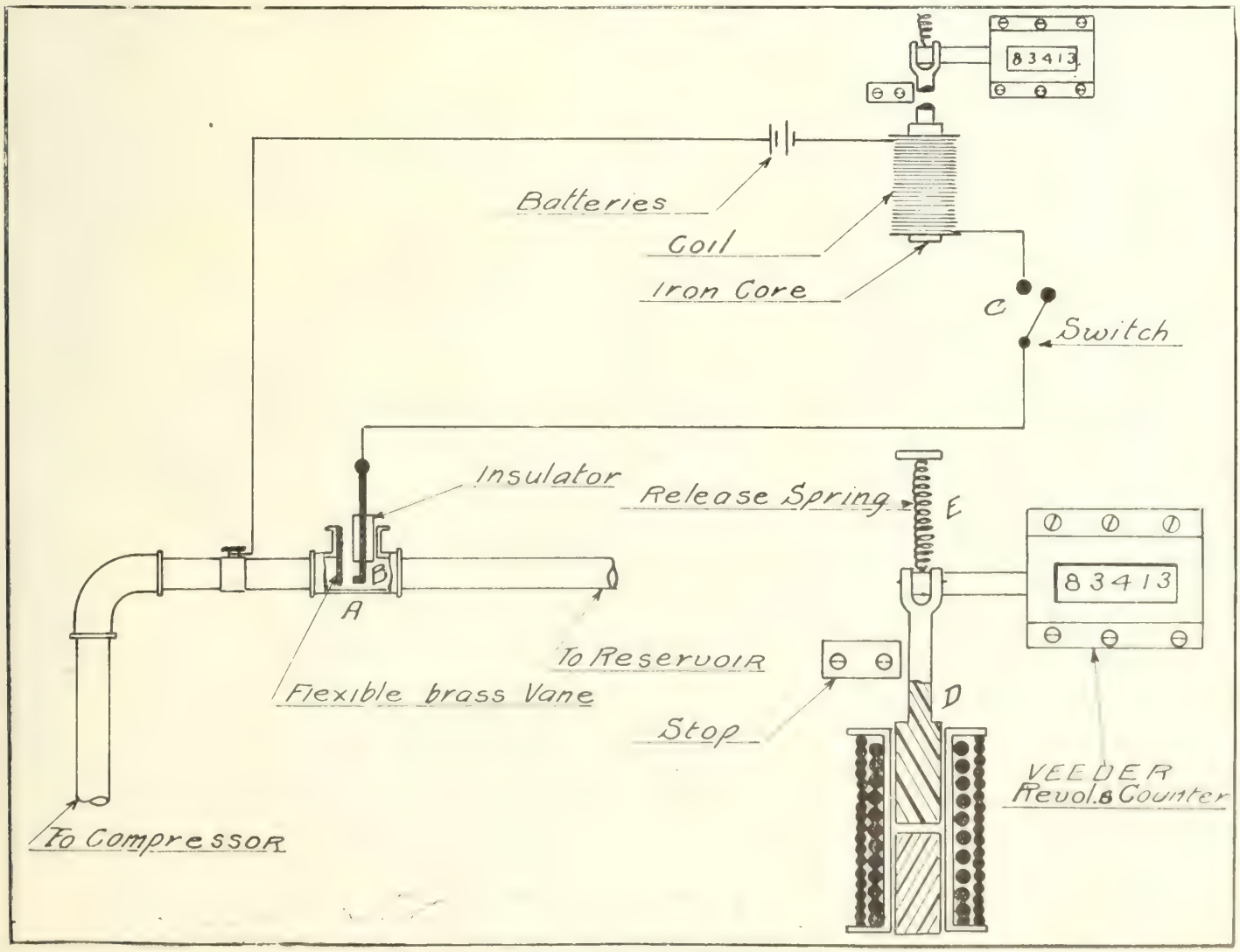
Training the New Man on Both Ends of the Car.

By A. J. McDonald, Superintendent Quebec Ry., Light and Power Co.

To be in position to expeditiously handle the pleasure travel of the summer months, by having a sufficiently large number of spare men to run the extra cars required, as well as to be able to replace regular men, who for one reason or another are unable to attend to their duties, and at the same time keep as low as possible the expenses of a guaranteed minimum wage that is found necessary in many places, to obtain the services of suitable men, appears to me to be a subject worthy of consideration on the part of the operating department of the smaller companies.

To afford sufficient employment to the new man that he may be enabled to earn somewhat more than living expenses during the period of his probation on the waiting list, makes it essential that he should be competent to accept whatever work offered, either as motorman or conductor, to attain this end it would therefore, seem necessary that in the employment of new men, only such should be employed as appear capable of filling the requirements of either end of the car. Such a man should be trained as motorman from 10 days to two weeks at his own expense and upon the expiration of that time should be trained as conductor at the company's expense, allowing him during such training the minimum wage paid to extra men who report at roll call and fail to obtain employment. After passing the final examination he should be placed on the spare list and employed on either end of the car as required. By this means the division superintendent would be in a position to observe more fully the capabilities of each man, so that when the time arrived for him to be assigned to a regular run he could be appointed permanently to the end of the car to which he proved to be best suited.

It frequently happens that where a number of men is engaged at about the same time there may be a greater call for the services of conductors than of motormen, with the result that the new conductor is enabled to earn fair wages and the new motorman who started at the same time, and often long before, remains idle the greater part of the time. This is a condition of affairs that causes dissatisfaction among the men and should be corrected if possible, so that each new employe would receive his share of employment according to priority in the service.



Details of Automatic Stroke Recorder Apparatus.

Morrisburg and Ottawa Ry.—The first sod of this projected electric railway is reported to have been turned at Morrisburg, Ont., Aug. 2. (April, pg. 311.)

Public Service Corporation. — The Quebec Legislature has changed the title of the Suburban Tramway and Power Co. to the Public Service Corporation. The company is authorized to build a line north of the St. Lawrence River, throughout the Montreal Island, and Soulanges, Laval and Terrebonne counties. In the act passed by the Quebec Legislature last session respecting the city of Montreal, it is provided that the city shall see to the carrying out of the agreement whereby the Suburban Tramway and Power Co. has undertaken, in favor of Longue Pointe, to extend its railway along the centre of Notre Dame St., from the gate near Maisonneuve to Dominion Park when the street is macadamized. Also that the city shall in good faith endeavor to arrive at an understanding with the company: (1), For the building and working by it of its tramway from its present terminus to the eastern limits of Longue Pointe; (2), For the placing of its tramway along the middle of Notre Dame St. from Dominion Park to the terminus; (3), For its granting passenger fares from Montreal to the new Longue Pointe ward. (May, pg. 401.)

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THE CANADIAN PACIFIC RAILWAY CO.

Notice to the Shareholders.

The twenty-ninth annual general meeting of the Shareholders of this Company for the election of directors to take the places of the retiring directors, and for the transaction of business generally, will be held on Wednesday, the 5th day of October next, at the principal office of the Company at Montreal, at twelve o'clock noon.

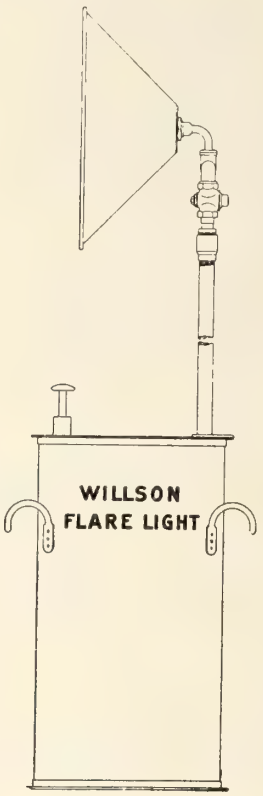
The Common Stock Transfer Books will be closed in Montreal, New York and London at 3 p.m. on Friday, the second day of September; the Preference Stock Books will be closed in London at the same time.

All books will be re-opened on Thursday, the sixth day of October.

By order of the Board,

W. R. BAKER,
Secretary.

Montreal, 8th August, 1910.



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O'Brien & Fowler, Contractors to the G.T.P., say:—

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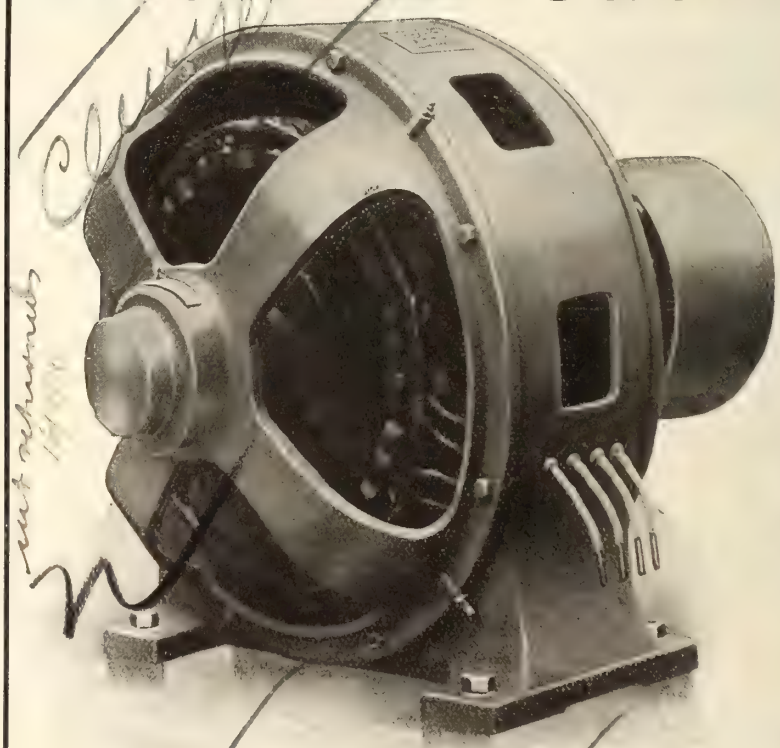

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A.C. & D.C. Dynamos & Motors for all conditions of service.

Traction Motors

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The Limitation of Weight in Rolling Stock.

By D. E. Blair, Superintendent of Rolling Stock, Montreal Street Railway.

The advent of the pay-as-you-enter cars, a few years ago, either caused, or coincided with, a marked impulse toward new and improved designs of car bodies. As is quite natural, the development has been guided largely by the requirements of the transportation departments whose chief aim in life is to increase gross earnings while keeping down the ratio of platform expense to fare receipts. This ratio, taken alone, is not a true gauge of transportation efficiency, but is only one of the many factors that affect the cost of carrying a passenger.

The tendency of many car builders, guided by popular demands, has been to produce a car unit that will take fuller advantage of the improved methods of fare collection and handling of passengers, while all have been striving towards an easement of the traffic congestion, and slow schedules, brought about by the steady increase in the number of small car units operated over a given track during rush hours. Longer hauls, high rates of acceleration and braking, and competition with trunk lines have created a demand for cross seats while the increasing capacity of the car unit necessitated larger platforms to accelerate the entry and exit of passengers. These and other influences have resulted in increased dimensions. At the same time, it has been considered proper that a car should be substantially built so as to ensure long life and low depreciation. So far so good, but the question that I wish to bring out is this:—Have we not ignored an important feature of car design that affects the gross cost of car operation very closely, viz.: the limitation of weight in rolling stock.

Careful investigation would seem to indicate that the cost of maintenance of car equipment is in direct proportion to the total weight of the car and there is every reason to believe that the wear and tear of track and roadway increases to an equal ratio. This is especially so if the car weights have increased to a point beyond the capacity of the older roadbeds and rails and it has been deemed advisable to replace a soft and resilient rail foundation with a hard unyielding bed of concrete in direct contact with the rail. The first indication of the evil effects of heavy cars on the standard roadbeds of a few years ago were seen in the hammering down of joints and a general depression of the subsoil under the track foundation.

To meet the first difficulty, our track engineers devised the continuance joint, the basic idea of which is to provide a bending resistance at the joint equal to, but not greater than, the stiffness of a continuous rail. To overcome the second difficulty they provided the very logical expedient of laying down a solid foundation of concrete in order to extend the bearing surface of the track structure on the soft subsoil. Both these ideas were sound engineering practice, but, in the opinion of many engineers, these practices have been carried to an illogical conclusion.

It is a well known principle of mechanics that the energy of the impact of a hammer blow is measured by two factors, viz.:—a resisting force multiplied by the distance through which the resisting medium is forced to retreat from the blow. If we limit the backward movement of the rail to an infinitesimal amount by laying the rail in direct contact with a solid bed of concrete, the other factor of the equation increases enormously and the surface fibres of the rail are unable to withstand the abnormal bearing pressures between wheel and rail. The result is seen immediately in the high rate of metal flow and rail wear in the vicinity of the slightest unevenness in the track. A change in level of one hundreth of an inch will soon grow to serious proportions. Granted an absolutely perfect rail surface, and the effect is not appreciable, but this is an impossible condition.

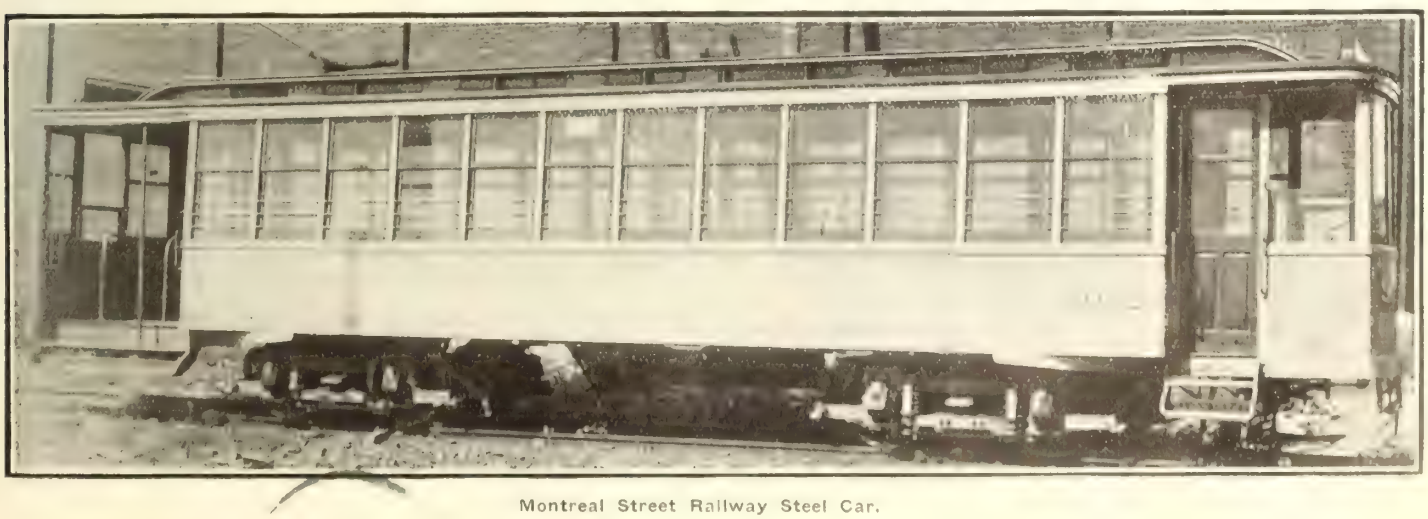
The damaging effects of the vibrations set up by impact are not limited to the rail, but are quickly felt in largely increased wear of moving parts of truck and motor equipment and in the crystalization of car axles. It is not unlikely that the abnormal chipping of cast iron flanges of car wheels on hard roadbeds is a direct result of disintegration of the granular structure of the chilled iron. The results of actual experience in this regard have been such that we may expect an early return to the more scientific methods of our forefathers. Very few observant persons will now deny the absolute necessity of some resilient medium between rail and foundation. Meanwhile, the opinion is growing rapidly that the average cost of all maintenance accounts are very nearly in proportion to the weight of rolling stock or in other words that the ton mile unit is a better basis for comparison than the car mile. There are many who are not yet ready to concede the truth of these arguments because of the inherent difficulties in the way of supplying convincing proofs, therefore we may set the maintenance question aside for the present and take up an argument based upon facts so well known and easy of proof as to be almost beyond the criticism of the unbeliever, viz.:—the cost of power for the operation of cars.

Several very interesting articles have appeared in the railway journals during the last two years dealing with the relation of car weights to operating costs. These have been indexed for the convenience of those who may wish to read as they run. Of especial interest are those from the pen of Mr. Ayres of the Boston & Worcester system. He has given the subject a great deal of attention and his arguments are well worth a careful study. Among his deductions we find:—"While as above stated the cost of carrying around weight will vary in each case, it is believed that the figure of 7.5 per pound per year is a fair average value and by no means an extreme case. An effort has been made to get data from various operating companies as to their estimate of this cost. Very little data have been forthcoming but what have been secured show a general tendency in several large city systems to estimate it at 5c. per lb. per year. Even at 5c. per lb. per year, we can afford to pay $1,000 a ton for a reduction of car weight."

Mr. Ayres further calls attention to the fact that we cannot figure the possible savings in this direction on the assumption that the capital cost of the car is a permanent investment at 5%. However, it is fair to assume that a saving of 5c. per year for 15 years is equivalent to the present value of a 15 year annuity of 5c. per year, or in other words that we can afford to spend 52c. to eliminate one pound of deadweight or about $1,000 to reduce the weight by one ton.

The Boston and Northern Co. has lately given evidence of its belief in light weights by building 44 cars of the same size and capacity as a former standard type but which weigh 6,610 lbs. less and have greater inherent strength nevertheless. The new cars weigh 42,090 lbs. against 48,700 of the older car. They have been tested in service and it has been shown, that, basing the cost of power at the extremely low figure of 6-10 of a cent per k.w. hour, and with the number of service stops at only five per mile, there will be a definite saving of not less than 73c. per day per car or $11,765 a year for 44 cars. These figures are based on costs that are far below the average of any Canadian road, and yet they look formidable. They have taken into account only the reduction of coal consumption and perhaps the cost of operating labor, but have not paid any heed to the heavy fixed charges on power plants and distributing copper, these items being of equal importance in gauging the cost of power delivered to cars.

Ordinary common sense will not allow the supposition that extra power costs nothing, even if we are blessed with a perfect water power. That point of view is too narrow to be accepted outside of the village smithy. An examination of power costs will show at once



Montreal Street Railway Steel Car.

THE CANADIAN PACIFIC RAILWAY CO.

Dividends for the half-year ended June 30th, 1910, have been declared as follows:—

On the Preference Stock, two per cent.

On the Common Stock, three and one-half per cent.

A further sum equal to one-half of one per cent. on the Common Stock will be paid thereon at the same time out of interest on the proceeds of land sales.

Warrants for the Common Stock Dividend will be mailed on the 30th September next to Shareholders of record at the closing of the books in Montreal, New York and London respectively.

The Preference Stock Dividend will be paid on Saturday, October 1st next, to Shareholders of record at the closing of the books at the Company's London office, No. 62 Charing Cross, London, S.W.

The Common Stock Transfer Books will close in Montreal, New York and London, at 3 p.m., on Friday, September 2nd. The Preference Stock Books will also close at 3 p.m., on Friday, September 2nd.

All books will be re-opened on Thursday, October 6th next.

By order of the Board.

W. R. BAKER,
Secretary.

Montreal, 8th August, 1910.

TIES AND RAILS FOR CONSTRUCTION OF INDUSTRIAL TRACKS ON EAST BANK OF THE DON.

TENDERS will be received by registered post only, addressed to the Chairman of the Board of Control, City Hall, Toronto, up to noon on Tuesday, September 6th, 1910, for the following materials:—20,800 feet of partly worn or re-laying rail, 4,000 oak ties and 4,800 cedar ties.

Envelopes containing tenders must be plainly marked on the outside as to contents.

Specifications may be seen at the office of the City Engineer, Toronto.

The tenderers shall submit with their tender the names of two personal sureties (approved by the City Treasurer), not members of the Council or officers of the Corporation of the City of Toronto, or, in lieu of said sureties, the bond of a Guarantee Company approved of as aforesaid.

The usual conditions relating to tendering as prescribed by City by-law must be strictly complied with.

The lowest or any tender not necessarily accepted.

G. R. GEARY (Mayor)
Chairman Board of Control.

City Hall, Toronto, August 6th, 1910.

J. R. Wilson and K. W. Blackwell, Montreal, have been elected directors of the Nova Scotia Steel Co., succeeding R. Reford and R. E. Chambers.

The Sheddon Forwarding Co. has moved its Montreal office to the corner of St. James St. and Victoria Square, pending the alterations to its own building, 36 Victoria Square.

The Dominion Government, in order to aid in providing men for the railway construction camps, has granted permission for the bringing in of railway laborers under contract. Asiatics are not admitted under this regulation.

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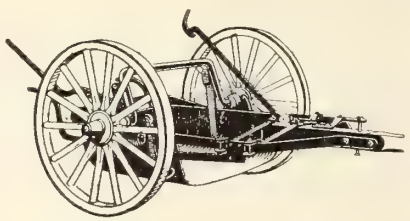

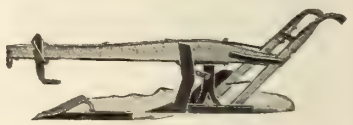

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that it costs pretty much the same to produce one k.w. hour of energy, whether the total consumption is at a rate of 5,000 or 10,000 kilowatts, provided of course that the load factor and plant efficiency are comparable in each case.

One might just as well argue that an uncollected fare did not represent a loss because the car had to run anyway and the expenses were normal. To those who may say that their plant has plenty of reserve capacity and that they can stand a certain amount of extra weight without increasing fixed charges, we might answer that, so long as you have reserve capacity, you are paying fixed charges on future development and that every pound added to your rolling stock brings so much nearer the day when you will have to add another underloaded unit to your plant in order to take care of your immediate requirements. At the same time, you will likely have to add another one, two or more feeders because one feeder will take care of the extra load in only one direction.

The fixed charges on plant and distributing lines should be taken together because the increased mechanical efficiency of a larger plant is offset by the extra cost of distributing lines and increased transmission losses over greater distances. Furthermore, for a given plant, the true maintenance and depreciation charges will increase in proportion to the load carried, especially if the additional power subjects the plant to overloads. Going somewhat further into details, it is a simple matter to develope an argument that may be applied to your own exact conditions. Experience has shown that cars cannot be operated in city streets under perfect conditions at schedule speeds of 8 m.p.h. with a power consumption less than 100 watts per ton mile at the car. This figure is altogether too low for average conditions, but is commonly used as a very conservative and handy basis for rough engineering calculations. Our power consumption in Montreal, for traction only, varies from 110 to 200 watts per ton mile. A fair all year round average might be struck at 160 watts at the power house. The total power used, including power brakes, heating and lighting, runs over 200 watts per ton mile on a 12 months basis. Let us assume that 120 watts per ton mile at power house is possible. This is equivalent to about 1 k.w. hour per car mile for a light single truck car of 8 tons, 2c. per car mile for a 16 ton car and 3c. for a 24 ton car. Assume further that a car doing duty on a given run will average 150 miles a day for 365 days a year or 54,750 miles a year. The holding of car for repairs or other reasons does not affect the issue since the crippled car must be replaced by an equivalent unit.

The cost of power varies so widely that a definite cost per year cannot be fixed but we may arrive at a conclusion in this way:—To move 1 ton 1 mile your d.c. power plant must produce 120 watt hours; to move 1 ton 54,750 miles your d.c. power plant must produce 6,570 k.w. hours; multiply this figure by your own power cost. When power costs 1c. per k.w. hour each ton costs $65.70 a year; when power costs 1.5c. per k.w. hour each ton costs $98.55 a year. $100 per ton per year, or 5c. per pound per year is a convenient figure to use and is much below the average cost of operation on all large American systems. Some competent engineers insist that double this amount is a fair average, but we must move cautiously where the lights are dim.

Let us imagine the construction of a new lot of cars to see what this item of $100 a year really means to us. We propose to build one or more cars of certain outside dimensions and seating capacity to suit our own ideas and conditions. Our specifications call for a certain general style of construction and inside finish. The seating arrangements are outlined and the length and width are fixed. All this to be delivered for a certain price. The car builder adheres more or less closely to our ideas and specifications and turns out a car that in outward appearance is a credit to him and a joy to the purchaser. There has been no limit set to the weight of car and the builder finds it more convenient, perhaps on account of limited shop facilities and perhaps because it is cheaper, to use standard commercial shapes and dimensions where a lighter shape of better design would have done as well. A ⅛ inch side plate would be strong enough as a girder but is not strong enough to hold certain rivetted connections or it may be subject to buckling. Properly designed braces and reinforcements would be lighter, but both brains and labor are expensive, so in goes a ¼ or ⅜ inch plate the whole length of car. Furthermore, why should the builder trouble himself to give what the purchaser has not asked for. The purchaser's inspector calls around to view the car from time to time, objects to the color of paint used and to the fit of doors and windows. He may even authorize a little bill for extras and the car body is completed to everybody's satisfaction, but its weight is say 23,000 lbs. The addition of body equipment will bring the total weight up to 25,000 lbs., on the centre plates. Suitable trucks are then purchased. They must be able to carry all this weight indefinitely, weight no object, say 15,000 lbs. a pair. A four motor equipment of reasonable capacity weighs 12,000 lbs., and the car makes its trial trip weighing 52,000 lbs., or 26 tons. The seating capacity is 45, so that each passenger might have the satisfaction of knowing that the grasping company is moving 1,150 lbs., as well as his own weight, for several miles, all for 3c. and a transfer thrown in. This is not an exceptional case but is standard practice almost everywhere to-day. One cannot help thinking of the days when his 30 lbs. bicycle carried him safely over many a mile of rough road.

Now there is no doubt that if a certain amount of intelligent effort had been applied to the original design, with a view eliminating all unnecessary weight, it would have been found that a car body, inherently quite as strong and stronger, quite as serviceable and of equal capacity and beauty could be built weighing, for the sake of argument, 4,000 lbs. less. The body equipment might be reduced 300 lbs. in weight. A lighter truck frame, lighter springs, axles and wheels are then possible, say a reduction of 1,800 lbs. Lighter motors might be considered, but there we find ourselves in the hands of the enemy. The motor manufacturers have fixed upon a given weight for a given capacity. Their product is good and it meets the demand. The question of weight does not affect them directly, except in so far as durability and low maintenance are concerned. They will argue that a lighter motor is quite possible, but it will cost more and the market places no premium on lightness. We have again to admit that, through our own fault, the market does not offer what we need and we decide on an equipment weighing 12,000 lbs. Altogether we have reduced the weight by 6,000 lbs., or three tons and can expect a saving of $300 a year per car in our power bill, all net profit because the cost of the lighter car need not be greater than the heavy one. The present value of this saving at 5% is $3,000. If we wish to expend a part of this amount towards nickel steel, and aluminum in place of mild steel and cast iron and wood we can cut down the weight much further.

The possibilities of lowering the cost of transportation along this line are so great that several questions present themselves. Are we not justified in placing a premium upon lightness in car construction and car equipment even to the extent of doubling the first cost of a car? Is the saving of power the only economy to be effected by limiting car weights? Would the increased cost of maintaining very light rolling stock not be offset by greater savings in track renewals and repairs? Would the transmission problems of most 500 volt systems be simplified? If the average weight of rolling stock were decreased 25%, for a given size of unit, what decrease might we expect in car maintenance? Judging from my own experience, I should answer the last question by saying that the cost of all wearing parts of equipment such as brake shoes, brasses, gears, pinions, trolley wheels, carbon brushes, etc., would decrease in proportion. The wear of car wheels is more complicated but follows pretty much the same rule. Repairs to running gear, brake beams, brake heads, etc., also bear a very definite relation to weights and pressures handled.

Militia vs. Street Cars.

Our issue of July, 1909, contained full particulars of the conviction by the Winnipeg police magistrate of a Winnipeg Electric Ry. motorman for the alleged obstruction of the 90th Rifles on June 1, 1909. The circumstances were that a car was proceeding west on Broadway, when the 90th regiment was coming out of the drill hall, and crossing the street. The motorman rang his gong and stopped the car with the fender protruding over the crossing, whereupon Capt. Blanchard, with sword in hand, boarded the car and peremptorily arrested the motorman and took him to the guard house at the drill hall, and after detaining him there a short time, marched him under a guard of soldiers with fixed bayonets from the drill hall by way of Main St. to the police station.

The magistrate's decision was appealed to County Judge Walker, who took the evidence over again, but at the request of counsel for the prosecution, who evidently anticipated an adverse decision, the Judge stated a case to the Court of Appeal as to the legal point involved, in regard to which had the right of way, the electric railway or the militia, and the matter came before the Court of Appeal in June. The Winnipeg Electric Ry.'s counsel contended that the County Judge had no jurisdiction to state the case and reserve judgment. The Court of Appeal agreed with this and dismissed the matter.

The County Judge has since given judgment as follows:—"I must conclude from the evidence that the act complained of was (on the part of appellant, the motorman) purely accidental and not of such a nature as is contemplated by the statute as being an obstruction. The appellant had a right to run his car over the track, and this the respondent well knew. He, however, was bound to be diligent in running his car so as not to interfere with the rights of others. This rule will also apply to the movements of the troops if it is negligent, liability follows and negligence is defined (as one writer says) by that past master of English language, as well as of English law, Sir Frederick Pollock, in these six words, "Negligence is the contrary of diligence." I cannot help believing that the appellant, when he observed that he could not pass in front of the troops, as they were emerging from the drill hall, without interference, was very diligent in stopping the car as he did, and this was all he was called on to do. A [illegible] on the part of respondent would have avoided the possibility of any collision whatever, and a proper handling of the troops

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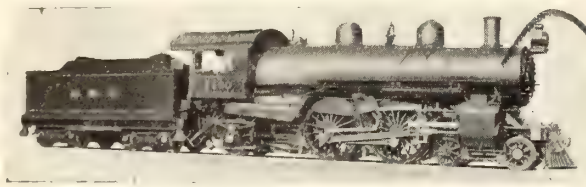

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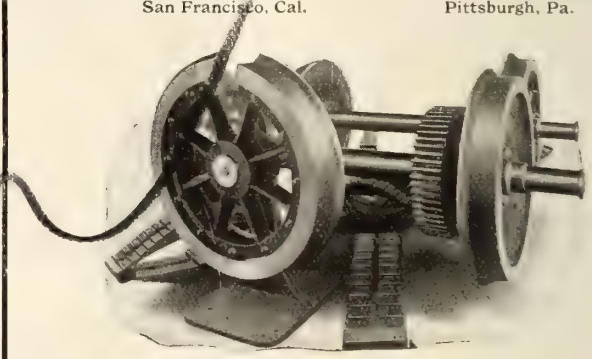

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after the car had stopped, by way of a slight divergence, would have saved any further trouble, as there was ample room over the crossing (about 16 ft.) for the troops to pass, and I take it from the evidence they did, after the arrest, pass in front of car. I hold that the moving of the car during the scuffle was owing to the conduct of the troops and accidental. The conductor of car was a corporal of the 90th, and he says in his evidence that Capt. Blanchard, who was in command of the leading file of troops, and in a position to observe all that took place, said to him shortly after the arrest: "I do not think you intended to hit anybody." The evidence, to my mind, bears out this conclusion. I fail to realize there was any necessity for the action taken. It seems precipitate, arising from a claim of paramount right of way exercised without a considerate realization of the situation and right of others. Finally I hold that the occurrence, such as it was, so far as concerns the appellant, might reasonably and fairly have been treated at the most as a simple mishap. I therefore find a verdict for appellant and direct an order to go quashing the conviction, but under the circumstance without costs, excepting reporter's fee, which I fix at $5."

Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—The Vancouver Park Commissioners considered, Aug. 10, a letter from the company asking for a lease of a sufficient right of way on the foreshore around Stanley Park for an electric railway. The letter was held over for future consideration.

The company has been making tests for the foundations of the new building which it proposes to erect at the corner of Hastings and Carroll streets, Vancouver. The plans for the building have not yet been definitely approved.

Clearing right of way for the line between Vancouver and New Westminster, via Burmley, is being proceeded with from the New Westminster end, and grading is reported to have been started near the Cariboo.

The approach of the B.C.E. Ry. to the north end of the Lulu Island bridge was completed Aug. 1, and track has been laid from the main line on Columbia St., on to the bridge. At the south end of the bridge an approach both for the highway and the railway is being constructed, the city contributing towards its cost. Further railway building along the Lulu Island river towards the city limits will be gone on with as soon as the bridge approaches are completed.

It was reported Aug. 8 that 46 miles of track had been laid on the line from New Westminster to Chilliwack, and that the line was expected to be completed and in operation by Oct. 1. Its total length will be 63 miles, and it is expected that the run will be made in two hours. A two-hour service is to be given in each direction, and the plans of the company are also said to include running a daily parlor car service over this line, with probably a buffet. The rolling stock will include eight or 10 passenger cars, 150 freight cars, three or more electric locomotives, and several lighter ones. The heavier engines will be used to haul 500 tons of freight. The freight cars will run up to 80,000 lbs. capacity.

A proposal for the erection of car shops capable of turning out all the cars required for the company's various lines is under consideration. As soon as the new freight sheds in New Westminster are completed the building on Twelfth St. at present used as a freight shed will be turned into a repair shop for the cars on the Fraser valley lines. The repair shop in Vancouver is too small to fulfil requirements there and increased accommodation must be had. The present car building shops at New Westminster are not sufficiently large to meet demands.

The by-law granting a franchise in the Point Grey district was approved by the ratepayers July 23. The company's General Manager wrote to the Reeve July 25, to the effect that the building of the lines A and B mentioned in the bylaw will be proceeded with at once, and desiring to know how much of the several streets were opened to permanent grade. It is expected the line beginning on Fourth Ave. and running along Alma St. to Tenth Ave., thence along Tenth Ave. to Sasamat St., thence along Sasamat St. to Fourth Ave. and thence west on Fourth Ave. to Dufferin St., will be completed by winter. The council is contemplating putting a steam shovel on Tenth Ave. for the more rapid completion of the grading, etc., on these streets.

C. Hoard, C.E., is making surveys for a proposed electric railway through Sidney and Saanich, on Vancouver Island. (Aug., pg. 681.)

Grand Valley Ry.—Route maps have been approved by the Department of Railways for extensions of street railway lines in Brantford, Ont.

A Brantford press report states that the project in which this company is interested for the building of an electric railway from that city, via Waterford and Simcoe to Port Dover, is again under consideration, and a plan is being discussed for providing a subsidy in aid. (Aug., pg. 682.)

Hamilton, Galt and Berlin Ry.—W. J. Grant, C.P.R. Commercial Agent, Hamilton, said Aug. 3, that engineers were completing surveys with a view of determining the most practical routes for this proposed electric line. Decisions were not arrived at in a hurry, but he expected that in about a month something definite might be heard about the line from Hamilton to Guelph Jct. The proposition would have first to be submitted to the C.P.R. Executive, and financial arrangements made.

Hamilton, Waterloo and Guelph Ry.—J. Patterson, who is promoting the building of this electric railway, returned to Hamilton, Ont., from London, Eng., Aug. 15, and said he had good hopes that the line would be built, but he could not make a definite announcement for a few weeks. (Aug., pg. 682.)

Hull Electric Co.—Grading has been in progress since July 15 on the extension from the C.P.R. station, Brewery St., Hull, Que., to the first tollgate on the Chelsea road, and it is expected to have a car service in operation over it by Sept. 30. (Aug., pg. 682.)

The London and Lake Erie Ry. and Transportation Co. has a gang at work at the London, Ont., end of the line to Port Stanley, straightening the road so as to enable it to give a better service. Between St. Thomas and Port Stanley there are no less than 33 curves, and it is said that most of these will be eliminated. The question of building a second track is also under consideration, but no decision has been reached as to whether this will be done or not. (May, pg. 399.)

Montreal St. Ry.—A petition has been presented to the city council protesting against the M.S.R.'s proposed car tracks on Dorchester St. (Aug., pg. 683.)

Moose Jaw Electric Ry.—A company with this title has been incorporated unders the British Columbia Companies Act to construct electric railways in British Columbia and Saskatchewan. We are advised that this has been done, owing to some difficulties respecting incorporation under the North West Territories Companies Ordinance. A special act will be applied for at the next session of the Saskatchewan Legislature, but meanwhile the preliminary work will be done under the British Columbia incorporation. J. B. McRae is acting as Engineer, and A. H. Dion, son of A. A. Dion, Superintendent Ottawa Electric Ry., will be in charge of construction and subsequent operation at Moose Jaw. The head office is, temporarily, in the Citizen Bldg., Ottawa.

The lines proposed to be built will extend from the exhibition grounds, along Main St. to the C.P.R. station, along Manitoba St., to between 10th and 11th streets, then across the C.P.R. tracks as far as Iroquois St., along this street to Sixth Ave., along Sixth Ave. to Saskatchewan St., and along this street to the exhibition grounds. There will be a branch line along Athabaska St. past the athletic grounds, another along High St., between Main St. and Sixth Ave., with a loop around Seventh Ave. and Manitoba St. to Sixth Ave., and another along Hochelaga St. to Eighth Ave. The lines on Main and High Streets will be double track lines. This will give about seven miles of track, which will be laid with seven inch, high T type rail, 70 lbs. per yard. The power house will be built at the corner of High St. and Fourth Ave., but the plans have not been definitely approved. The proposal at present under consideration is to instal two 150 k.w., 500-600 v., d.c. generators, driven by two 205 h.p. oil engines, combustion type, using crude oil as fuel. The cars to be used will be of the pay-as-you-enter type, and an order for six will be placed shortly. (Aug., pg. 683.)

Mount McKay and Kakabeka Falls Ry.—An agreement giving the company temporary rights for three months over the street railway tracks in Fort William has been approved by the Port Arthur and Fort William Railway Commission, the company to use its own power and cars. The company desires to haul gravel for construction purposes, and the agreement provides that the hauling is to be done at night only. (Mar., pg. 231.)

Nelson St. Ry.—The extension of the line in Nelson, B.C., has been completed, and placed in operation. The new cars have been built by the Ottawa Car Co. (Aug., pg. 683.)

Nipissing Central Ry.—A preliminary survey for a branch line from near Port Cobalt to Kerr Lake, Ont., is being made. The branch starts from the main line, passes through Port Cobalt and runs along the shore of Kerr Lake. It has not been decided when the line will be built.

The ratepayers of New Liskeard, Ont., will vote Sept. 3 on a bylaw granting a franchise to the company for the operation of an electric railway in the town. (June, pg. 495.)

The Ontario and West Shore Ry. Co. has secured options on the right of way required for building its line through Huron tp., with the exception of three properties, where it is expected the line will be run along the public highway. This gives the company a route into Kincardine, Ont. (Aug., pg. 683.)

Ottawa Electric Ry.—A permit has been granted by the city council for the erection of a brick transforming station on the south side of Slater St. Ottawa, to cost $18,000. In addition to this being made a distributing station for power, the company will concentrate its construction, meter and repair plants there. (July, pg. 585.)

People's Ry.—We are advised that the contract has been awarded for the grading of the section from Berlin to Bloomingdale, on the line to Guelph, Ont., to F. W. Maxwell, of Port Hope. Three miles of track is to be built by Dec. 1. A second contract has been let for the grading from Berlin westerly to New Hamburg, 14 miles, to D. B. Campbell, Latchford, Ont., to be completed by

Department of Railways and Canals.

QUEBEC BRIDGE.

Tenders for Superstructure.

Notice to Contractors.

SEALED TENDERS addressed to the undersigned and endorsed "Tender for Quebec Bridge Superstructure," will be received at this office until 12 o'clock noon, not later than September 1st, 1910, for the superstructure of a bridge across the St. Lawrence River near the City of Quebec.

Plans and specifications may be seen and forms of Tender obtained on and after July 1st 1910 at the office of the Quebec Bridge Board of Engineers, Canadian Express Building, Montreal, and at the Department of Railways and Canals, Ottawa.

Parties tendering will be required to accept the fair wages schedule prepared or to be prepared by the Department of Labour, which schedule will form part of the contract.

Contractors are requested to bear in mind that tenders will not be considered, unless made strictly in accordance with the printed forms, and in the case of firms, unless there are attached the actual signature, the nature of the occupation, and place of residence of each member of the firm.

An accepted bank cheque for the sum of $500,000.00 made payable to the order of the Minister of Railways and Canals of Canada must accompany each tender, which sum will be forfeited if the party tendering declines entering into contract for the work at the rates stated in the offer submitted and in accordance with the terms stated in the form of Contract accompanying the Specifications.

Cheques thus sent in will be returned to the respective contractors whose tenders are not accepted.

The lowest or any tender not necessarily accepted.

L. K. JONES,
Secretary.

Department of Railways and Canals,
Ottawa, 17th June, 1910.

Newspapers inserting this advertisement without authority from the Department will not be paid for it.

DEPARTMENT OF RAILWAYS AND CANALS.

QUEBEC BRIDGE.

Tenders for Superstructure.

Notice to Contractors.

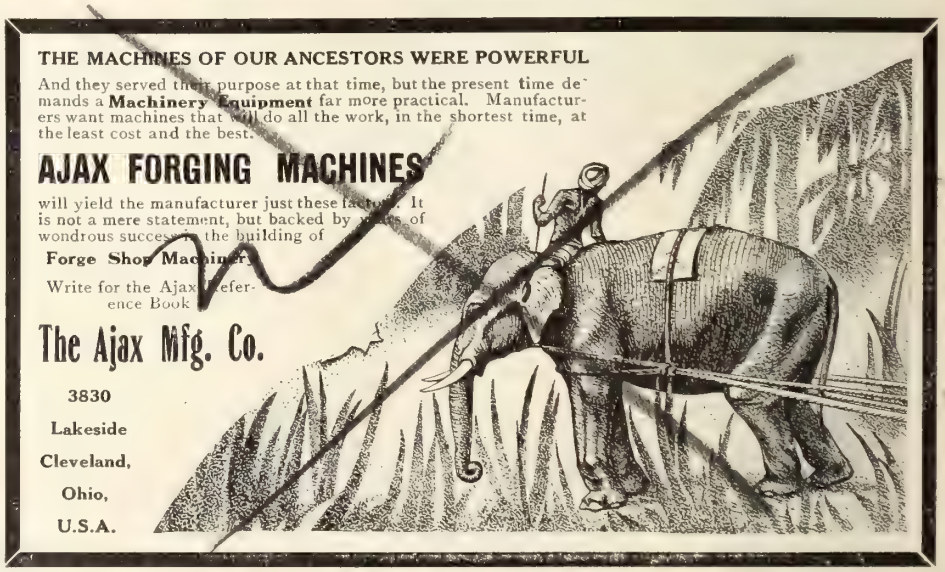
EXTENSION OF TIME FOR RECEIVING TENDERS.

THE time for receiving tenders for the superstructure for the Quebec Bridge, advertised to be received up to the 1st of September, 1910, is hereby extended for one month, viz: up to the first of October, 1910.

By Order,
L. K. JONES,
Secretary.

Department of Railways and Canals,
Ottawa, 9th August, 1910.

Newspapers inserting this advertisement without authority from the Department will not be paid for it.



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Dec. 30. The Acme Construction Co. is doing the grading between Bloomingdale and Guelph. This latter work has been in progress for over a month and is proceeding satisfactorily. It was expected that grading would be completed as far as New Germany by Aug. 17, and the balance by Dec. 15. Grading for 29 miles is expected to be completed by Dec. A contract has been let to T. Robbins, Galt, Ont., for all the concrete work on the line. This includes three large piers and two abutments for the bridge over the Grand River, east of Berlin, and has to be completed by Dec. 1.

We are also advised that it is intended to start surveys for the line from Guelph, to Elora, Fergus and Arthur, and to complete the surveys from Guelph to Hespeler, and Puslinch Lake. When this line is completed the company will be enabled to connect with the Galt, Preston and Hespeler Ry., and through it with other lines. It is intended to open an amusement park during the summer between Berlin and New Hamburg. The plans on hand and contemplated, if carried out, will give 80 miles of line by the end of 1911.

A plan has been submitted to the London city council by W. H. Bugg and J. C. Moody for the extension of this line from Stratford to London. The plan was a preliminary one. but if there was disposition shown to give it consideration, the company's engineers would go over the ground and prepare detailed plans. The council promised to take up the matter again.

Several members of the directorate of the People's Ry., went over the line of the London, and Lake Erie Ry. and Transportation Co., Aug. 9, and discussed the question of buiding a branch of their line from Berlin to St. Thomas, to connect with the L and L.R. Ry. and T. Co.'s line.

Guelph ratepayers will be asked early in Sept., to vote on a by-law granting a franchise to the company within the city. Stock amounting to $160,000 has been taken in the company, with the approval of the ratepayers as follows: Berlin. $60,000; Wilmot tp., and New Hamburg village, $20,000 each; Wellesley, and Blenheim, $15,000 each; Tavistock village and Waterloo tp. $10,000 each. (Aug. pg. 683.)

Pictou County Electric Co.—The Nova Scotia Legislature has repealed rule 5 of schedule A, chap. 137, of 1902, and substituted a new one, providing (a), that platforms of all cars shall be provided with gates and doors; that passengers shall be received and discharged on either side, except at turnouts, when the left side only shall be used; (b), that splitting shall not be allowed on the cars; (c), that no person may cross over the company's bridge across the East River, New Glasgow; (d), there shall be no loitering about the company's property.

The act also declares that the company is possessed of all the powers and privileges of the Egerton Tramway Co.; ratifies the trust deed to the Eastern Trust Co. to secure the issue of bonds of the tramway company, and authorizes an exchange of the existing bonds, if required by the bondholders, for bonds of the Pictou County Electric Co. (July, 1909, pg. 523.)

Port Arthur and Fort William Electric Ry.—The ratepayers of Port Arthur, Ont., will vote Sept. 8 upon a bylaw to provide $12,000 for the new car barns now under construction. (Aug. pg. 683.)

Quebec Ry. Light and Power Co.—Considerable progress has been made on the new office building which the company is erecting on the corner of Crown and St. Joseph streets, Quebec.

The engineering department is at work on the plans for the 3¼-mile upper level line at Montmorency Falls park, the plan, profile and book of reference of which has been deposited with the Registrar of Quebec county.

The 2.50 mile extension from the city to the top of Sillery Hill, near the site of the new Quebec Bridge, is expected to be completed early in Sept. (Aug. pg. 683.)

The St. George Electric Co. is authorized by the Quebec Legislature to build an electric tramway from the Quebec Central Ry. St. George station through St. George, Beauce county, and the Riviere du Loup valley to the Kennebec line near the International boundary separating Quebec from Maine.

Sherbrooke Ry. and Power Co.—This is the new title authorized by the Quebec Legislature for the Sherbrooke St. Ry. Co. The head offices are to be in Montreal, the operating office only in Sherbrooke. The company is given power to build electric railways both in Sherbrooke and outside, but not exceeding the limits of St. Francis district. Freight may be carried as well as passengers, and mails "by animals, electricity, or compressed air or other motive power, except steam, as the company from time to time deems expedient, except that during the period of winter, the company may substitute sledges drawn by horses." The other parts of the act refer to the company's powers as to the development and distribution of power.

Construction is being proceeded with in connection with the power plant, at which it is proposed to develop 2,500 h.p. A contract has been let to the Bishop Construction Co. for the erection of a power house in Sherbrooke. (June, pg. 497.)

Simcoe Ry. and Power Co.—An order in council has been passed by the Ontario Government approving of by-laws of the county of Simcoe and the townships of Tiny and Matchedash granting the company the use of certain roads and road allowances for the purpose of erecting a pole line for the transmission of electricity from the Big Chute on the Severn River into Midland, Ont. The company has power to build electric railways radiating from Midland. (May, pg. 401.)

Stratford Ry.—A bylaw was passed by the ratepayers July 30 by 1,492 votes to 48 granting a franchise for an electric railway in Stratford, Ont., to a syndicate of St. Marys men, who were associated with the St. Mary's and Western Ontario Ry., a steam railway operated and controlled by the C.P.R. (Aug. pg. 685.)

Electric Ry., Finance, Meetings, Etc.

British Columbia Electric Ry.—Gross earnings for June, $253,180; working expenses $159,095; net operating earnings $94,085; renewal funds $17,852; net earnings $76,233; approximate income from investments $16,500; net income $92,733, against $200,624 gross earnings; $116,-025 working expenses; $84,599 net operating earnings; $13,958 renewal funds; $70,641 net earnings; $13,550 approximate income from investments; $84,191 net income, for June 1909. Aggregate gross earnings for 12 months ended June 30, $2,981,617; net earnings $1,239,-839, against $2,298,778 gross and $1,-027,116 net for same period 1908-09.

Calgary St. Ry.—Total revenue for June, $19,419.10; expenses, maintenance of way and structures $1,020.96, maintenance of equipment $1,193.02, transportation expenses $3,726.00, general expense $584.62, power $2,530.00, total $9,054.60; net earnings $10,364.50.

Calgary St. Ry.—Gross earnings for July were $23,570.55, against $4,703.65 for July, 1909, the first month of operation.

Capt Breton Electric Co.—The gross earnings for May were $9,196.14, against $7,073.36 for May, 1909. The net earnings for the five months ended May 31 were $14,441.52, against $10,013.58 for the five months ended May 31, 1909.

Halifax Electric Tramway.—Railway receipts for July, $22,176.80, and for two weeks ended Aug. 14, $10,490.94, against $20,125.47 and $10,067.62 for same periods 1909.

Hamilton St. Ry.—The gross receipts for the quarter ended June 30 were $91,764.91, against $82,453.14 for the same period 1909. The amount paid to the city for the quarter was $9,221.16, against $8,476.21 for the same period 1909.

London St. Ry.—Gross earnings for June, $22,905.09; expenses $16,027.00; net earnings $6,878.09; deductions $2,-363.05; net income $4,515.04. Aggregate gross earnings for six months ended June 30, $117,264.69; expenses $86,-598.68; net earnings $30,666.01; deductions $14,256.90; net income $16,409.11.

London St. Ry.—Gross earnings for July, $24,248.90; expenses, $16,556.08; net earnings $7,692.82; deductions, $2,-441.75; net income $5,251.07, against $24,802.95 gross earnings; $15,767.84 expenses; $9,035.11 net earnings, for July 1909. Aggregate gross earnings for seven months ended July 31, $141,513.59; expenses $103,154.76; net earnings $38,-358.83; deductions $16,698.65; net income $21,660.18, against $135,798.89 ag-

Montreal St. Ry.—Passenger earnings for July, $383,371.70; miscellaneous earnings $15,475.22; total earnings $398,846.92; operating expenses $215,-224.22; net earnings $183,622.70; city percentage on earnings $49,992; interest on bonds and loans $14,705.50; rent leased line, $552.90; taxes $4,000; surplus $114,372.30; expenses per cent. of earnings 53.96. against $334,237.57 passenger earnings; $11,335.99 miscellaneous earnings; $345,573.56 total earnings; $177,412.11 operating expenses; $168,161.45 net earnings; $34,945.22 city percentage on earnings; $14,439.62 interest on bonds and loans; $498.67 rent leased lines; $3,000 taxes; $115,-277.94 surplus; 51.34 expenses per cent. of earnings for July 1909.. Aggregate total earnings for 10 months ended July 31, $3,490,646.48; operating expenses $2,021,516.05; net earnings $1,469,130.-43; total charges $446,853.74; surplus $1,022,276.69; expenses per cent. of earnings 57.91, against $3,137,546.83 aggregate total earnings; $1,866,015.41 operating expenses; $1,271,531.42 net earnings; $388,574.71 total charges; $882,-956.71 surplus; 59.47 expenses per cent. of earnings for same period 1908-09.

Port Arthur and Fort William Electric Ry.—The total receipts for July were $14,189.48, and the expenditure $8,103.56, leaving net earnings of $6,-085.92. The monthly report showed:—Car mileage, 50,141 miles; gross earnings per car mile, 28.281 c.; operating expenses per car mile, 16.162 c.; net earnings per car mile, 12.189 c.

Toronto Ry.—Gross earnings for June, $353,791.91; expenses $170,426.48; net earnings $183,365.43, against $323,722.95 gross earnings; $155,919.81 expenses; $167,803.14 net earnings for June, 1909. Aggregate gross earnings for six months ended June 30, $1,656,841.51; expenses $870,381.43; net earnings $786,460.08, against $1,483,749.53 aggregate gross earnings; $775,005.02 expenses; $708,-744.51 net earnings for same period 1909.

Winnipeg Electric Ry.—Gross earnings for June, $242,420; expenses $117,-128; net earnings $125,292, against $193,-836 gross earnings; $95,111 expenses; $98,725 net earnings for June, 1909. Aggregate gross earnings for six months ended June 30, $1,532,195; net earnings $754,880, against $1,210,903 gross and $602,315 net for same period 1909.

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Electric Railway Notes.

C. Murphy, foreman trolley department B.C. Electric Ry., died at Vancouver, B.C., recently.

The London St. Ry. has ordered one heavy double broom electric sweeper, from the Ottawa Car Co., Ottawa.

The Edmonton Radial Ry., has ordered one heavy double broom electric sweeper from the Ottawa Car Co., Ottawa.

The Quebec Ry. Light and Power Co., has received four pay-as-you-enter cars, 18 ft. long, from the Ottawa Car Co., Ottawa.

The Toronto Suburban Ry., has received two 49 ft. pay-as-you-enter cars from the Preston Car and Coach Co., Preston, Ont.

The Edmonton Radial Ry., has received two pay-as-you-enter cars, mounted on 27-G-1 trucks, from the Ottawa Car Co., Ottawa.

The Hamilton St. Ry. has received one pay-as-you-enter car, 43 ft. long overall, with longitudinal seats, mounted on 27-G-1 trucks, from the Ottawa Car Co., Ottawa.

Wm. Boucher, conductor on the Hull Electric Ry., has been convicted of using a digger on his fare box, and sentenced to six months imprisonment.

R. H. Sperling, General Manager B.C. Electric Ry., accompanied Geo. Kidd, Secretary of the Board of Directors, London, Eng., on his trip of inspection over the company's lines early in Aug.

The ratepayers of Detroit, Mich., will be asked in Nov. to vote on the question of acquiring the ownership of the Detroit United Ry. by the city. The D. U. Ry. owns the Sandwich, Windsor and Amherstburg Ry. in Canada.

The London, Ont., city council has sent to the London St. Ry. a bill for $1,000, representing the alleged cost to the city of repairs to water pipes, claimed to have been made necessary by electrolysis.

A memorial tablet to the late John Bell, K.C., General Counsel of the G.T.R., who died in June, 1906, aged 83, has been placed in St. Andrew's Church, Belleville, Ont., of which he was an elder and trustee for many years.

The Vancouver city council has been advised by the B.C. Electric Ry. that it is the company's intention to equip all its cars operating in the city with a new pattern of fender, which is being constructed at the company's shops in New Westminster.

The Port Arthur and Fort William Electric St. Ry. commission has asked the Port Arthur, Ont., city council to purchase a car to replace car 16, which was recently burned. This car was exclusively used in the service of the Port Arthur city council for haulage purposes.

The Port Arthur and Fort William Electric Ry., has received four 49 ft. pay-as-you-enter cars from the Preston Car and Coach Co., Preston, Ont. Two of these cars are for Port Arthur and two for Fort William, and they are, in each case, similar to those already supplied, and of which we have previously given particulars.

The Quebec Ry., Light and Power Co. operates an observation car over its city lines at a fare of 25c. per passenger. A complaint was made alleging that the company was only allowed to charge 5c. fare. The company's case was that if the fare for the trip was collected in the ordinary way it would equal 25c. The case was dismissed.

Suit has been entered in the Ontario courts, by J. M. Dixon, Edmonton, Alta., and S. M. Coulter, Toronto, to recover from W. G. Trethewey, Toronto, $176,000, alleged to be due for securing a street railway franchise in Edmonton, for which, it is claimed, the defendant agreed to give a share in certain northwest lands, which he had failed to do.

An action brought against the Windsor and Tecumseh Electric Ry. and its directors collectively by G. E. Thomas, for $5,500 damages, was dismissed at the recent assizes at Sandwich, Ont. The directors entered into a contract with G. E. Thomas for overhead work, but the shareholders refused to ratify it, and Mr. Thomas thereupon sued for the amount stated as damages.

A special investigation having shown considerable dishonest practices by some employes of the Hull Electric Co., which operates an electric railway between Ottawa and Aylmer, Que., it has been found necessary to add to the protective features of the fare boxes, and a device invented by the General Superintendent, G. Gordon Gale, for which it is claimed that the fare box door is fastened in such a way that it is impossible to open it without detection, is being tried.

At the suggestion of the Selkirk, Man., board of trade, it has been decided to form a commission composed of representatives from the Selkirk town council, and the councils of the rural municipalities of Kildonan, St. Andrews and St. Anne's, for the purpose of watching the railways operating within their boundaries, and generally to deal with railway matters affecting the several municipalities. The Secretary of the board of trade has been asked to become secretary of the special body.

The steel pay-as-you-enter cars, floor plan of which is given on this page, and which the Montreal St. Ry. is adding to its equipment were described in our Aug. issue, pg. 681. We have since received the following additional particulars:—Length over bunters, 46 ft. 5 in., over vestibules, 45 ft. 5 in.; body, 31 ft. 11 ins.; length of front vestibule, 5 ft. 4 ins., of rear platform, 7½ ft.; width over rubbing strips, 8 ft. 3½ ins.; over side panelling, 8 ft. 2½ ins.; interior finish, cherry; seats, non-reversible, upholstered in rattan; trimmings, solid bronze and polished.

The number of injuries to persons and loss of life by street car accidents is being considered by the City Engineer of Montreal. He is devoting a good deal of attention to the subject, and says he hopes to be able to design something in the way of a shield which will have the effect of protecting the whole front of the car. The principal difficulty in the way of doing anything effective is the snow in winter. The Quebec Public Utilities Commission has had the matter under consideration and a return is being prepared showing the number of such accidents, as far as possible, as have occurred.

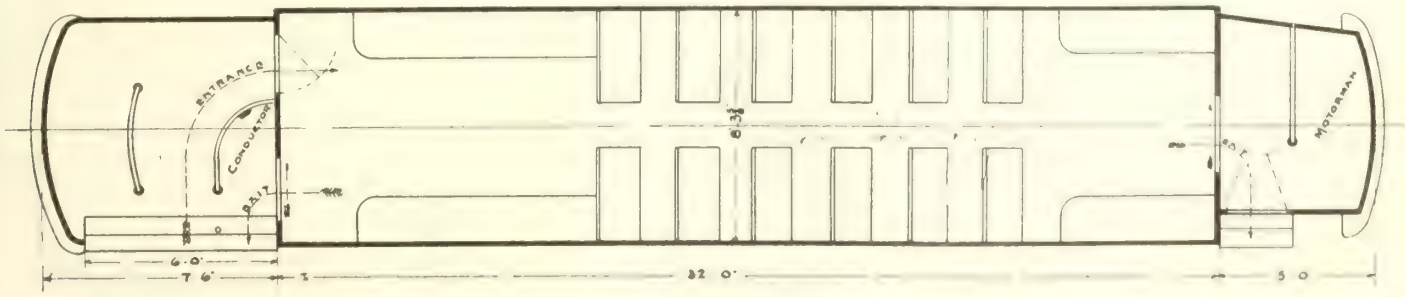
The Judicial Committee of the Privy Council has granted the city of Montreal special leave to appeal from the judgment of the Supreme Court of Canada, on the question of the jurisdiction of the Board of Railway Commissioners over the Montreal St. Ry.'s through traffic with the Montreal Park and Island Ry. The decision referred to reversed an order of the Board of Railway Commissioners, directing the Montreal St. Ry. to enter into any agreement necessary for the carrying out of the Board's order on the Montreal Park and Island Ry., to grant certain special facilities to residents of the district through which it operates.

The British Columbia Electric Ry. put in force on the Vancouver-New Westminster and the Eburne and Steveston lines on Aug. 1, the card system of car dispatching. As soon as the regular service to Chilliwack has been started the new system of dispatching will be put in force on that line also. The system was inaugurated by Trainmaster W. H. Elson, and is being operated by E. S. Sterling, Chief Dispatcher, and J. Masters, L. Grimmer, —. Frizzel, E. Miller and —. Higgins, dispatchers. The dispatching office is at present at the car barns, but it will be located in the headquarter office when the new building is completed.

N. C. Pilcher, Manager of the Port Arthur and Fort William Electric Ry., has resigned, the resignation taking effect Aug. 15. The commission offered an increase of $500 a year in order to retain his services, but Mr. Pilcher declined to consider it. He has been appointed Manager of the Sherbrooke Ry. and Power Co., Sherbrooke, Que.

G. McPhillips, Civil Engineer, says he is the only surviving official of the first electric railway in Canada, and the second on the American continent. It was, he says, built in 1885, and ran from the G.T.R. bridge at Walkerville, to Windsor, Ont., on wooden rails, trimmed with iron straps. The project was abandoned, but he says the poles and wire arms stood on Sandwich St., Windsor, until 1892.

The Berlin and Waterloo St. Ry. Co. has been denied by the Judicial Committee of the Privy Council, special leave to appeal from a judgment of the Supreme Court of Canada, in its case against the town of Berlin, Ont., as to the basis on which the street railway was to be valued when taken over by the municipality. The arbitrators in their award valued the railway as being a railway in use and capable of being used as a street railway, and did not allow anything for any privilege or franchise. The petitioner contended that the valuation should have been on the net earnings. The decision of the arbitrators was originally upheld by the Ontario High Court, reversed by the Ontario Court of Appeal, and the original award of the arbitrators was later restored by the Supreme Court of Canada.



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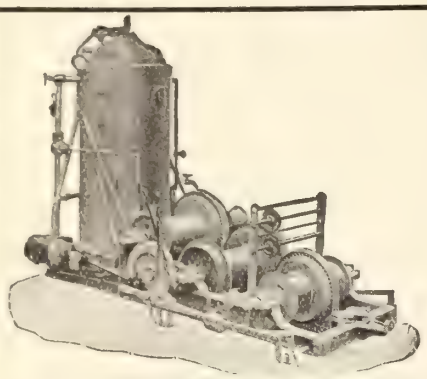

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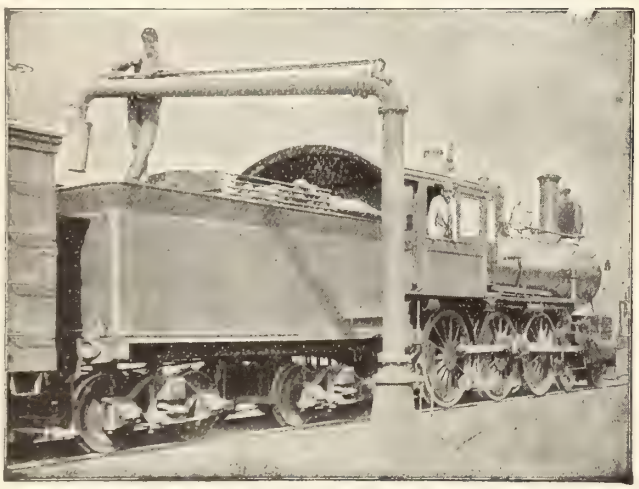

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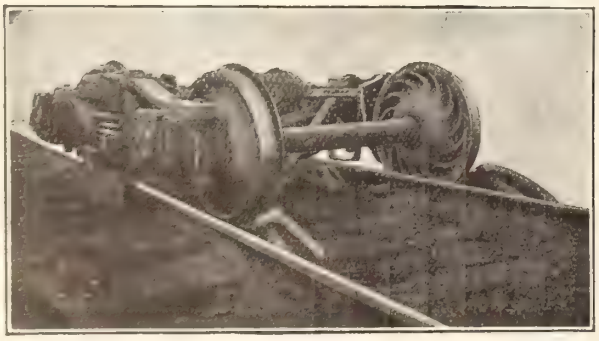

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Cassandra-Advance Investigation.

The following judgment has been delivered by Capt. L. A. Demers, acting Wreck Commissioner, concurred in by F. Nash and F. Hamelin, in the complaint of the captain of the Donaldson Line s.s. Cassandra, against the captain of the Montreal Transportation Co.'s steamboat Advance, for a violation of the rules of navigation within the port of Montreal, on June 13.

The court is of opinion that, firstly, the master of the Advance having taken a pilot on board, should have, in an occasion of the kind, accepted his suggestion to await the passing of the Cassandra, the in-coming vessel, before making any attempt to proceed. Admitting that the pilot's suggestion was not agreeable to the master who is the responsible man, and notwithstanding his statement that there was danger in taking the proper side of the channel to go down the river, as the current might have thrown the vessel across the bow of the Cassandra, the court claims that such a procedure should have been adopted, as by the rules of the road, the Cassandra having a red light on her starboard bow, it was her duty to keep out of the way by either porting, stopping or reversing. It may be presumed that during the outburst of temper which the master showed when he pushed the pilot away from his post, he may have forgotten the orders he gave subsequently, and the court accepts the evidence of the Cassandra witnesses, corroborated by the pilot of the Advance, against the statement made by the master of the Advance. Though, at no time, was a collision very imminent, the avoidance was due only to the precautionary measures taken by those on the Cassandra. The rules for the narrow channels and rivers are, that ships should take the right side of the channel, which rules were not complied with by the captain of the Advance, and no matter what were his intentions, or his fears about adopting certain ways, or following the instructions of the pilot, he should have observed the regulations, or awaited the passage of the Cassandra, either by going to the wharf, or stopping or backing his vessel, or returning to the place he had left. Such course could easily have been adopted, as he was out of the current in still water, there being no wind to affect his vessel, therefore the court concludes that the complaints of the pilot and master of the Cassandra, as well as those of the pilot of the Advance, are well founded, and that such action on the part of any master or officers of vessels cannot be countenanced or overlooked, the safety of traffic in the port of Montreal, or anywhere else must be assured. In view of the fact that there was no delay nor damage to the Cassandra, the court has no power to inflict a fine, but severely reprimands the master of the Advance for contravening the rules framed for the protection of traffic in harbors and rivers, and also warns him as well as others, that in the future, for any attempt to disregard the existing laws, the certificates of the offending parties will be dealt with.

The Minto-Rosalind Collision.

The collision between the Dominion Government s.s. Minto and the s.s. Rosalind, at Charlottetown, P.E.I., May 24, has been investigated by W. R. Lugar, acting Wreck Commissioner, with A. Brown, Master Mariner, and J. White, harbormaster. Following is their judgment:—

The Rosalind was lying at Peake's wharf no. 2, on May 24, and was moored on the east side, but projecting from the wharf about 70 ft. The s.s. Minto was coming up the harbor to take up her usual berth at the Marine Department wharf, lying eastward of the Rosalind. The tide was nearly at half ebb, with a fresh breeze blowing from the southwest. The weather was clear and the time about 1.30 p.m. The master of the Minto was endeavoring to get his vessel into her usual berth and under estimated the strength and set of the tide, which formed an eddy round the stern of the Rosalind, thereby causing the Minto to set towards the former vessel, damaging her own boats, davits, rails and stanchions; and also the teak quarter rail stanchions, flag staff, awning spars and after davit standard of the Rosalind. Taking into consideration the careful manner Capt. Finlayson has always navigated the Minto, and the manner in which he endeavored to minimize the collision, we do not consider it a case for dealing with his certificate, but consider it necessary to warn him to be more cautious when coming into the harbor, and finding vessels projecting from the wharf beyond the ordinary custom of this port, and to give them a wider berth.

Stranding of the s. s. Aeota.

The judgment of the court, consisting of Capt. L. A. Demers, acting Wreck Commissioner, assisted by J. Bain and N. MacLeod, as assessors, in the matter of the grounding of the s.s. Aeota, recently, was as follows:—

That in view of the fact that the vessel was being navigated in what may be termed foreign waters to the master, he was guilty of a grave error of judgment, when having only an approximate position at Cape Magdalen, he attempted to steer a course more southerly, which was in truth, too fine, under the existing atmospheric conditions. The court is of opinion that when the approximate distance was found at Cape Magdalen, a course should have been taken, keeping some distance from the land, and when the distance from Magdalen to Martin River had been made, it holds that as a precautionary measure, the master should have stopped the vessel and awaited the lifting of the fog. It has been shown that he failed to take into consideration the influence of the current, the tide being at ebb, which had a tendency to throw the vessel towards the land, which effect was all the more pronounced owing to the slow speed, and as she was headed in a southerly direction. The court therefore censures the Master for his lack of adequate caution in the navigation of his vessel under the conditions which led up to the stranding.

Steamboat John Hanlan Collision.

Capt. L. A. Demers, acting Wreck Commissioner, assisted by J. B. Foote and G. C. Holloway as assessors, recently held an investigation into the collision of the Toronto Ferry Co.'s steamboat John Hanlan, with a gasolene launch in Toronto bay, whereby two lives were lost. The following judgment was delivered:—

The court finds that the captain of the ferry steamboat, indirectly contributed to the collision by not blowing a whistle of warning, and by not keeping a proper lookout on board, which is necessary at all times, especially in Toronto bay, where there is a number of small craft; also by not having launched a boat and taking all necessary measures to assure himself that a rescue was impossible, and by showing an ignorance of the working of his propellor, and the action of it on his vessel when going full speed astern; and for these reasons, the court has no option but to condemn Capt. Joyce and suspend his certificate for three months, from July 28 to Oct. 28, and in the meantime the court orders the captain to submit to an examination as to his hearing and sight, and if an unfavorable report is received, his certificate will be retained and cancelled. The examination to be undergone before Capt. Moller the examiner for Toronto district. Regarding the gasolene launch, the court is of opinion that it was navigated in a careless manner, and considers it would fail in its duty if it did not bring to the attention of the proper authorities, the necessity of making stringent regulations for the operation of small pleasure craft on Toronto bay, and is under the impression that such pleasure craft should at no time interfere with the traffic carried on in the bay, and should all carry the regulation lights, placed in such a position that there should be no convergence of the lights, that is to say, that one light should be seen across the other bow, but this is a suggestion only, as the court has no power to order it.

Since the foregoing judgment was delivered, the Ontario Attorney-General took action against Capt. Joyce of the steamboat John Hanlan, and the two men who operated the launch, under sec. 284 of the Criminal Code, to which special reference was made in our last issue. Later, the proceedings against Capt. Joyce were dropped.

Notices to Mariners.

The Department of Marine has issued the following:

69. July 22.—192. Quebec, Ottawa river, Lake of Two Mountains, Ile aux Tourtes, buoy established. 193. Ontario, River St. Lawrence, Thousand Islands, light established on island south of Bridge island.

70. July 25.—194. Nova Scotia, Scatari island, north east point, change in characteristic of fog alarm. 195. Nova Scotia, Cape Breton island, east coast, Flint island, characteristic of fog alarm. 196. Prince Edward Island, north coast, Savage harbor, change in position of range lights. 197. Prince Edward Island, north coast, North Rustico, new range lights.

71. July 26.—198. British Columbia, Triangle island, Ikeda bay, and Prince Rupert harbor, wireless telegraph stations established. 199. British Columbia, Vancouver island, west coast, Nootka sound, Friendly cove, proposed lighthouse. 200. British Columbia, Vancouver island, Scott islands, Triangle island, lighthouse building.

72. July 27.—201. British Columbia, Vancouver island, [illegible] Village channel, off Stockham island, beacon established. 202. British Columbia, Chatham Sound, Tree bluff (Jap point), buoy established.

73. July 29.—203. Ontario, River St. Lawrence, Aultsville, buoys established. 204. Ontario, River St. Lawrence, Cole shoal, intended change in position of gas buoy.

74. Aug. 2.—205. Quebec, River St. Lawrence, ship channel between Quebec and Montreal, Montreal harbor, change in position of Hochelaga range lights.

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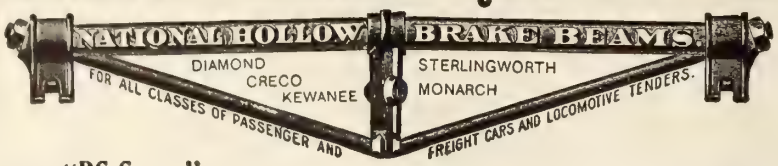

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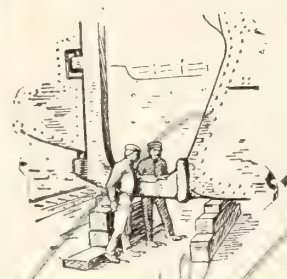

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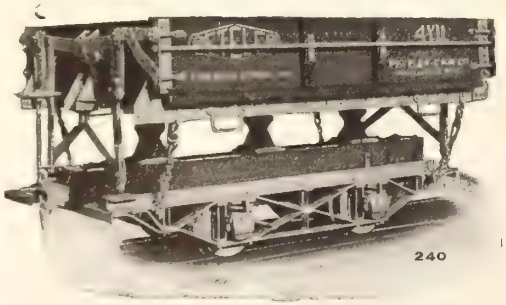

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75. Aug. 2.—206. Ontario, River St. Lawrence, Jackass shoal, gas buoy established. 207. Ontario, Georgian bay, Parry Sound approach, south channel eastward of Parry island, Five Mile narrows, channel to be closed to navigation while dredging is in progress.

76. Aug. 4.—208. New Brunswick, south coast, Bay of Fundy, St. Andrews harbor, western entrance, buoys established. 209. New Brunswick, Restigouche river, Campbellton, back range lighthouse burnt down, temporary light.

77. Aug. 8.—210. Nova Scotia, Bay of Fundy, Lurcher shoal, lightship to be removed from her station temporarily for repairs.

78. Aug. 9.—211. Nova Scotia, Halifax harbor, Richmond depot wharf enlarged, hydrographic notes. 212. New Brunswick, east coast, Kouchibouguac bay, Kouchibouguac river, range lights temporarily discontinued.

79. Aug. 10.—213. Quebec, Saguenay river, Chicoutimi, temporary light. 214. Quebec, River St. Lawrence below Quebec, Goose island reef, gas buoy established. 215. Quebec, River St. Lawrence below Quebec, off Beauport wharf, buoys established.

80. Aug. 11.—216. Ontario, Georgian Bay, Parry Sound approach, south channel eastward of Parry island, Two Mile narrows, dredging in progress, channel closed to navigation. 217. United States of America, Lake Superior. Split rock, light and fog signal to be established.

81. Aug. 15.—218. Nova Scotia, west coast, St. Mary bay, off southern entrance to Grand Passage, whistling buoy established. 219. Nova Scotia, south coast, off entrance to Torbay, whistling buoy established. 220. Newfoundland, south coast, Cape Freels, fog alarm to be established.

The names of the barges Aberdeen and Ivy, have been changed by orders in council, to Gladys H. and Donald D., respectively.

Atlantic and Pacific Ocean Marine.

Capt. Cooper, R.N.R., of the C.P.R. s.s Empress of China, has been awarded a medal for long service in the Royal Naval Reserve.

The Elder Dempster Co.'s s.s. Benin, which arrived in Montreal Aug. 15, from England, has been placed on the Montreal-Mexico route.

The Canada Line's s.s. Prinz Oskar, which was recently damaged in the St. Lawrence channel, and which has been repaired at Quebec, sailed for Hamburg Aug. 16.

A. Piers, Manager C.P.R. Steamship Lines, Liverpool, Eng., was in Montreal early in August, on his annual consultation trip in relation to the company's winter schedule.

The s.s Aeota, which ran aground recently, near Martin River, has been temporarily repaired at Quebec to enable her to proceed to England, where complete repairs will be undertaken.

The shipliners at Montreal have applied for the appointment of a board of conciliation, to investigate their demands on the shipping companies for increased wages.

The Thomson Line commenced its autumn service between Mediterranean ports and Montreal, Aug. 25, by the sailing of the s.s. Bellona from Naples. The service will be continued as long as the St. Lawrence route is open for navigation.

The Canadian Northern Steamships' s.s. Royal Edward, which arrived at Quebec, Aug. 10, made a new land to land record on the Atlantic. The time taken was 3 days 15 hrs., or about 3 hrs. less than the previous record.

A bill has been introduced into the British House of Commons, making it compulsory that all vessels, British or foreign, which embark passengers at British ports, be equipped with a wireless telegraph installation, capable of transmitting 100 miles, with a penalty of £1,000 in the event of non-compliance.

The Government has renewed the mail subsidy contract with the Union Steamship Co., for service between Vancouver and Australia, for one year. Reports are current that the Government will shortly call for tenders for a five year contract for this service, and it is understood that there will be some keen competition.

Montreal press reports state that the preliminary investigation into the cause of the grounding of the s.s. Stigstad, at Cap a la Roche, will, in view of the fact that there have been other similar accidents this year at this point, lead to a more searching enquiry. It is also stated that some of the larger vessels will not navigate the channel at night, until it has been widened at Cap a la Roche.

The Canadian Mexican Pacific Steamship Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $500,000, to take over as a going concern, the business now carried on by T. H. Worsnop, as the Canadian Mexican Pacific Steamship Co.; to build, purchase and otherwise acquire and operate steam and other vessels; to acquire postal or other subsidies; to build and

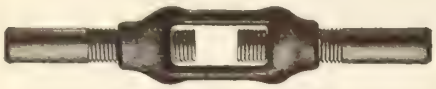
LIST OF STEAM VESSELS REGISTERED IN CANADA DURING JULY, 1910.

Name	No.	Where and When Built.	Engines, etc.	Length	Breadth	Depth	Gross Tons	Reg. Tons	Port of Registry	Owners
Ah See	126,518	Coal Island, B. C., 1910	Screw 15 n. h. p.	64.0	16.3	5.0	44	16	Victoria, B.C.	A. See, Coal Island, B.C.
Allege	126,456	Notre Dame de Pierreville, Que., 1910	" 2 "	69.0	15.9	3.2	73	50	Sorel, Que	I. Yargeau and C. Salvas, N D de Pierreville, Que.
Aylmer	122,279	Hamilton, Ont., 1908	" 1 "	50.0	9.5	4.0	12	8	Winnipeg	N. K. Luxton, Banff, Alta.
Bella Dona	130,281	Dunnville, Ont., 1910	" 1 "	59.2	22.0	3.2	57	48	St. Catharines, Ont.	C. Ross, Port Maitland, Ont.
Bully II	122,598	Indian Island, N.B., 1909	" 7½ "	29.5	7.4	6.6	6	6	St. Andrews, N.B	J. Mathews, Campobello, N.B.
Burin	126,895	Vancouver, B.C., 1910	" 4 "	65.0	16.8	7.2	45	30	Vancouver, B. C.	J. Hodder, Vancouver, B.C.
College Widow	126,519	Victoria, B.C., 1910	" 9½ "	54.2	15.2	7.5	46	23	Victoria, B.C.	E. Lanphere, Victoria, B.C.
Contrecoeur	126,459	Sorel, Que., 1910	" 48 "	83.3	22.7	8.9	174	74	Sorel, Que	Minister of Marine, Ottawa
E. C. Oggel	126,643	Grand Haven, Mich., 1874	" 3 "	53.0	13.0	7.5	26	17	Port Dover, Ont,	H. W. Ansley, Port Dover, Ont.
E. E. Frost	103,822	Buffalo, N.Y., 1885	" 4 "	38.0	11.4	5.0	13	9	Cornwall, Ont	J. J. Fallon, Cornwall, Ont.
Ella Mary	126,835	Toronto, 1910	" 9 "	66.0	11.7	6.1	42	25	Toronto	Polson Iron Works, Toronto
Evelyn E. F.	126,477	East Dover, N.S., 1910	" 1½ "	30.0	10.0	4.5	10	8	Halifax, N.S.	I. W. Fader, East Dover, N.S.
Francis Cutting	126,897	San Francisco, Cal., 1889	" 14 "	80.5	20.5	7.6	91	60	Vancouver, B.C.	D. G. Macdonell, Vancouver, B.C.
Geo. E. Young	126,060	Tobermory, Ont., 1909	" 1 "	42.0	10.0	3.6	12	8	Owen Sound, Ont.	G. E. Young, M.O., Tobermory, Ont.
Geo. H. Jones	130,221	Owen Sound, Ont., 1910	" 10 "	65.4	14.5	6.0	71	48	" "	D. Rumley and S. Robinson, Owen Sound, Ont.
Hiram Robinson	126,530	Sand Point, Ont., 1910	" 37 "	110.0	23.6	6.7	203	118	Ottawa	Upper Ottawa Improvement Co., Ottawa
Lotbiniere	126,458	Sorel, Que., 1903	" 46 "	78.5	23.2	7.8	146	17	Sorel, Que.	Minister of Marine, Ottawa
Montmagny	126,457	" " 1910	" 148 "	212.6	34.8	19.5	1269	723	" "	" " "
Renvoyle	126,836	Glasgow, Scotland, 1910	" 157 "	250.0	42.7	16.3	1830	1176	Toronto	Point Anne Quarries, Toronto
Resort	126,898	North Vancouver, B.C., 1910	" 2 "	45.2	11.8	5.4	23	16	Vancouver, B.C.	Sechelt Steamship Co., Vancouver, B.C.
S. and G.	126,775	St. Charles, N.B., 1908	" 5 "	33.0	11.2	4.3	10	10	Richibucto, N.B.	S. Gray, Richibucto, N.B.
Sylvalee	126,772	Richibucto, N.B., 1910	" 1 "	36.0	12.0	4.6	12	11	" "	J. Legoof, Richibucto N.B.
Thos. J. Drummond	126,863	Dumbarton, Scotland, 1910	" 216 "	247.8	43.7	22.8	2201	1164	Sault Ste. Marie, Ont.	Algoma Cent. & Hudson Bay Ry., Sault Ste. Marie, Ont
Trillium	126,833	Toronto, 1910	Paddle 48 "	150.0	30.0	7.2	673	463	Toronto	Toronto Ferry Co., Toronto
Wacouta	116,663	Peterboro, Ont., 1909	Screw 6 "	66.0	13.6	5.0	33	22	Lindsay	C. W. Burgoyne, Fenelon Falls, Ont.

LIST OF SAILING VESSELS AND BARGES REGISTERED IN CANADA DURING JULY, 1910.

Name	No.	Where and When Built	Rig	Length	Breadth	Depth	Reg. Tons	Port of Registry	Owners
Cynthia W.	126,714	U. S.	Dredge	114.3	48.3	7.8	679	St. John, N.B.	J. E. Moore and G. McAvity, St. John, N.B.
E. J. Fader, No. 4	126,785	New Westminster, B.C., 1909	Barge	74.4	30.0	6.8	149	New Westminster, B.C.	E. J. Fader, New Westminster, B.C.
George Groat	126,609	Chatham, N.B., 1910	"	112.0	26.3	6.0	116	Chatham, N.B.	J. B. Snowball Co., Chatham, N.B.
Ida O. Campbell	126,566	Shelburne, N.S., 1910	Schr.	47.5	14.3	6.3	19	Sydney, N.S.	Lingan Fishing Co., Lingan, N.S.
Mainland	126,608	Chatham, N.B., 1909	Barge	104.0	26.0	6.5	101	Chatham, N.B.	J. B. Snowball Co., Chatham, N.B.
Mary E. Spears	126,068	Whitehead, N. S., 1905 French River, P.E.I., 1910.	Schr.	35.7	12.1	5.4	10	Charlottetown, P.E.I.	D. Spears and W. Jost, French River, P.E.I.
Mayers, No. 1	126,787	New Westminster, B. C., 1910	Barge	86.2	28.0	7.2	133	New Westminster, B.C.	J. Mayers, New Westminster, B.C.
Pioneer No. 1	126,520	Chemainus, B.C., 1910	"	110.0	40.5	8.5	309	Victoria, B.C.	Victoria Lumber and M'f'g. Co., Chemainus, B.C.
Rowdy	126,816	Lunenburg, N.S., 1910	Sloop	24.6	7.8	3.6	4	Lunenburg, N.S.	H. Zwicker, Lunenburg, N.S.
Sanghe	126,069	River John, N.S., 1910	Schr.	42.0	13.7	4.9	13	Charlottetown, P.E.I.	T. A. McDonald, River John, N.S.
Seth Jr.	126,039	Liverpool, N.S., 1910	"	118.0	30.3	11.1	200	Liverpool, N.S.	W. W. Bartling, New York, N.Y.
Wawota	126,774	Point Sapin, N. B., 1903	"	30.5	9.9	4.8	11	Richibucto, N.B.	W. H. and W. R. Long, Richibucto, N.B.
Will W. Case	126,896	Rockland, Me.	Barge	141.1	31.7	10.0	591	Vancouver, B.C.	S. F. McKenzie, Vancouver, B.C.
Willetta	126,478	Sambro, N.S., 1910	Schr.	42.0	13.0	5.6	15	Halifax, N.S.	J. Gray, M.O., Sambro, N.S.
Zahra	126,834	South Boston, U.S., 1904	"	75.0	16.8	7.5	47	Toronto	E. Jarvis, Toronto

TURNBUCKLES



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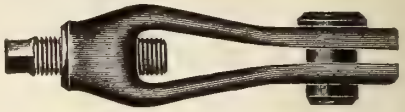

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own wharves, docks, etc., and to conduct a general navigation business.

Press reports state that the Merchants' and Shippers' Steamship Line is being organized in Australia, to operate a fast line of cargo steamships, with large refrigerator accommodation and large space for all classes of perishable goods, between Australia, Tasmania, New Zealand, United States, Canada and Great Britain. It is stated that the service will be started shortly with five vessels, maintaining regular monthly sailings. The line will, it is said, be managed by the Sydney Shipping and Mercantile Agency, of Sydney, New South Wales.

Maritime Provinces and Newfoundland.

The Nova Scotia Legislature has authorized the city of Dartmouth to issue $75,000 debentures for ferry purposes.

The Dominion Department of Public Works will receive to Sept. 12, tenders for building a one-yard dipper dredge for Prince Edward Island.

The Dominion Department of Public Works has recently awarded dredging contracts in Miramichi Bay to W. J. Poupore, Montreal, and A. and R. Loggie, Loggieville, N.B., the amount of each contract being $100,000.

The Sydney Ship Chandlery Co. Ltd., has been incorporated by the Nova Scotia Legislature, with a capital of $10,000, and office at Sydney, the provisional directors being: J. Murphy, Louisburg; C. E. Morris and J. McNamara, Sydney, N. S.

Bowring Bros. are reported to have in contemplation the building of an additional steamship to run on the St. John's and New York route, in conjunction with the s.s. Florizel. The estimated cost of the proposed new vessel is reported as $400,000.

The Atlantic Fisheries Co. Ltd., of Lunenburg, N. S., has amalgamated with the C. Robin Colas Co., Ltd., and A. G. Jones & Co., of Halifax, and will conduct business under the name of Robin, Jones and Whitman, Ltd. The steamship agencies heretofore carried on by A. G. Jones and Co., will be continued under the old name.

The Newfoundland Steam Whaling Co.'s s.s. Sobraon has been sold to a Norwegian firm. She was built at Sunderland, Eng., in 1889, her dimensions being, length, 286.3 ft., breadth 41 ft., depth 26.4 ft., tonnage, 2,385 gross, 1,541 register. Her equipment includes triple expansion engines with cylinders 23½, 39 and 64 ins. diar., by 42 ins. stroke, having 278 n.h.p. The price paid is stated to have been £8,250.

The city of Sydney has been authorized by the Nova Scotia Legislature, to borrow $50,000 for the acquirement of a site for a ship-building plant, dry dock and ship repairing works, or either of them, and to provide annually out of the rates, sufficient to pay 1½% on the cost of the plant, not exceeding $1,500,000, for 20 years. The act is not to take effect until it has been formally adopted by the ratepayers in accordance with the provisions of the city charter and amending acts.

The s.s. Scotsburn, which has been built at Mahone Bay, N.S., for the Halifax and Glace Bay Steamship Co., was recently towed to Halifax, where her engine and boiler will be installed. When completed, the vessel will be operated over the Halifax-Cape Breton route, making calls at Sydney, North Sydney, Glace Bay, Port Morien, Main-a-Dieu, Louisburg, Gabarus and Fourche, by way of Bras d'Or, on alternate trips. She is 121 ft. long, 23 ft. beam, with 9 ft. hold, and has accommodation for about fifty passengers.

The following changes have been made in the port charges at St. Pierre, Miquelon: French or foreign vessels, over 25 tons register, engaged in fishing or any kind of navigation, $2.50 a ton a year; vessels over 25 tons register, entering for shelter and not landing merchandise, importing fresh fish only, 50c. a ton a year; vessels up to and including 25 tons register, foreign going coasters, or fishermen, fitted out in the colony, vessels importing coal or bait, free; the acts of 1906, 1907 and 1909, relating to port charges have been repealed.

Constant and Hawthorne of Montreal, acting for European clients, have written the Sydney, N.S., city council, offering to locate a dry dock, and ship building and repairing plant there, provided the city grant a bonus of $350,000 and free site The matter will be taken up by the ratepayers on the recommendation of the council. The plans presented cover the construction of a berth for building vessels up to 300 ft. long; engine shop; working plant; floating dock of the second class section steel pontoon type, capable of accommodating a vessel of 15,000 tons register, and a marine slip capable of handling vessels of about 5,000 tons.

Province of Quebec Marine.

L. C. Webster and W. Dobell have been elected members of the Quebec Harbor Commission.

The dredging of the St. Charles River, for the improvement of its navigation, was commenced Aug. 15.

Capt. L. A. Demers, Wreck Commissioner, left Ottawa Aug. 12 for a trip of inspection, and examination of the St. Lawrence pilots.

The Maisonneuve town council has passed a bylaw granting exemption from taxation, for 20 years, to the Vickers, Son and Maxim interests, for their proposed ship-building, repairing and dry dock plant at Molson's Creek.

The s.s. Crown of Aragon, which was chartered by the Dominion Iron and Steel Co., has been seized on a claim for $10,000 by the Canadian Electric Light Co., for damage alleged to have been caused to its cable between Quebec and Levis.

The Montreal harbor revenue for July was $56,456, against $54,073 for July 1909, and from the opening of navigation, the revenue was $169,296, against $142,128, for the same period 1909. There was a considerable decrease in the receipts from local traffic.

The Dominion Department of Public Works has awarded contracts for dredging at Montmagny, to L. Cohen and Son, Montreal, and for the construction of a breakwater at Matane, to N. Trudel. The dredging contract totals $8,000 and the breakwater $5,500.

W. J. Thompson, Manager Quebec and Levis Ferry Co., was sentenced by the Superior Court, Quebec, Aug. 5, to 48 hours imprisonment, and the company was fined $50 for contempt of court, in connection with the litigation proceedings between the Quebec and Levis Ferry Co., and the Levis Ferry, Ltd.

Press reports from Quebec, Aug. 8, stated that following an agreement, which has been reached between the rival ferry companies, the warrant issued by the Admiralty Court for the steamboat Lauzon, has been dropped, and a settlement reached by the Levis Ferry Ltd., paying the Quebec and Levis Ferry Co., $500.

The Montreal Harbor Commissioners are reported to have decided to erect a new office building for their traffic and elevator staffs, opposite the Jacques Cartier pier. It is stated that the building will be two stories, costing about $10,000, and that it will be ready for occupation by the opening of navigation next year.

The St. Lawrence Bridge Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $500,000, and office at Montreal, to carry on a bridge building business, and in connection therewith, to own and operate steam and other vessels, and to engage in contracts for engineering and other works involving the use of same.

G. W. Stephens, Chairman Montreal Harbor Commissioners, in a recent interview, is reported to have said, in regard to the proposed construction of a dry dock at Montreal, that while nothing had been settled definitely, there was a probability that a dock would be established there before next season was over. The Government is still considerign the question of a subsidy.

Donald Fraser and Sons, Ltd., has been incorporated by the Quebec Legislature, with office at Cabano, with power, among other things, to own and operate steam and other vessels, to carry on a general navigation business, and to erect telegraph lines in Temiscouata, Kamouraska and Rimouski counties. The provisional directors are D. and A. Fraser, D. Fraser, Jr., W. Matheson and A. Brebner.

The Quebec city council has approved the ferry committee's report respecting the protest recently made against the vessels and service of the Levis Ferry, Ltd., by the Quebec and Levis Ferry Co., which formerly had the contract for operating the ferry between Quebec and Levis, and recommended that the former company be notified that it must conform to the contract or it will be annulled. It is stated that if the Levis Ferry, Ltd., is compelled to conform to the contract immediately, new boats will have to be acquired, as the present ones are not paddle wheel steamers, for which the contract calls.

Ontario and the Great Lakes.

Moore and Fraser, Port Stanley, are reported to have purchased the steam tug Prodigy at Cleveland, O., for fishing purposes.

The Dominion Department of Public Works will receive tenders to Sept. 12 for the construction of an extension to the north wharf at Pelee Island.

The Dominion Department of Public Works received tenders, Aug. 31, for the construction of a breakwater at Bare Point, Port Arthur.

The steamboat Ossifrage, which grounded in the Thames River, near Chatham, Aug. 11, was released Aug. 15. The damage sustained is said to be small.

The steamboat, D. A. Gordon, which recently arrived on the Great Lakes, from England, was recently reported ashore on Parisian Island, Whitefish bay, Lake Superior.

The Dominion Department of Public Works will receive to Sept. 13, tenders for the construction of an extension to the breakwater in Colpoy's bay at Wiarton.

F. S. Wiley, Port Arthur, is reported to have purchased the Pittsburgh Steamship Co.'s steamboat J. B. Trevor, which was wrecked last fall on Isle Royale.

The Department of Railways and Canals recently received tenders for placing stone protection on the summit level, and for straightening the channel at head of lock 2, on the Welland Canal.

The Minister of Marine and the Minister of Public Works left Brockville, Aug. 4, on the Government steamboat Simcoe, for an inspection trip of the harbors and rivers of the Great Lakes.

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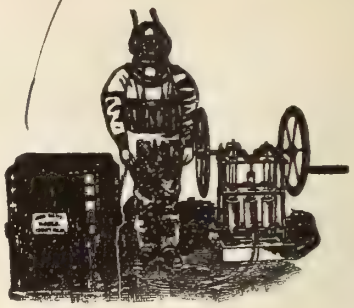

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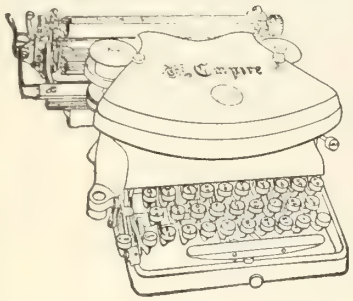

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Forwarders Ltd., incorporated under the Dominion Companies Act, with office at Kingston, Ont., has been licensed to carry on business in Ontario, with A. McLelland, Kingston, as its attorney.

Press reports state that a Government life saving station will be established shortly at Point Pelee. It is stated that the equipment will include a steel motor boat.

Capt. J. Whiteside, of the Merchants Mutual Steamship Co.'s steamboat Acadia, was killed at Port Arthur, Aug. 4, by the breaking of a derrick boom, while he was superintending the unloading of the vessel.

The damage caused by the carrying away of the gates at lock 17 on the Cornwall canal recently, has been estimated at $12,000, including the damage to the steamboat Phœnix, and to the Canada Cotton Co.'s property and stock.

The steamboat H. M. Pellatt, in tow from Buffalo to Ashtabula, was run down by the Marquette and Bessemer car ferry 15, bound from Conneaut to Port Stanley, Ont., damaging her considerably. She has been docked at Cleveland for repairs.

The Windsor, Ont., steamboat City of Dresden, was seized Aug. 6, and fined by U.S. Customs officials, for violation of the customs laws, in landing a cargo at Sandusky, Ohio, from Rondeau, Ont., without first obtaining permission.

The Northern Navigation Co.'s s.s. Hamonic is reported to have created a record for the 289 miles of the Sault to Port Arthur run, doing the journey in 15 hrs. 30 mins. The previous best is stated to have been the C.P.R. s.s. Keewatin, in 16 hrs. 50 mins.

The St. Lawrence and Chicago Steam Navigation Co.'s s.s. E. B. Osler, ran aground in the St. Clair River, near Port Huron, Aug. 15, during a fog, and was released, apparently without damage, after having a portion of her cargo of coal lightered.

A press report states that new concrete wharves have been built at Sand Point and Arnprior, Ont., on the Ottawa River, that it is proposed to build a similar wharf at Norway Bay, Que., and that steamboats will be put on to serve these places. The reports state that Mackenzie, Mann & Co. are interested.

The Niagara, St. Catharines and Toronto Navigation Co. is in the market for a steel steamboat, about 200 ft. long, for the Toronto and Port Dalhousie route, and also for new boilers for the steamboat Garden City, to be installed during the winter. Particulars will be supplied by E. F. Seixas, General Manager, St. Catharines.

H. Sutherland, Executive Agent Canadian Northern Ry., Winnipeg, was in Port Arthur early in August, when he inspected the coal and ore docks there. He is reported to have stated that the accommodation there would have to be largely increased, but that nothing could be decided until the matter had been submitted to the directors.

The U. S. Lake Survey reports the levels of the Great Lakes for July, in feet above tidewater, as follows: Superior, 601.89; Michigan and Huron, 580.50; Erie, 572.35; Ontario, 246.29. Compared with the average July levels for the past 10 years, Superior was 0.92 ft. below; Michigan and Huron, 0.72 ft. below; Erie 0.52 ft. below, and Ontario 0.53 ft. below.

The Jaques Transportation Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $250,000, and office at Ottawa, to build, purchase and otherwise acquire and operate steam and other vessels; to conduct salvage operations, and to construct wharves, piers, docks, etc. The provisional directors are: C. A. Jaques, R. Bickerdike and A. M. Jaques, Montreal; J. H. Hall, Ottawa, and W. S. Hall, L'Orignal, Ont.

This company has been incorporated to take over the steamship C. A. Jaques, a description of which was given in our Aug. issue. She will be run in the freight trade between Montreal and Fort William and Port Arthur, under the management of the Merchants Mutual Line. The officers and directors of the company are:—President, R. Bickerdike; Vice President, J. H. Hall; Managing Director, C. A. Jaques; Secretary Treasurer, A. M. Jaques; other director, W. S. Hall.

The Detroit and Owen Sound Summer Resort Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $100,000 and office at Owen Sound, to conduct a summer resort in Sarawak township, Ont., and in connection therewith, to own and operate steam and other vessels, and to carry on a general transportation business by water. The provisional directors are: I. N. Aldrich, Detroit, Mich.; B. Worley, F. H. Wheeler, Chicago, Ill.; E. Lemon and C. A. Fleming, Owen Sound, Ont.

The Toronto board of control has decided to provide a 20 ft. channel through the bay, and to build a dock at Ashbridge bay, at an estimated cost of about $200,000. The dock will be 250 ft. wide by 600 ft. long, with composite wood and concrete substructure, and concrete above the water line. Freight sheds 500 ft. long by 30 ft. wide, by 14 ft. high, will also be erected. This is stated to be the first step of an extensive scheme of improvement, which the city will undertake.

Polson Iron Works, Ltd., has just completed a steam yacht for J. F. Kuhn, Pittsburgh, Pa. It has been named Ella Mary, and is a screw-driven vessel, with engine of 9 n.h.p., and has dimensions, length, 66 ft.; breadth, 11.7 ft.; depth, 6.1 ft.; tonnage, 42 gross, 25 register.

The Upper Ottawa Improvement Co., has added another vessel to its fleet. The Hiram Robinson was built this year at Sand Point, Ont., and is a screw driven vessel, with engine of 37 n.h.p.. Her dimensions are, length 110 ft.; breadth 23.6 ft.; depth 6.7 ft.; tonnage, 203 gross, 118 register.

A Belleville press dispatch says:—The Ontario and Quebec Steamship Co. has been formed by Hepburn & Co., of Picton, and the owners of the steamboats Brockville, Aletha and Varuna. The company will build a new steamer, to cost $130,000, which will be run in connection with the Alexandria on the Montreal route.

The Pointe Ann Quarries Ltd., has registered its steamboat Renvoyle, at Toronto. Some details of this vessel were given in a recent issue. The following are her dimensions; length, 250 ft.; breadth, 42.7 ft.; depth, 16.3 ft.; tonnage, 1830 gross 1176 register. She is a screw-driven vessel, with engine of 157 n.h.p.

The Western Dry Docks Co., Port Arthur, has placed orders for one large plate shear, one bending roll, one angle shear, one lathe and one drill, with the John Bertram and Sons Co., Dundas, Ont.; for electrical equipment with the Canadian Westinghouse Co., Hamilton, Ont., and for pumping machinery with the John Inglis Co., Toronto.

The Porcupine Trading and Transportation Co., Ltd., has been taken over by A. Miller, of Haileybury, and will in future be operated as the Miller Porcupine Transportation Line. It is stated to be the intention to run a freight and passenger service between Kelso and Porcupine. The boats which were being operated on the Frederickhouse River are being overhauled for the passenger service. The freight boats are running to within six miles of Porcupine, where the freight is transferred to canoes.

A press report from Fort William, Aug. 15, states that following an informal conference between city officials and officials of the Northern Navigation Co., the following information was given out by the mayor:—"Things being equal, or nearly equal, the headquarters of the Northern Navigation Co. will be established in Fort William. Things not being equal, or nearly so, Fort William the business of the company will be transacted in Port Arthur, until conditions force the consolidation of all G.T.P.R. business in Fort William."

Capt. J. McGiffen, probably the best known captain on the Great Lakes, died at Toronto Aug. 19, aged 68. He had been in the Niagara Navigation Co.'s service for 23 years, having commanded, consecutively, the Chicora, Cibola, Chippewa and Cayuga, and being at the time of his death the senior captain and commodore of the fleet. Though he had been suffering from diabetes for a number of years, he was on duty up to with-

SAULT STE. MARIE CANALS TRAFFIC.

The following commerce passed through the Sault Ste. Marie Canals in July :

ARTICLES.				CANADIAN CANAL	U. S. CANAL	TOTAL
Copper	Eastbound		Net tons	553	17,862	18,415
Grain	"		Bushels	3,026,705	1,616,878	4,643,583
Building stone	"		Net tons		1,377	1,377
Flour	"		Barrels	283,712	590,068	873,780
Iron ore	"		Net tons	4,746,106	2,239,020	6,985,126
Pig iron	"		"		8,094	8,094
Lumber	"		M. ft. B.M.	2,014	97,635	99,649
Silver ore	"		Net tons			
Wheat	"		Bushels	2,991,193	1,141,422	4,132,615
General merchandise	"		Net tons	15,738	16,045	31,783
Passengers	"		Number	3,230	5,184	8,414
Coal, hard	Westbound		Net tons	29,590	142,810	172,400
Coal, soft	"		"	497,173	1,578,228	2,075,401
Flour	"		Barrels	100		100
Grain	"		Bushels			
Manufactured iron	"		Net tons	12,148	39,853	52,001
Iron ore	"		"			
Salt	"		Barrels	6,937	41,432	48,369
General merchandise	"		Net tons	77,962	85,597	163,559
Passengers	"		Number	4,560	5,114	9,674
Vessel passages			Number	1,062	2,180	3,242
Registered tonnage			Net	3,372,743	4,503,715	7,876,458
Freight	Eastbound		Net tons	4,940,006	2,570,230	7,510,236
"	Westbound		"	612,234	1,852,703	2,464,937
Total freight			"	5,552,240	4,422,933	9,975,173

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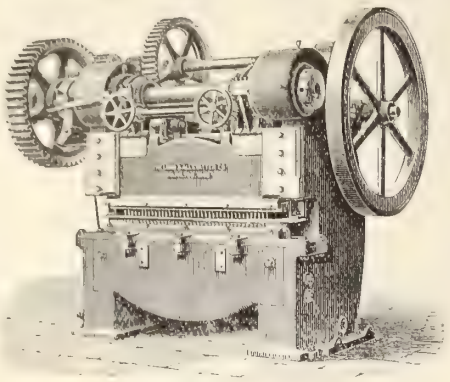

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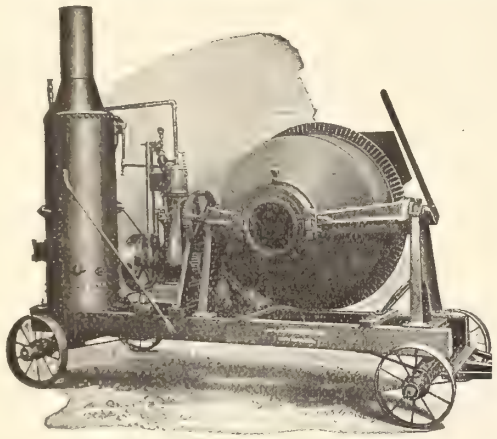

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in a few days of his death, when a comparatively trifling wound on a finger caused him to lay up. The funeral took place at Toronto Aug. 22. Capt. Sylvester, Capt. Crangle, Capt. Trowell, Capt. Jackson, F. Barlow Cumberland, Vice President Niagara Navigation Co., and B. W. Folger, General Manager Niagara Navigation Co., acting as pall bearers. Flowers were sent by the Niagara Navigation Co., Shipmasters' Association, officers of the Niagara Navigation Co.'s vessels, Niagara Gorge Rd., Hamilton Steamboat Co., Argyle Steamboat Co., and others.

Manitoba, Saskatchewan and Alberta.

The Winnipeg wharf committee, met Lt.-Col. W. P. Anderson, Chief Engineer of the Department of Marine, in Winnipeg recently, when matters relating to the establishment of Winnipeg as a public harbor, and the construction of wharves and other works, were discussed.

The Arctic Ice Co.'s steel steamboat, Amelia Mac, was launched at Winnipeg, late in August. Her dimensions are, length 70 ft.; beam, 16.6 ft.; draught, 4.6 ft. She is equipped with double compound engines with cylinders 7 and 14 ins., diar., by 10 ins. stroke, driving twin screws. This is claimed to be the first steel boat to be launched in Winnipeg.

A recent dispatch from Ottawa states that the reports received of the survey along the Saskatchewan River, in connection with the proposed opening of the waterway between Winnipeg and Edmonton, indicate that preliminary estimates will be ready by the next assembling of Parliament. It has been stated that the work can be done for about $15,000,000, exclusive of the construction of locks at Grand Falls.

The Peace River Trading and Navigation Co., is reported to have entered on a programme of improvement in that district, which will involve the expenditure of about $300,000. F. S. Lawrence, General Manager, who was in Winnepeg recently, stated the company had in contemplation, the building of a stern wheel steamboat, to run from Vermillion Falls to Hudson's Hope, B.C., about 500 miles, which latter point is only a short distance from Prince Rupert.

In our July issue, under this heading, we mentioned that the s.s. Mikado had arrived in Winnipeg from Selkirk, on June 10, and stated that it was said this was the first steamboat plying on Lake Winnipeg to go up to the city. It should have been stated that it was the first steamboat plying on Lake Winnipeg to go up to the city since the opening of the St. Andrew's lock and dam. The Hudson's Bay Co.'s steamboat Colville, which for many years plied on Lake Winnipeg, and prior to the advent of the railways, carried the company's supplies across the lake to Grand Portage, at the mouth of the Saskatchewan River, frequently went up to Winnipeg during high water periods.

B.C. and Pacific Coast Marine.

A ferry service was commenced between Ladner and Steveston, early in August, by the new steamboat New Delta, recently built at Vancouver.

The C.P.R. steamboat Kaleden, recently built for service on Okanagan Lake and River, has been put into service between Penticton and Okanagan Falls.

The Gulf Steamship and Trading Co., has inaugurated a steamboat service between Victoria and New Westminster. Two round trips are being made each week, the rates being the same as on the C.P.R. vessels.

Judgment was delivered Aug. 1, in the case of the collision of the C.P.R. Charmer and the s.s. Bermuda, which occurred some time ago. The Charmer has been held responsible for the accident, and condemned in damages, stay of execution being granted, pending an appeal.

The plans, which have been submitted for the construction of a ferry building at North Vancouver, provide for a building 132 by 26 ft., including winter and summer waiting rooms, board room, manager's and secretary's offices, etc. It will be arranged in one storey, and heated by hot water.

The Canadian Western Lumber Co., Ltd., with head office in Toronto, and which has power to own and operate steam and other vessels, and other means of transportation, has been licensed to carry on its business in British Columbia, with J. D. McCormack, Fraser Mills, as its attorney.

The West Coast Fishing and Curing Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $50,000, to conduct a general fishing and packing business, and in connection therewith to own and operate steam and other vessels, wharves, warehouses, etc.

The Northern British Columbia Development Co., Ltd., has been incorporated under the B. C. Companies Act, with a capital of $25,000, to carry on a general development business, and in connection therewith, to build, purchase or otherwise acquire and operate steam and other vessels.

It is reported that W. R. Grace and Co. will build four steamships for a service between British Columbia, Puget Sound, and other Pacific coast ports. The plans for the vessels show dimensions: —Length, 410 ft.; breadth, 52 ft.; depth, 22½ ft., with a dead weight capacity of 7,600 tons, and capable of a speed of 12 knots an hour.

The Balcom Steamship Co. is reported to have decided to operate a regular service between Victoria, Prince Rupert and Stewart. The company is, at present, running one steamboat under charter, and it is said, will charter another immediately, and expects to have two more vessels from England on the route in the spring.

The Progressive Towing Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $100,000, to take over the business now carried on by the Progressive Steamboat Co., Ltd., at Vancouver; to purchase or otherwise acquire and operate steam and other vessels, and conduct a general navigation business.

Press reports from Vancouver state that the second vessel which the C.P.R. has under construction in Scotland for the Pacific Coast service will be named Princess Mary. It was anticipated that she would be launched towards the end of Aug., and she is expected to be ready for service before the end of the year.

The North Arm Steamship Co., Ltd., has been incorporated under the B. C. Companies Act, with a capital of $25,000 to take over the business at present carried on on Burrard Inlet, under the name of the North Arm Steamship Co., and to build, purchase or otherwise acquire and operate steam and other vessels in the passenger and freight business.

The Sechelt Steamship Co.'s s.s Sechelt during a fog, Aug. 7, ran on the rocks near Prospect Point lighthouse, and sank. The passengers and crew were landed safely at the lighthouse. She was built at Pontiac, Wash., in 1893, and was formerly known as Hatty Hansen. Her dimensions were, length, 73 ft., breadth 15.2 ft.; depth, 7.4 ft.; tonnage, 105 gross, 71 register, and she was equipped with a 16 h.p. engine driving a screw.

The wharf constructed by the Provincial Government at Stewart, has been taken over by the Dominion Government, and arrangements are being made for the building of an approach to it, so that access can be had to it from the land side, at all times. Previously, it was only possible to reach it from the land side at low tide. It is reported that Mackenzie, Mann & Co., will shortly commence the construction of a private wharf at Stewart, in connection with the Portland Canal Short Line Ry.

The C.P.R. s.s. Princess May struck a reef at Sentinel Island, in the Lynn canal, Aug. 5, and eventually sank in deep water. Assistance was called for by wireless telegraph and several steam tugs were dispatched from Juneau, where the passengers and crew were safely landed. The Princess May, formerly Hating, was built at Newcastle, Eng., in 1888, and was purchased from the Chinese government in 1901. She was a screw driven vessel, with engine of 450 n.h.p. Her dimensions were: length, 249 ft.; breadth, 33.2 ft.; depth, 17.7 ft.; tonnage, 1,717 gross, 892 register.

Press reports from Vancouver, recently stated that a service between Vancouver and Fort George was about to be inaugurated, by rail, automobile and steamboat. The steamboat which will be used in the service is owned by the British Columbia Express Co., and is named B. X. She was built this year at Soda Creek, B.C., and is a paddle-wheel steamer, with engine of 27 n.h.p.. Her dimensions are: length, 127.5 ft.; breadth, 28 ft.; depth, 5.1 ft.; tonnage, 513 gross, 323 register. The headquarters of the company are at Ashcroft, and the boat will run between Soda Creek and Fort George, making three round trips each week. The complete journey from Vancouver to Fort George of 530 miles will be accomplished in 36 hrs., and the return journey in 30 hrs.

Welland and Georgian Bay Canal.

An Ottawa dispatch of Aug. 23 says: —The Department of Railways is having a survey made to determine the cost of enlarging the Welland Canal, and it is expected that before Parliament meets the work will be completed. A rough estimate fixed the cost of making a 21 ft. passage, at $50,000,000, which is about half what the Georgian Bay Canal is estimated to cost. However, it is pointed out that as the enlargement of the Welland Canal would have to be followed by the enlargement of the whole system of St. Lawrence Canals the cost of improving the Welland route might be greater than the Georgian Bay Canal. The company which wants to build the latter waterway, with generous Government aid, renewed its offer before the departure of Sir Wilfrid Laurier for the west. The Prime Minister has stated that both waterways will be developed as soon as the finances of the country warrant. However, one has to come first, and the survey which is now being made of the Welland will aid Parliament in deciding which.

Vessels Removed from the Register.—The following vessels were removed from the register during July, for the reasons assigned: Steam—Daughter of the Peaks, Kenora, Ont., nine tons, condemned; James Semple, Pictou, N. S., 63 tons, broken up; Sayona, 30 tons, sold to foreigners. Sailing—Acadian, Weymouth, N. S., 32 tons, sunk; Harold L. Berry, Charlottetown, P.E.I., 99 tons, wrecked; Havelock, Annapolis Royal, N. S., 198 tons, wrecked; Native of Foucher, Arichat, N. S., 16 tons, burnt; Reynard, Parrsboro, N. S., 560 tons, wrecked; St. Joseph, Quebec, Que., 115 tons, broken up.

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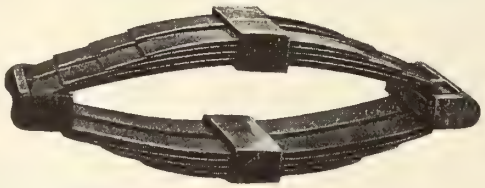

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The Water Carriage of Goods Act.

The Water Carriage of Goods Act, the text of which we published in our June issue, comes into force Sept. 1. Reports state that shipowners maintain that it makes them appear to be the insurers of the cargo, and that it will inevitably tend to raise rates to the detriment of the shipping trade. In this connection it may be as well to point out that clause 4 provides that any bill of lading containing a clause whereby the owner or charterer is relieved from liability for loss or damage arising from negligence in loading, custody or delivery, or the obligations to properly man, equip and supply the vessel, are lessened or avoided; or the obligations of the master, officers or agent to carefully handle, stow, care for and deliver goods, is lessened or avoided, such clause shall be null and void. Clauses 6 and 7 provide that neither the ship, owner, charterer nor agent shall be liable for loss or damage arising from faults or errors of navigation, or latent defect, nor for loss by fire, dangers of navigable waters, acts of God or public enemies, inherent defect, quality or vice of the thing carried, insufficiency of package, seizure under legal process, acts of omission by shipper, attempting to save life or property at sea, etc., if, in the first two cases mentioned, due diligence is exercised to have the ship in all respects, properly manned, equipped and supplied.

Beeson's Marine Directory of the North Western Lakes, has reached its 24th year of publication. The tabulated information is as complete as usual, and the illustrations are numerous. In the general information is given descriptions of the Canadian harbors on the Upper St. Lawrence River, and Great Lakes and Georgian Bay, compiled from official sources. The compilation of the information and its arrangement are personally attended to by H. C. Beeson, who started the publication, and he also is its publisher from his offices, 1340 Washington Boulevard, Chicago, Ill.

Capt. H. St. G. Lindsay has been appointed Examiner of Masters and Mates, vice Capt. L. A. Demers, appointpointed Wreck Commissioner.

Orders in council have been passed approving regulations for the governance of draw or swing bridges, other than railway bridges, and for the establishment and use of cable ferries, over and across navigable waters, and rescinding the orders in council, respecting same issued May 3.

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Canadian Westinghouse Co. Hamilton, Ont.

Ales
E. L. Drewry .....Winnipeg.

Alloys
American Vanadium Co....Pittsburg, Pa.

Angle Bars
Hamilton Steel & Iron Co..Hamilton, Ont.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.

Anti Rail Creepers
The Holden Co., Ltd.....Montreal.

Automobiles
Preston Car & Coach Co...Preston, Ont.

Axes
James Smart Mfg. Co.....Brockville, Ont.

Axles
Canadian Car & Foundry Co....Montreal
Hamilton S. & I. Co., Ltd., Hamilton, Ont.
James Hutton & Co. .....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Jas. W. Pyke & Co.....Montreal.

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Tallman Brass & Metal Co., Hamilton, Ont.

Beacons
International Marine Signal Co....Ottawa.

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Canadian Car & Foundry Co....Montreal.
Chicago Railway Equipment Co..Chicago.

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Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

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Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

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John Inglis Co., Ltd. .....Toronto.
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Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

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Canadian Ry. Equipment Co., Welland, Ont.

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Montreal Rolling Mills Co.....Montreal.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Toronto Bolt and Forging Co....Toronto.

Bolts, Carriage and Machine
Toronto Bolt and Forging Co....Toronto.

Bolts, Track
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Toronto Bolt and Forging Co....Toronto.

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John Bertram & Sons Co....Dundas, Ont.

Braces, Cross Arm
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.

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Canadian Car & Foundry Co....Montreal.
Chicago Railway Equipment Co..Chicago.

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Canada Iron Corporation, Ltd..Montreal.
The Holden Co., Ltd.....Montreal.

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Canada Iron Corporation, Ltd..Montreal.
Railway Materials Co. .....New York.

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Brasses, Car
T. McAvity & Sons .....St. John, N.B.

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Dominion Bridge Co.....Montreal.

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American Vanadium Co....Pittsburg, Pa.

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Brown Hoisting Machinery Co., Cleveland.
Williams & Wilson, Ltd .....Montreal.

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Dominion Bridge Co.....Montreal.

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Dominion Equip't & Supply Co..Winnipeg.
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McCord & Co. .....Chicago, Ill.

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Safety Car Heat. & Light. Co..New York.

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International Marine Signal Co....Ottawa.

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Mussens, Ltd. .....Montreal.

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Canadian Car & Foundry Co....Montreal.
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Hart-Otis Car Co., Ltd.....Montreal.
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The Males Co., ... Cincinnati, O.
Ottawa Car Co., Ltd.....Ottawa.
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Silliker Car Co., Ltd.....Halifax, N.S.

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Russel Wheel & Fdry Co...Detroit, Mich.

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Canada Iron Corporation, Ltd...Montreal.
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Lumen Bearing Co.....West Toronto, Ont.
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Tallman Brass & Metal Co., Ltd.Hamilton.

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Canada Iron Corporation, Ltd...Montreal.
Kerr Engine Co.....Walkerville, Ont.
Russel Wheel & Fdry.. Co..Detroit, Mich.

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Montreal Steel Works, Ltd.....Montreal.

Castings, Steel
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Mussens, Limited .....Montreal.

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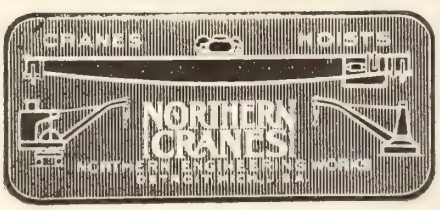

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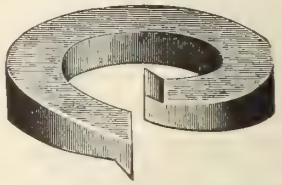

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Engines, Pumping
John Inglis Co., Ltd. .....Toronto.

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John Inglis Co., Ltd. .....Toronto.
I. Matheson & Co.....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

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Continental Iron Works....Brooklyn, N.Y.

Furnaces, Oil
Railway Materials Co. .....New York.

Furnaces, Shop
Railway Materials Co. .....New York.

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Standard Explosives Limited...Montreal.

Fuse Detonators
Standard Explosives Limited...Montreal.

Fuses, Electric
Standard Explosives Limited...Montreal.

Gaskets
Franklin Mfg. Co.....Franklin, Pa.
The Holden Co., Ltd.....Montreal.
McCord & Co. .....Chicago, Ill.

Gates
Owen Sound Wire Fence Co., Ltd., O'n S'd.

Gates, Crossing
The N. L. Piper Ry. Supply Co...Toronto.

Gauges, Locomotive
Taylor & Arnold .....Montreal.
Utica Steam Gauge Co.....New York.

Gears
American Vanadium Co. ..Pittsburg, Pa.

Generators, Electric
Northern Electric & Mfg. Co.....Montreal.

Grates, Shaking
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
Vandeleur & Nichols .....Toronto.

Groceries
The Hudson's Bay Co.....

Hammers, Cast Steel
American Brake Shoe & Fdry Co.Mahwah.
James Smart Mfg. Co....Brockville, Ont.

Handcars
Canadian Fairbanks Co., Ltd...Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Dominion Equip't & Supply Co..Winnipeg.
F. H. Hopkins & Co.....Montreal.
Mussens, Limited .....Montreal.
Rice Lewis & Son.....Toronto.

Hardware
The Hudson's Bay Co.....
Rice Lewis & Son.....Toronto.

Headlights
Commercial Acetylene Co.....Toronto.
The N. L. Piper Ry. Supply Co...Toronto.
Pyle National Elec. Headlight Co..Chicago.

Headlinings
Crossen Car Mfg. Co.....Cobourg, Ont.

Heaters, Feedwater
Robb Engineering Co., Ltd..Amherst, N.S.

Heaters, Oil-burning
Tate, Jones & Co. Inc. ..... Pittsburg, Pa.

Heating, Car
Canadian Gold Car H'g & L'g Co..Montreal.
Consolidated Car Heating Co., Albany, N.Y.
Safety Car Heating & L'ting Co.New York.

Hoists, Pneumatic
Taylor & Arnold .....Montreal.

Hollow Staybolt Iron and Steel Bars
Edgar Allen & Co., Ltd. ..... Montreal.
Falls Hollow Staybolt Co..Cuyahoga Falls.

Hoppers, Car, Wet or Dry
Duner Co. .....Chicago, Ill.

Hose, Air Brake and Steam
Guilford S. Wood.....Chicago, Ill.

Hydrants
Canadian Fairbanks Co., Ltd...Montreal.
Kerr Engine Co.....Walkerville, Ont.

Illustrations
Acton Burrows, Limited.....Toronto.

Injectors
T. McAvity & Sons .....St. John, N.B.

Inspections
R. W. Hunt & Co.....Montreal.

Insurance, Accident
Can. Casualty & Boiler Ins. Co...Toronto.
Canadian Ry. Accident Ins. Co...Ottawa.
Imp. Guarantee & Acc. Ins. Co..Toronto.
London Guar. & Accident Co., Ltd.Toronto.

Insurance, Boiler
Can. Casualty & Boiler Ins. Co...Toronto.

Insurance, Vessel
Burnett, Ormsby & Clapp, Ltd...Toronto.

Interlocking Plant and Signals
Montreal Steel Works, Ltd.....Montreal.
Railway Signal Co. of Canada....Montreal.
Saxby & Farmer, Ltd.....Montreal.

Iron, Pig
Nova Scotia S. & C. Co., New Glasgow, N.S.

Iron Signs
Acton Burrows, Limited.....Toronto.

Iron Staybolt Bars
Falls Hollow Staybolt Co..Cuyahoga Falls.

Jacks
Canadian Fairbanks Co., Ltd...Montreal.
Dominion Equip't & Supply Co., Winnipeg.
H. & E. Lifting Jack Co..Waterville, Que.
F. H. Hopkins & Co., Ltd.....Montreal.
Montreal Steel Works, Ltd.....Montreal.
Mussens, Limited .....Montreal.
A. O. Norton .....Coaticook, Que.
James Smart Mfg. Co....Brockville, Ont.
Williams & Wilson, Ltd .....Montreal.

Japans
The Dougal Varnish Co., Ltd...Montreal.

Journal Bearings
Canadian Bronze Co. .....Montreal.
Crossen Car Mfg. Co. .....Cobourg, Ont.
Kerr Engine Co. .....Walkerville, Ont.
Jas. W. Pyke & Co. .....Montreal.

Journal Boxes
The Holden Co., Ltd.....Montreal.
McCord & Co. .....Chicago, Ill.

Lager Beer, &c.
E. L. Drewry .....Winnipeg.

Lagging and Covering, Locomotive
Franklin Mfg. Co. .....Franklin, Pa.
Taylor & Arnold .....Montreal.

Lamps, Arc
Northern Electric & Mfg. Co.....Montreal.

Lamps, Incandescent
Canadian Westinghouse Co..Hamilton, Ont.

Lamps and Lanterns
The Hudson's Bay Co.....
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.

Lamps, Switch
The N. L. Piper Ry. Supply Co..Toronto.

Lathes
John Bertram & Sons Co.....Dundas, Ont.
Williams & Wilson, Ltd .....Montreal.

Lighting, Car
Canadian Gold Car H'g & L'g Co.Montreal.
Safety Car Heating & L'ting Co.New York.

Lights, Contractors' and Wrecking
F. H. Hopkins & Co., Ltd.....Montreal.
Mussens, Limited .....Montreal.

Locomotives, Compressed Air
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co..Kingston, Ont.
International Marine Signal Co...Ottawa.
Montreal Locomotive W'ks (Ltd.).Montreal.

Locomotives, Electric
Baldwin Locomotive Works..Philadelphia.
Montreal Locomotive W'ks (Ltd.).Montreal.

Locomotives, Logging
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co..Kingston, Ont.

Locomotives, Rack
Baldwin Locomotive Works...Philadelphia.
Canadian Locomotive Co..Kingston, Ont.
Montreal Locomotive Works.....Montreal.

Locomotives, Steam
Baldwin Locomotive Works...Philadelphia.
R. M. Burns & Co. .....Chicago, Ill.
Canadian Fairbanks Co., Ltd...Montreal.
Canadian Locomotive Co. ..Kingston, Ont.
Dominion Equip't & Supply Co., Winnipeg.
J. T. Gardner .....Chicago, Ill.
Hicks Locomotive & Car Works.Chicago.
The Males Co., ... Cincinnati, O.
Montreal Locomotive Works.....Montreal.
Vulcan Iron Works .....Wilkesbarre, Pa.

Lorries, Tracklaying
Crossen Car Mfg. Co.....Cobourg, Ont.
F. H. Hopkins & Co.....Montreal.

Lubricators
McCord & Co. .....Chicago, Ill.
Taylor & Arnold .....Montreal.

Lumber
Parry Sound Lumber Co. .....Toronto.
Machines and Plant, Contractors'
M. Beatty & Sons .....Welland, Ont.
R. M. Burns & Co. .....Chicago, Ill.
Canadian Fairbanks Co., Ltd...Montreal.
J. T. Gardner .....Chicago, Ill.
F. H. Hopkins & Co. .....Montreal.
Mussens, Limited .....Montreal.
Machines and Tools, Prospecting
The American Well Works...Aurora, Ill.
Machines and Tools, Well Drilling
The American Well Works...Aurora, Ill.
Machines, Boring and Turning
John Bertram & Sons Co.....Dundas, Ont.
Machines, Car Shop
John Bertram & Sons Co., Ltd.Dundas, Ont.
Cincinnati Punch & Shear Co., Cincinnati.
Greenlee Bros. & Co. .....Chicago, Ill.
Machines, Cement
James W. Pyke & Co. .....Montreal.
Machines, Drilling
John Bertram & Sons Co. ..Dundas, Ont.
Machines, Hoisting
Brown Hoisting Machinery Co..Cleveland.
Machines, Logging
Russel Wheel & Fdry. Co..Detroit, Mich.
Machines, Milling
John Bertram & Sons Co. ..Dundas, Ont.
Machines, Planing and Shaping
John Bertram & Sons Co. ..Dundas, Ont.
Cleveland Punch & Shear Wks., Cleveland.
Machines, Radial Drilling
John Bertram & Sons Co. ..Dundas, Ont.
Machines, Rivetting
Long & Allstatter Co. .... Hamilton, Ohio.
Machines, Slotting
John Bertram & Sons Co. ..Dundas, Ont.
Machines, Straightening
Cleveland Punch & Shear Wks.Cleveland.
Machines, Tire Welding
Long & Allstatter Co. .... Hamilton, Ohio.
Machines, Track
Greenlee Bros. & Co. .....Chicago, Ill.
Machines, Tracklaying
F. H. Hopkins & Co. .....Montreal.
Machines, Wood and Iron Working
Canadian Fairbanks Co., Ltd...Montreal.
Williams & Wilson, Ltd .....Montreal.
Machine Tools
John Bertram & Sons Co. ..Dundas, Ont.
Pratt & Whitney Co. .....Dundas, Ont.
Manhole Frames and Covers
American Brake Shoe & F'dry Co.Mahwah.
Canada Iron Corporation, Ltd...Montreal.
Marine Repairs
Goldschmidt Thermit Co. .....Toronto.
Marine Supplies
Rice Lewis & Son.....Toronto.
Metal, Anti-friction
W. Abbott .....Montreal.
Metal, Babbit
Tallman Brass & Metal Co., Hamilton, Ont.
Metals
Goldschmidt Thermit Co. .....Toronto.
Metal Work, Structural
Canadian Bridge Co....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Montreal Locomotive Works.....Montreal.
Jas. W. Pyke & Co. .....Montreal.
Milepost Numbers
Acton Burrows, Limited.....Toronto.
Motors
Canadian Fairbanks Co., Ltd...Montreal.
McCord & Co. .....Chicago, Ill.
Motors, Electric
Allis-Chalmers-Bullock Ltd. ....Montreal.
Canadian Crocker-Wheeler Co. ..Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co.....Montreal.
Vandeleur & Nichols .....Toronto.
Motor Generator Sets
Allis-Chalmers-Bullock Ltd. ....Montreal.
Chapman & Walker, Ltd.....Toronto.
Vandeleur & Nichols .....Toronto.
Motors, Turntable
Taylor & Arnold .....Montreal.
Nickel
The Orford Copper Co. .....New York.
Nickel for Nickel Steel
The Orford Copper Co. .....New York.
Numbers
Acton Burrows, Limited .....Toronto.
Nut Locks
Positive Lock Washer Co. ..Newark, N.J.
Nuts, Clevis
Cleveland City Forge & Iron Co.Cleveland.
Nuts, Square and Hexagon
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt & Forging Co.....Toronto.
Oakum
The Hudson's Bay Co.....
Office Fittings
Can. Office & Sch'l Furn. Co....Preston.
Office Signs
Acton Burrows, Limited .....Toronto.
Oils
Galena Signal Oil Co..Franklin & Toronto.
Packing
The N. L. Piper Ry. Supply Co...Toronto.
Paints
R. F. Johnston Paint Co, Cincinnati, Ohio.
Pile Drivers, Railway
F. H. Hopkins & Co. .....Montreal.
Mussens, Limited .....Montreal.
Pinch Bars
The N. L. Piper Ry. Supply Co..Toronto.
Pipe, Culvert, Cast Iron
Gartshore-Thompson Pipe Co...Hamilton.
Pipe, Gas, Cast Iron
Gartshore-Thompson Pipe Co...Hamilton.
Pipe, Sewer, Cast Iron
Gartshore-Thompson Pipe Co...Hamilton.
Pipe Stocks
Butterfield & Co. ....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.
Pipe, Water (Cast Iron)
Gartshore-Thompson Pipe Co...Hamilton.
Planers
John Bertram & Sons Co. ..Dundas, Ont.
Platforms, Steel
Standard Coupler Co. ....New York City.
Ploughs, Contractors'
Meaford Wheelba'ow Co., Ltd., Meaf'd, Ont.
Mussens, Limited .....Montreal.
Porter
E. L. Drewry .....Winnipeg.
Powder, Blasting
Standard Explosives, Limited ..Montreal.
Preservative for Hose
Guilford S. Wood.....Chicago, Ill.
Printing
Southam Press .....Toronto.
Propellor Wheels
W. Kennedy & Sons, Ltd., Owen So'd, Ont.
Pumps
Canadian Fairbanks Co., Ltd...Montreal
S. F. Bowser & Co., Ltd.....Toronto.
Ontario Wind Engine & Pump Co..Toronto.
James Smart Mfg. Co....Brockville, Ont.
Vandeleur & Nichols .....Toronto.
Pumps, Centrifugal
The American Well Works...Aurora, Ill.
M. Beatty & Sons .....Welland, Ont.
John Inglis Co., Ltd. .....Toronto.
Pumps, Deep Well, Steam and Power
The American Well Works....Aurora,
Pumps, Fire Pressure
The American Well Works....Aurora,
Pump , Irrigating
The American Well Works....Aurora
Pumps, Reclamation
The American Well Works....Auror
Pumps, Sprinkler Systems
The American Well Works....Aurora, Ill.
Pumps, Underwriters' Fire
The American Well Works....Aurora,
Punches and Shears
Cincinnati Punch & Shear Co., Cincinna
Cleveland Punch & Shear Wks., Clevela
Long & Allstatter Co. .... Hamilton, Ohio.
Williams & Wilson, Ltd .....Montreal.
Rail Benders, Roller
Dominion Equip't & Supply Co..Winnipeg.
F. H. Hopkins & Co. .....Montreal.
Montreal Steel Works .....Montreal.
Rail Drilling Machines
A. B. Jardine & Co. .....Hespeler, Ont.
Rails, new
Dominion Iron & Steel Co....Sydney, N.S.
Drummond, McCall & Co.....Montreal.
J. T. Gardner .....Chicago, Ill.
J. J. Gartshore .....Toronto.
F. H. & Co. .....Montreal.
Peteler .....Minneapolis, Minn.
Rails, for laying
F. H. Hopkins & Co. .....Montreal.
J. J. Gartshore .....Toronto.
Mussens, Limited .....Montreal.
Provincial Steel Co., Ltd. .. Cobourg, Ont.
Jas. W. Pyke & Co. .....Montreal.
Rail Joints
Goldschmidt Thermit Co. .....Toronto.
The Rail Joint Co. of Canada...Montreal.
Rails, Re-rolled
Provincial Steel Co., Ltd. .. Cobourg, Ont.
Railway Supplies
Canadian Fairbanks Co., Ltd..Montreal.
Franklin Mfg. Co. .....Franklin, Pa.
T. McAvity & Sons .....St. John, N.B.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Rice Lewis & Son.....Toronto.
Russel Wheel & Fdry. Co..Detroit, Mich.
Williams & Wilson, Ltd .....Montreal.
Reamers
Butterfield & Co.....Rock Island, Que.
Cleveland Punch & Shear Wks.Cleveland.
A. B. Jardine & Co. .....Hespeler, Ont.
Replacers, Car and Locomotive
Alexander Car Replacer Mfg. Co.Scranton.
Dominion Equip't & Supply Co..Winnipeg.
The Holden Co., Ltd.....Montreal.
F. H. Hopkins & Co. .....Montreal.
W. K. Kenly Co. .....Chicago, Ill.
Rivets, Boiler, Bridge and Structural
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt & Forging Co.....Toronto.

The G. & S. W. Rwy., Albert Harbor Goods Station, Greenock, N.B.
"B. & W." 30 Tons Electric Travelling Goliath Crane, 70 Feet Span

BABCOCK & WILCOX
LIMITED
Patent Water-Tube Boilers
(Over 8,000,000 H.P. in use)
FOR MARINE AND STATIONARY PURPOSES
—ALSO—
ELECTRIC CRANES
FOR DOCKS, RAILWAYS AND WAREHOUSES

HEAD OFFICE FOR CANADA:
St. Henry, MONTREAL

TORONTO OFFICE:
Traders Bank Building

The Purchasing Agents' Guide—Continued.

Rivet Snaps
Cleveland Punch & Shear Wks. Cleveland.
Rock Crushers
Allis-Chalmers-Bullock Ltd. ....Montreal.
Rope
F. H. Hopkins & Co. .....Montreal.
The Hudson's Bay Company.....
Ropes, Coal Haulage
The B. Greening Wire Co..Hamilton, Ont.
Ropes, Derrick
Dominion Wire Rope Co. .....Montreal.
The B. Greening Wire Co..Hamilton, Ont.
Ropes, Switch
The B. Greening Wire Co..Hamilton, Ont.
F. H. Hopkins & Co. .....Montreal.
Rubber Goods, Mechanical
Guilford S. Wood.....Chicago, Ill.
Scales
Canadian Fairbanks Co., Ltd..Montreal.
Scows, Dump and Deck
M. Beatty & Sons .....Welland, Ont.
Scrapers, Wheel and Drag
F. H. Hopkins & Co. .....Montreal.
Meaford Wheelba'ow Co., Ltd., Meaf'd, Ont.
Mussens, Limited .....Montreal.
Screw Plates
Butterfield & Co. ....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.
Screws, Coach and Lag
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt & Forging Co.....Toronto.
Seats, Station
James Smart Mfg. Co....Brockville, Ont.
Semaphore Arms
Acton Burrows, Limited .....Toronto.
Semaphores
The N. L. Piper R[illegible] Co..Toronto.
Saxby & Farmer, Ltd[illegible]....Montreal.
Shears, Angle, Bar and Plate
Cincinnati Punch & Shear Co., Cincinnati.
Cleveland Punch & Shear Wks., Cleveland.
Ships
Polson Iron Works, Ltd.....Toronto.
Shops
The Hudson's Bay Company.....
Signal House Numbers
Acton Burrows, Limited .....Toronto.
Signals
Railway Signal Co. of Canada..Montreal.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Saxby & Farmer, Limited .....Montreal.
Signals, Fog
International Marine Signal Co...Ottawa.
Signs
Acton Burrows, Limited .....Toronto.
Sills, Steel, for Cars
Canadian Ry. Equip't Co...Welland, Ont.
Skidders and Loaders
Russel Wheel & Fdry Co...Detroit, Mich.
Slack Adjusters
Chicago Railway Equipment Co..Chicago.
Sledges
James Smart Mfg. Co...Brockville, Ont.
Smoke Jacks
Paul Dickinson, Inc. .....Chicago, Ill.
Snow Ploughs
Canadian Car & Foundry Co...Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Solder
Tallman Brass & Metal Co., Hamilton, Ont.
Spikes, Railway, Ship or Pressed
Hamilton S. & I. Co., Ltd., Hamilton, Ont.
F. H. Hopkins & Co.....Montreal.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S.& C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Toronto Bolt & Forging Co.....Toronto.
Spreader Cars
F. H. Hopkins & Co.....Montreal..
Spring Dampeners
McCord & Co. .....Chicago, Ill.
Springs
American Vanadium Co....Pittsburg, Pa.
B. J. Coghlin & Co. .....Montreal.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works .....Montreal.
Standard Steel Wks. Co..Philadelphia, Pa.
Sprinklers, Electric
Preston Car & Coach Co...Preston, Ont.
Stand Pipes
John Inglis Co., Ltd. .....Toronto.
T. McAvity & Sons .....St. John, N.B.
Steam Traps
Consolidated Car Heating Co., Albany, N.Y.
Station Name Signs
Acton Burrows, Limited .....Toronto.
Staybolt Bars, Charcoal Iron
Falls Hollow Staybolt Co..Cuyahoga Falls.
Staybolt Iron
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Taylor & Arnold .....Montreal.
Staybolt Iron or Steel Bars, Hollow
Falls Hollow Staybolt Co..Cuyahoga Falls.
Staybolts, Flexible
Flannery Bolt Co. .....Pittsburg, Pa.
Staybolts, Locomotive
Falls Hollow Staybolt Co..Cuyahoga Falls.
Flannery Bolt Co. .....Pittsburg, Pa.
Staybolt Taps
Butterfield & Co. .....Rock Island, Que.
A. B. Jardine & Co. .....Hespeler, Ont.
Steam Couplers
Safety Car Heating & L'ting Co.New York.
Steam Hammers
John Bertram & Sons Co. ..Dundas, Ont.
Steam Shovels
M. Beatty & Son .....Welland, Ont.
R. M. Burns & Co. .....Chicago, Ill.
F. H. Hopkins & Co. .....Montreal.
The Males Co., ... Cincinnati, O.
Mussens, Limited .....Montreal.
Steamship Signs
Acton Burrows, Limited .....Toronto.
Steel
W. Abbott .....Montreal.
Hermann Boker & Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Steel, Air Hardening
Edgar Allen & Co., Ltd. ..... Montreal.
Steel, Fire Box
Taylor & Arnold .....Montreal.
Steel for Axes
Montreal Steel Works .....Montreal.
Steel for Saws
Montreal Steel Works .....Montreal.
Steel for Springs
James Hutton & Co. .....Montreal.
Steel Shafting
Nova Scotia S. & C. Co., New Glasgow, N.S.
Steel Speedicut High Speed
Montreal Steel Works .....Montreal.
Steel, Nickel, for Nickel
The Orford Copper Co. .....New York.
Steel Plates
Jas. W. Pyke & Co. .....Montreal.
Steel, Tool
Montreal Steel Works .....Montreal.
Stokers, Mechanical
Babcock & Wilcox, Ltd.....Montreal.
Stoves
James Smart Mfg. Co. ..Brockville, Ont.
Superheaters
Babcock & Wilcox, Ltd.....Montreal.
Switches
Can. Ramapo Iron Wks., Ltd. Niagara Falls.
Montreal Steel Works .....Montreal.
Switch Stands
Can. Ramapo Iron Wks., Ltd. Niagara Falls.
Switch Targets
Acton Burrows, Limited .....Toronto.
Tanks and Tank Fixtures
John Inglis Co., Ltd. .....Toronto.
Ontario Wind Engine & Pump Co..Toronto.
Polson Iron Works .....Toronto.
Tanks, Oil
S. F. Bowser & Co., Limited...Toronto.
Tapes, Measuring
Lufkin Rule Co. .....Saginaw, Mich.
Taps
Butterfield & Co. ....Rock Island, Que.
A. B. Jardine & Co. .....Hespeler, Ont.
Telegraph and Telephone Apparatus
Northern Electric & Mfg. Co.....Montreal.
Telegraph and Telephone Office Signs
Acton Burrows, Limited .....Toronto.
Thermit
Goldschmidt Thermit Co. .....Toronto.
Ticket Cases
Can. Office & School Furniture Co.Preston.
Tie Plates
B. J. Coghlin & Co. .....Montreal.
Hamilton S. & I. Co., Ltd., Hamilton, Ont.
Montreal Rolling Mills Co. ....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Guilford S. Wood.....Chicago, Ill.
Ties
Parry Sound Lumber Co. .....Toronto.
Tires, Steel
James Hutton & Co. .....Montreal.
Jas. W. Pyke & Co. .....Montreal.
Standard Steel Wks. Co..Philadelphia, Pa.
Tools and Supplies
Canadian Fairbanks Co., Ltd..Montreal.
James Smart Mfg. Co. ..Brockville, Ont.
A. B. Jardine & Co. .....Hespeler, Ont.
Pratt & Whitney Co. .....Dundas, Ont.
Williams & Wilson, Ltd .....Montreal.
Tools, Track
John Bertram & Sons Co. ..Dundas, Ont.
B. J. Coghlin & Co. .....Montreal.
Dominion Equip't & Supply Co..Winnipeg.
F. H. Hopkins & Co. .....Montreal.
Montreal Steel Works .....Montreal.
Mussens, Limited .....Montreal.
Tools, Pneumatic
The Holden Co., Ltd.....Montreal.
Tools, Cast Steel Track
American Brake Shoe & Fdry. Co. Mahwah.
Track Equipment
Can. Ramapo Iron Wks., Ltd. Niagara Falls.
Tramway Equipment
J. Gartshore .....Toronto.
Transformers
Allis-Chalmers-Bullock Ltd. ....Montreal.
Transmission Appliances
Canadian Fairbanks Co., Ltd...Montreal.
Williams & Wilson, Ltd .....Montreal.
Trolley Wheels
Tallman Brass & Metal Co., Ltd...Hamilton.
Trucks
James Smart Mfg. Co. ...Brockville, Ont.
Trucks, Electric Car
Baldwin Locomotive Works...Philadelphia.
Montreal Steel Works .....Montreal
Trusses, Roof.
Canadian Bridge Co. ...Walkerville, Ont.
Dominion Bridge Co. .....Montreal.
Tubes, Boiler.
Jas. W. Pyke & Co. ..... Montreal.
Turbines, Steam.
Allis-Chalmers-Bullock Ltd. ....Montreal.
Turnbuckles.
Cleveland City Forge & Iron Co..Cleveland.
Montreal Steel Works. .....Montreal.
Turntables.
Canadian Bridge Co. ....Walkerville, Ont.
Dominion Bridge Co. .....Montreal.
Typewriters.
Williams Mfg. Co. .....Montreal.
Valves
Consolidated Car Heating Co., Albany, N.Y.
Williams & Wilson, Ltd .....Montreal.
Valves, Brass Gate
Kerr Engine Co. .....Walkerville, Ont.
Valves, Brass Globe.
Kerr Engine Co. .....Walkerville, Ont.
Valves, Iron and Brass.
Canadian Fairbanks Co. Ltd. ...Montreal.
Valves, Iron Gate.
Kerr Engine Co. .....Walkerville, Ont.
Valves, Locomotive Pop.
T. McAvity & Sons .....St. John, N. B.
Taylor & Arnold .....Montreal.
Vanadium Steels.
American Vanadium Co. ....Pittsburg, Pa.
Varnishes.
Berry Bros. .....Walkerville, Ont.
The Dougal Varnish Co., Ltd...Montreal.
R. F. Johnston Paint Co, Cincinnati, Ohio.
Ventilators.
Paul Dickinson, Inc. .....Chicago, Ill.
Vessels.
Polson Iron Works .....Toronto.
Washers.
Montreal Rolling Mills Co. .....Montreal.
Waste.
B. J. Coghlin & Co. ..... Montreal.
N. L. Piper Railway Supply Co..Toronto.
Water Softeners.
Babcock & Wilcox, Ltd. .....Montreal.
L. M. Booth Co. .....Chicago, Ill.
Dearborn Drug & Chemical Co., Chicago.
Water Towers
John Inglis Co., Ltd. .....Toronto.
Welding.
Goldschmidt Thermit Co. .....Toronto.
Wheelbarrows
F. H. Hopkins & Co. .....Montreal.
Meaford Wheelba'ow Co., Ltd., Meaf'd, Ont.
Wheels, Car.
Canada Iron Corporation, Ltd..Montreal.
Canadian Car & Foundry Co. ....Montreal.
Peteler Car Co. .....Minneapolis, Minn.
Jas. W. Pyke & Co. .....Montreal.
Silliker Car Co., Ltd. .....Halifax, N.S.
Standard Steel Works Co.Philadelphia, Pa.
Wheels, Locomotive.
Canada Iron Corporation, Ltd..Montreal.
Wheels, Rolled, solid forged.
Standard Steel Works Co.Philadelphia, Pa.
Wheels, Steel Tired
Standard Steel Works Co.Philadelphia, Pa.
Windmills.
Ontario Wind Engine & Pump Co..Toronto.
Wire and Wire Rope
Dominion Wire Rope Co. .....Montreal.
The B. Greening Wire Co...Hamilton, Ont.
Mussens Limited. .....Montreal.
The Wire & Cable Co .....Montreal.
Wire Cloth.
The B. Greening Wire Co...Hamilton, Ont.
Wire, Copper.
E. F. Phillips Elec. Works, Ltd...Montreal.
The Wire & Cable Co .....Montreal.
Wire, Electric.
Chapman & Walker, Ltd.....Toronto.
E. F. Phillips Elec. Works, Ltd...Montreal.
The Wire & Cable Co .....Montreal.
Wire, Insulated, Copper.
E. F. Phillips Elec. Works, Ltd...Montreal.
The Wire & Cable Co .....Montreal.
Wire, Telegraph and Telephone.
Chapman & Walker, Ltd.....Toronto.
E. F. Phillips Elec. Works, Ltd...Montreal.
The Wire & Cable Co .....Montreal.
Wire, Transmission and Trolley.
Chapman & Walker, Ltd. .....Toronto.
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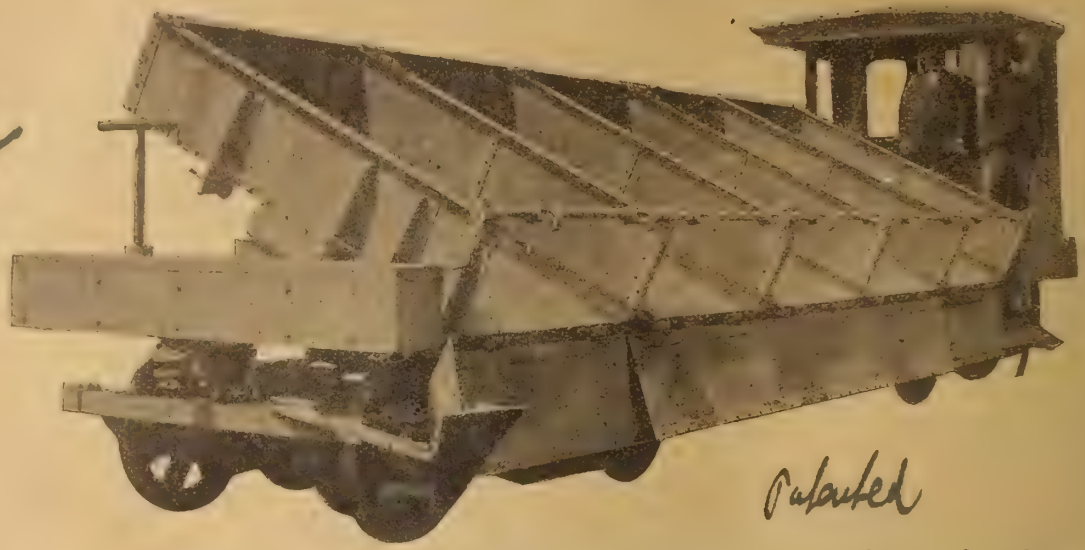

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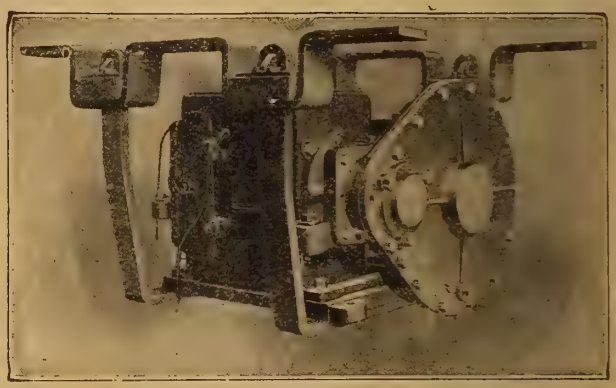

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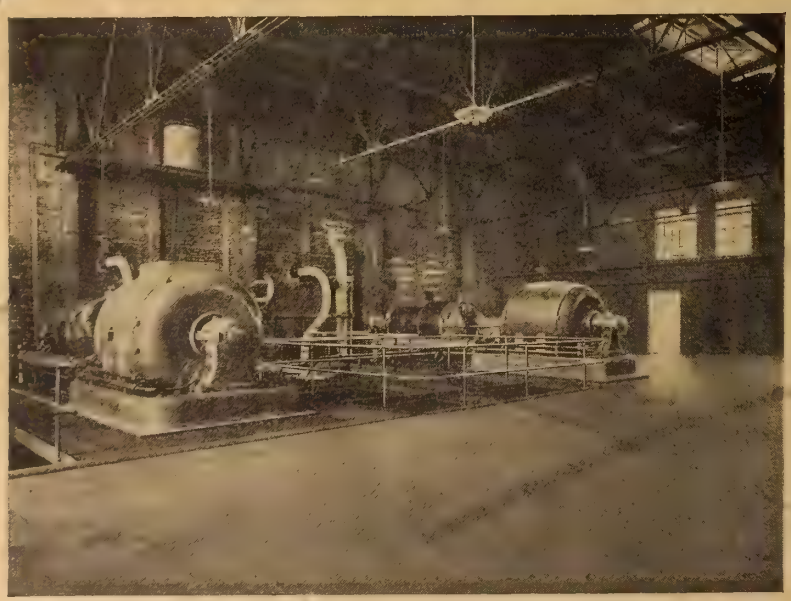

In the illustration are two of our 2,000 K. W. Steam Turbo-Generators in the power house of the

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Old Series, No. 234. New Series, No 152.

TORONTO, CANADA, OCTOBER, 1910.

For Subscription Rates, See page 847.

Iron Castings, Defects and Remedies.

To many consumers an iron casting is an iron casting, and little thought or attention is given to its quality, apart from a general surface examination, to see whether it appears to be sound and if it is clean and of the desired dimensions.

In some cases, the casting must be machined prior to use, and the serious defect may develop that the iron is so hard as to turn the edge of the tool, or make the work of machining so slow that labor costs are high. If the casting cannot be machined, it must be rejected and delay occurs in getting replacement; and even when it can be slowly machined and finally gets into service, difficulty soon begins, for a casting of this type though having a high tensile strength, is unfortunately brittle and fragile under impact, and, as a consequence, failure is apt to occur after a short service.

The cause of such hardness is generally excess either of sulphur or of manganese, due to defective quality of the cupola charge, that is to say, of the pig iron, or scrap, or coke, one or all. In some cases also the silicon is too low for the character of the casting. Sometimes, too, the moulding sand has been improperly tempered and the iron has been chilled, or, again, perhaps a poor grade or an excessive proportion of scrap has been used in the charge.

From this brief statement it will be evident that "hard iron" is not by any means a result of any one cause, but may be due to many widely differing conditions.

In order to find the proper remedy, the cause of the difficulty must, of course, be determined. Often an analysis of the iron will tell the story, or again, in some cases the physical condition of the casting will give the clue by presence and appearance of blowholes, shrinkage-cracks and other characteristic defects.

If the hardness is caused by excess of sulphur or by otherwise incorrect composition, the inference is that proper care has not been used in the selection of the material, and purchase should be made under carefully arranged specifications, fixing the proportion of silicon, phosporous, sulphur, and carbon to accord with the properties desired in the castings. For instance, if tough, strong, easily machined iron is desired, the silicon, sulphur, phosphorus, and manganese should be limited and the quality of the coke should be carefully investigated in order to hold down the proportions of sulphur and of ash, for obviously it is a sheer waste of time and money to pay great attention to the quality of the pig iron and then accept and use shipments of coke which may contain thirty times as much sulphur as is present in ever so poor a grade of pig iron. Under such conditions nothing but hard castings may be expected.

Porous, spongy iron is another source of annoyance and loss to the consumer Frequently a great deal of work will be put upon a casting in the machine shop, only to have a large cavity finally develop, rendering the casting unsafe for the service intended. In such case, replacement must be made by the foundry, but the labor is lost and the delay which occurs in replacement often causes great inconvenience. Frequently the surface of the casting shows no indication of this defective condition.

Howard G. Kelley
Chief Engineer Grand Trunk Railway.

Porosity is frequently due to blowholes in the iron, as for instance, when gas has been trapped in the casting owing to failure to provide proper vents. In some cases, the iron may not have been fluid enough when poured into the mold, and in consequence, the small bubbles of gas could not escape before solidification occurred, and an unsound, honeycombed castings is the result.

Every foundryman knows well the importance of "hot iron"—that is to say, iron which is at such a high temperature when poured into the ladle that it is almost as fluid as water. Such iron fills the molds thoroughly, and many of the foundry troubles which otherwise are apt to result are avoided. To secure it, one must pay special attention to the cupola charge. A sufficient proportion of coke must be used, and its quality must be carefully regulated. The proportion of sulphur and of ash must be low, and dust and small pieces which would tend to check the draught and thus prevent free-burning must be absent. A sufficient air pressure must be maintained, and the cupola practice so regulated that a quick melt will be secured. Other things being equal, the shorter the time in the cupola, the better the chance to get good castings.

Shrinkage holes or cracks are apt to occur with hard, high sulphur iron, and this condition is due simply to the fact that iron of this character contracts to a much greater extent than does a softer iron containing a large proportion of graphitic carbon. Shrinkage holes are a fruitful cause of failure, and they are particularly objectionable owing to the fact that they frequently do not appear upon the surface, and hence the weakness may not be suspected until failure occurs. The remedy for such condition, obviously is to keep at a minimum the proportion of sulphur in each constituent of the foundry charge, and take proper precautions to keep the iron soft.

Defects of castings are, unfortunately, of so many varieties that any attempt to cover the subject even in a brief description, would weary your patience, and I have, therefore, confined myself to a few of the typical cases which are seen all too often in service. "Strong as iron" is an axiom, but frequently the appearance of the metal belies the truth. As an instance of this, I have in mind, a heavy, massive cast iron base weighing many tons which supported a large shop tool. After a short service cracks began to develop, necessitating the removal of the tool and the replacement of the base. A careful investigation was made to determine the cause of failure and it was found that the proportion of phosphorus and of silicon in the iron were excessive, causing the metal to be exceedingly weak, and hence resulting in fracture. High phosphorus is particularly objectionable when the casting is subjected to impact, as for instance, in wheel-centres, cylindersr, columns, etc., and unluckily for the consumer such iron can generally be obtained at a considerably lower cost than can a stronger, tougher, grade, and consequently, unless each shipment is systematically tested before use the better quality cannot be expected. Many cases have come under our observation in which wheel-centres and cylinders containing about one per cent. of phosphorus have cracked after a service of only a few weeks, or even days, while with the phosphorus reduced

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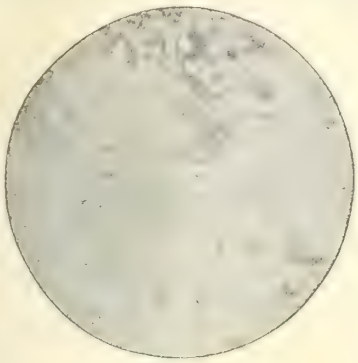

Iron Castings. Fig. 1.

to about ½ of 1% and with the other elements properly proportioned the castings would give good service for years under the same conditions.

In cylinders, radiators, and other castings, a very close texture is essential in order to avoid leakage. Often there is little or no indication to the eye that holes exist in the iron, and yet under test the pressure gauge falls, showing that the iron is porous. Such character may be due to the presence of slag and oxide in the casting, or, in other words, the continuity of the iron may be broken up by fine particles of foreign matter. This condition may be caused by overblowing the iron in the cupola, or it may result from the impurities in the scrap, and in order to remove it thorough deoxidation is essential.

From what has been said, it will be readily understood that radical differences exist in the structure of the metal of castings, and within recent years great strides have been taken in the development and microscopic study of the characteristic forms, and it has become possible to identify many causes of difficulty by the appearance of polished or etched sections cut from the castings.

Fig. 1 shows a very open structure with large areas of graphite. A structure of this kind is relatively weak, and not well adapted to withstand impacts. In fig. 2 the iron is porous and contains considerable oxidized metal, a consequence of defective foundry practice. In fig. 3 the metal as a whole has a close texture, and is strong and well adapted for the service intended. The iron is largely free from slag and oxides and the graphite, although present in even larger proportions than in figure 1, is distributed in fine lines throughout the metal, greatly increasing the strength. The analysis of this iron showed that the constituents had been carefully selected, and its structure proves that correct methods of foundry practice have been used.

The foregoing paper was prepared by Robt. Job, Director of Laboratories, Milton Hersey Co., Limited, for presentation before the Canadian Railway Club.

Railway Lands Patented.—Letters patent were issued during July, covering Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Canadian Northern Ry.	20.15
Canadian Pacific Ry.	972.16
Canadian Pacific Ry. roadbed and station grounds	156.62
Grand Trunk Pacific Ry.	836.51
Total	1,985.74

Sir Thos. G. Shaughnessy, President C.P.R., has given $1,000 towards the National Apple Show at Vancouver, B.C.

A. Smith, cashier of the Canadian Northern Transfer Co., Winnipeg, Man., was placed under arrest Sept. 7, on a charge of embezzlement, the alleged shortage being $2,500.

Protection of Wooden Trestles.

The Board of Railway Commissioners has passed the following order 11446:

In pursuance of the powers conferred upon it by secs. 30 and 269 of the Railway Act, and of all other powers possessed by the Board in that behalf; and upon hearing what was alleged at the sittings of the Board held in Ottawa on June 8, 1909, by counsel and representatives for the Canadian Northern, the Grand Trunk and the Canadian Pacific Railway Companies, and the Michigan Central Rd. Co.: it is ordered

1. That every railway company subject to the legislative authority of the Parliament of Canada, operating by steam power any railway or railways, any part or parts of which is or are constructed of, or upon, wooden trestles the whole of which cannot be seen from an approaching train for a distance of at least 1,000 ft., do, during May, June, July, August, September and October of each year, provide, place, and keep a watchman, track-walker, fire alarm signals, ballast flooring, zinc covering over caps and intersections, or approved fireproof paint, as hereinafter directed, for the purpose of protecting the said trestles from fire, each such company having the option of adopting any of the said foregoing methods of protection.

2. That every such company shall cause to be placed and maintained at every trestle less than 30 ft. in length, one barrel of a capacity of at least 45

Iron Castings. Fig. 2.

gallons, and on trestles of over 30 ft. in length a like barrel upon or near each end, with intermediate barrels of the like capacity not more than 150 ft. apart; provided, however, that pile trestles over streams or other bodies of water need not be furnished with intermediate barrels.

3. That every such company shall cause the said barrels to be kept filled with water.

4. That every such company shall cause all brush and dead grass to be removed from beneath and around every such trestle, and shall cause its right of way crossed by such trestle to be kept free from combustible matter.

5. That on or in the neighborhood of timber lands, or in localities distant from settlement, every such company shall cause to be provided pails for use at all trestles, and all watchmen and track-walkers shall carry such pails while upon duty at trestles.

6. That where the protection provided is by watchman or track-walker, all trestles on main lines shall be inspected at least twice each 24 hours, at intervals of not less than eight hours, and once every 24 hours on branch lines.

7. That in the event of any such barrrel or pail not being in good and efficient condition for holding water, every such watchman or track-walker shall forthwith repair or replace the same, or if it cannot be done by him, he shall forthwith report such condition to his superior officer Every such watchman or track-walker shall see that water barrels are at all times kept filled to within 10 in. of the top, or forthwith report same to his superior officer. Every such watchman or track-walker, whenever any such trestle is injured by fire, shall, as soon as possible thereafter, report the same to his superior officer.

8. That the fire alarm signals be equal, in the opinion of an engineer of the Board, to the Montauk thermostat.

9. That if fireproof paint is used, one coat thereof, at least equal to the Clapp fireproof paint, be applied at least every five years.

10. That the ballast flooring be of gravel and be at least equal to the standard of the flooring adopted by the Great Northern Ry. Co., plans of which are on file with the Board. This flooring consists of a complete coating of gravel from beneath the head of the rail to the ties, extending laterally from outside guardrail to outside guardrail.

11. That if zinc or galvanized iron is used, the caps, stringers, and the outside of the batter posts of every such trestle, and, if the company desires, the ties, be covered with a zinc or galvanized iron covering.

12. That every railway company failing or neglecting to comply with any of the foregoing regulations, shall be subject to a penalty of $30.

13. That every watchman or track-walker failing or neglecting to make inspection in accordance with the foregoing regulations, or failing or neglecting to make any of the reports herein required of him, or otherwise defaulting in any of the duties imposed upon him by this order, shall be subject to a penalty of $15 for each such failure or neglect.

14. That every railway company shall cause every watchman or track-walker to be furnished with a copy of this order.

15. That order 5103, July 30, 1908, be rescinded.

A. E. Voysey, General Traffic Department, C.P.R., London, Eng., in renewing his subscription, writes: "I look forward with much interest to reading The Railway and Marine World every month."

The Board of Railway Commissioners has approved of the following passenger tariffs:—Supplement no. 1 to local standard passenger tariff no. 1 of the St. Maurice Valley Ry., fixing a fare of 3 cents a mile between Shawinigan Falls and Grand Mere, Que., same as is in force on the previously completed portion of the line from Three Rivers to Shawinigan Falls. Standard passenger tariff of the Algoma Central and Hudson Bay Ry.; and of the Manitoulin and North Shore Ry., at the rate of 4 cents a mile. Standard passenger tariff, C.R.C. no. 550 of the Great Northern Ry., for the following lines in Canada:—Crow's Nest Southern Ry., 4 cents a mile; International Navigation and Trading Co., 4 cents a mile; Manitoba Great Northern Ry., 3 cents a mile; New Westminster Southern Ry., 4 cents a mile.

Iron Castings. Fig. 3.

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Improvements in Locomotive Boilers.

By H. H. Vaughan, Assistant to the Vice President Canadian Pacific Ry.

(CONTINUED FROM SEPTEMBER ISSUE.)

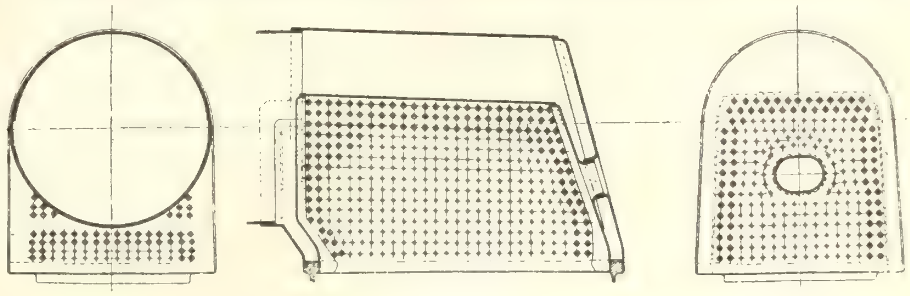


Fig. 30.

STAYBOLTS.—In Canada and the U.S. are universally of wrought iron, generally 1 in. in diameter although sizes from ⅞ to 1⅛ ins. are used to a certain extent. The outer ends are usually drilled with a 3-16 in. hole 1¼ ins. deep, for the purpose of indicating by the escape of water any breakage that might occur. In place of the rigid bolt various types of flexible bolts are frequently substituted, and fig. 28, shows a flexible bolt which is in common use, while fig. 29, shows a patented type of flexible bolt called the Tate which is also used by a number of administrations replying. The latter possesses the advantage that deposits of scale cannot interfere with its flexibility. Flexible bolts of whatever type are usually applied to fire-boxes at the points where the amount of breakage of staybolts experienced is large. Fig. 30, shows a representative application in which the flexible bolts are disposed along the edges and corners of the fire-box sheets, which are the points where breakage most frequently occurs, and the number of flexible bolts is usually about 30 to 40 of the entire number of staybolts in the fire-box. On Wooten fire-boxes the breakage occurs in a different location, viz., for about 2 ft. above the mud ring throughout the entire length of the side sheets, and roads on which this type of boiler is used apply flexible staybolts in that location. While not common practice certain administrations have largely extended the use of this type of bolt. It has given exceedingly good satisfaction so far as freedom from breakages is concerned but on account of its increased cost the question of determining to what extent it is economical to apply them is largely dependent on the service obtained from the ordinary type of bolt. This has been considerably improved by the increase that has taken place in the water space around the fire-box and recent indications would appear to show that while the use of a certain number of flexible staybolts is advisable that the number employed will not be largely increased. In South America where copper fire-boxes are used copper staybolts are alone employed and flexible bolts are consequently not used.

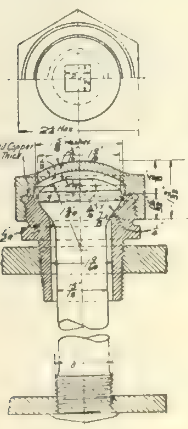


Fig. 28.

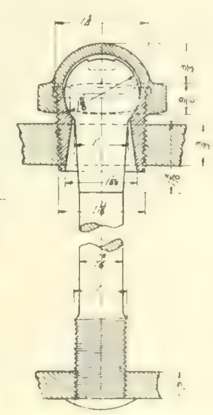


Fig. 29.

TUBES are usually 2 ins. in diameter although some administrations use 2¼ in. tubes on large engines while others use 2¼ ins. when tubes are over 15 to 18 ft. in length. Replies would indicate that the use of 2¼ in. tubes is usual on long boilers, but that 2 in. tubes have been found satisfactory for lengths of 18 to 20 ft. The tubes are usually 0.12 ins. in thickness but a number of administrations report using tubes 0.11 ins. in thickness with satisfactory results. The usual spacing center to center for a 2 in. tube is 2¾ ins. and for 2¼ in. flues 3 ins. A number of administrations, especially those operating in districts where the water is not good, have increased the spacing to 2⅞ ins. for 2 in. and 3⅛ in. for 2¾ ins., and report better circulation and improved results. In the front tube sheet the spacing is usually 2 11-16 to 2¾ ins. for the 2 in. tubes, and a corresponding distance for 2¼ in. tubes. No difficulty is experienced with smaller spacing in the front tube sheet, and the weight of the boiler can evidently be somewhat reduced. The tubes are usually disposed in rows that are vertical and incline at 30 deg. to the horizontal. Occasionally two vertical rows of tubes are used in the center, and one administration is using three vertical rows in the center, and three horizontal rows about the middle of the sheet. A few administrations use vertical and horizontal rows only and while these roads are comparatively few in number this arrangement is claimed to give better circulation and tend to keep the tubes cleaner.

Apart from the South American administrations which are using brass tubes the invariable practice is to cut out the tube when the end has been damaged by continual tightening, and subject it to what is termed rattling by rolling it with other tubes in a machine which removes the scale. A piece about 7 ins. long is then welded on the original tube to restore it to its proper length. This process is termed safe-ending and is illustrated in fig. 31. It will be seen that the body of the tube is expanded to taper from the inside outwards, while the safe end is tapered from the outside to the inner edge. The safe end is then welded to the body of the tube and the opposite end of the original tube cut off to length. The hole in the tube sheet is usually made of the same diameter as the tube, viz., 2 ins. for 2 in. tubes. The end of the tube is reduced in diameter to 1⅞ ins. and a copper ferrule 1-16 in. or less in thickness and the same width as the thickness of the tube sheet is placed in the hole in the tube sheet with its edge about 1-16 in. below the back surface of the sheet. The ferrule is slightly rolled to hold it in place and the tube inserted until its end projects 3-16 ins. beyond the sheet within the fire-box. The tube is then rolled in place and its appearance at this stage is shown in fig. 32. The roller expander used is shown in fig. 33 of what is frequently termed the Dudgeon type. The tube end is next expanded with what is termed a Prosser expander, which expands the tube slightly on both sides of the tube sheet driving the projecting end outward and pinching the tube tightly against the sheet on both outside and inside. Its appearance when this operation is completed is shown in fig. 34. The tool which does this work is made in sections which are expanded by the driving in of a tapered pin and is called the Prosser expander after its inventor. It is shown in fig. 35. The end of the tube is next beaded over and its appearance when this is completed is shown in fig. 36, which also shows the action of the beading tool. This is shown in detail in fig. 37, and the gauge by which the tool is maintained in its proper shape is shown in fig. 38. The process illustrated while varying slightly in detail is practically in universal use throughout the U.S. The inside shape of the Prosser expander and of the beading tool vary somewhat with different administrations, but with each, the shape of these tools is maintained with the greatest care, as any variation in their form or dimensions, at the various points at which this work is done, will cause serious damage to the ends of the tubes through reducing their thickness unevenly and will materially affect the service they give. At the front end of the boiler no copper ferrules are used. The hole is usually ⅛ in. larger than the actual diameter of the tube, and the tube is slightly enlarged before being put in, and expanded into the sheet by a roller expander. Some administrations depend entirely upon rolling in the front sheet, others bead 20% of the flues in the front sheet while some bead

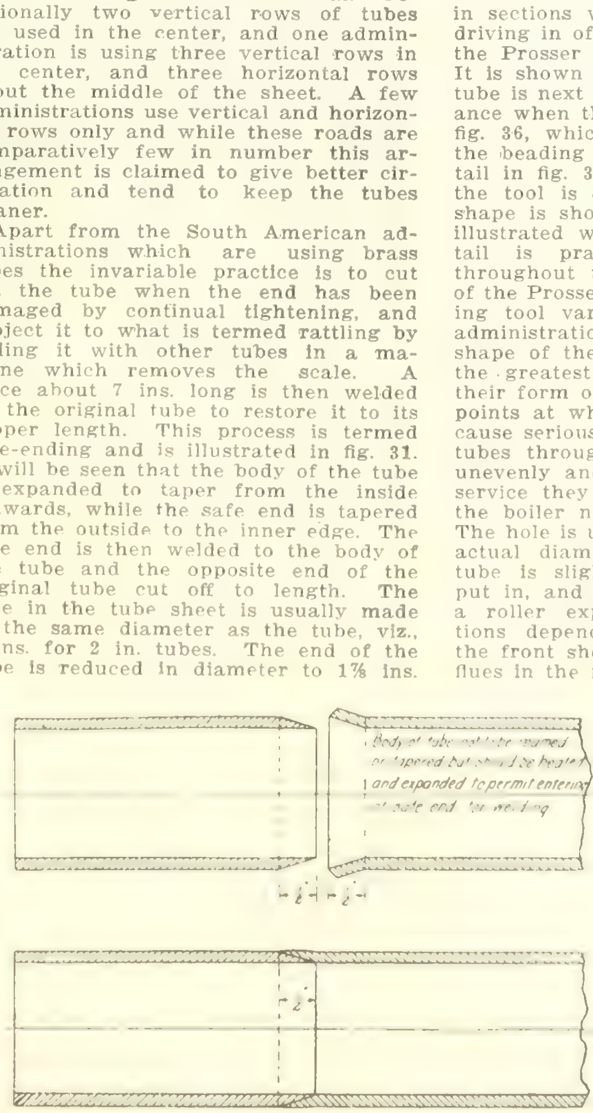


Fig. 31.

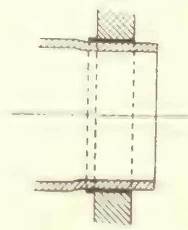
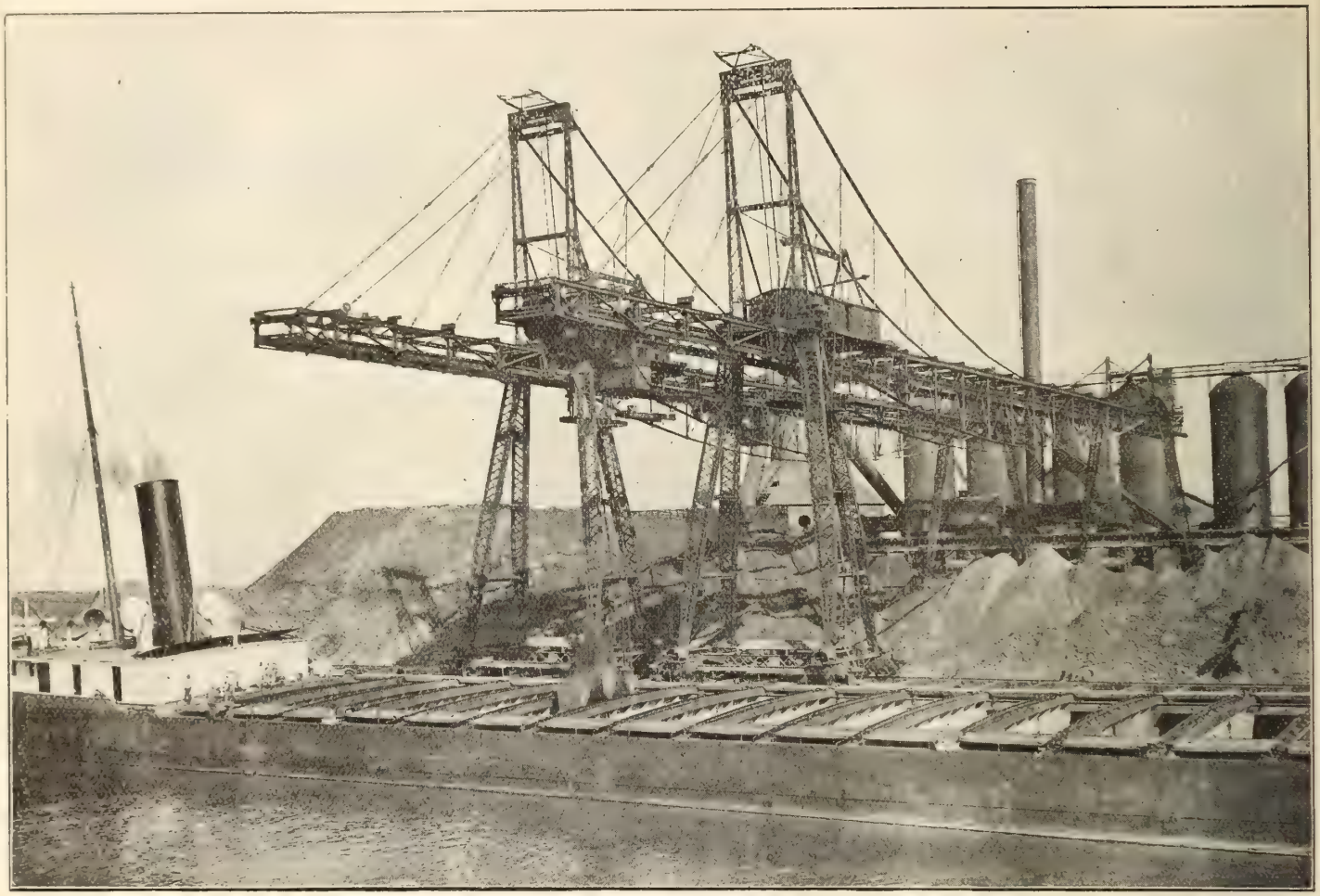


Fig. 32.



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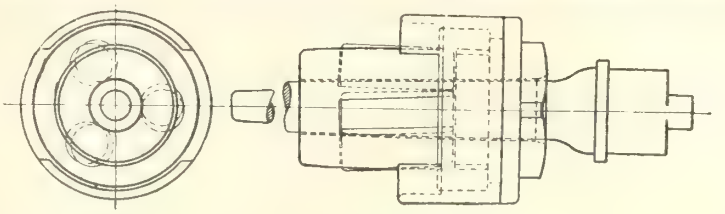


Fig 33.

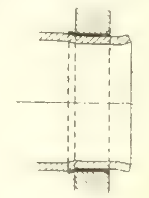


Fig. 34.

all flues in the front sheet in addition. The usual practice is to bead a portion of the flues in the front sheet, especially when the boiler pressure is over 180 lbs. In some cases where horizontal and vertical rows of flues are used, these are beaded while those in the remaining rows are simply rolled. No trouble is reported in either case in the front flue sheet and there is no question that flues properly rolled into this sheet furnish ample strength to withstand the strains.

WATER GAUGES.—The use of both gauge cocks and glass water gauges is practically universal. The gauge cocks are located on the right hand side of the back of the boiler where they can be easily reached by the engineer. The glass water gauges are usually placed on the left side, the common arrangement being similar to that shown in fig. 39. The distance from fire-box crown sheet to the bottom of gauge cock, which is usually placed on a level with the bottom of the visible portion of the glass water gauge, varies considerably on different roads. The smallest figure reported is 2½ ins. and the greatest 7 ins. General practice would indicate that this figure should not be less than 3 ins. while many administrations prefer 3½ or 4 ins. The gauge cocks are usually three in number. the distance from center of bottom to top gauge cock being very generally 6 ins. The visible portion of the glass water gauge is very generally 8 to 9 ins. in length, the tendency being to reduce this and a length of 7 ins. is in common use. In place of glass tubes, various designs of reflex gauges are extensively used having an opening of 6½ to 8 ins. The water is visible in the gauge glass at from 3 to 4 ins. above the crown sheet while with the gauge glass full of water the depth of water is from 10 to 11 ins.

BOILER AND FIRE-BOX MATERIAL.—The plates of the shell of the boiler are almost universally obtained to specification, while those for the fire-box, in addition to conforming to specification, are frequently required to be furnished by certain makers. The specifications in use follow very closely those of the American Railway Master Mechanics Association, extracts from which are as follows:

1—Special requirements for shell sheets.—This grade of steel is known to the trade as flange or boiler steel. The desired tensile strength is 60,000 lbs. per square inch, with minimum and maximum limits 55.000 and 65,000 lbs. The elongation in 8 ins. shall not be less than 25% for sheets ¾ in. thick or under. For thicker sheets, deduct 1% from specified elongation for each one-eighth inch additional thickness.

2—Chemical requirements for shell sheets.

Phosphorous shall not exceed (acid) 0.06%
Phosphorous shall not exceed (basic) .... 0.04%.
Sulphur shall not exceed .... 0.05%.
Manganese .... 0.30 to 0.60%.

3—Special requirements for fire-box steel.—The desired tensile strength is 57,000 lbs. per square inch, with minimum and maximum limits 52,000 and 62,000 lbs. The elongation in 8 ins. shall not be less than 26%.

4—Chemical requirements for fire-box sheets.

Carbon .... 0.15 to 0.25%.
Phosphorous shall not exceed (acid) .... 0.04%.
Phosphorous shall not exceed (basic) ... 0.03%.
Sulphur shall not exceed .... 0.04%.
Manganese .... 0.30 to 0.50%.

5—Bending tests.—Test specimens for this purpose shall be 1½ ins. wide, and for material ¾ in. or less in thickness shall be of the same thickness as that of the finished sheet. For sheets more than ¾ in. thick the bending test specimens may be ¼ in. thick. The sheared edges of bending test specimen may be milled or planed. The cold bending test shall be made on material in the condition in which it is to be used. The specimen for quench bending test shall be heated to a light cherry red. as seen in the dark, and quenched in water having a temperature between 80 deg. and 90 deg. Fahr. Boiler steel and fire-box steel, before and after quenching, shall bend cold 180 deg. flat on itself without fracture on the outside of the bent portion. The bending test may be made by pressure or by blows. One cold bending specimen and one quenched bending specimen will be furnished from each plate as it is rolled. The homogeneity test for fire-box steel shall be made on one of the broken tensile specimens.

6—Specimens for tensile test.—Two tensile test specimens will be furnished from each plate as it is rolled. The standard test specimen of 8 in. gauged length shall be used for the tensile test.

7—The Homogeneity test.—For fire-box steel is made as follows: A portion of the broken tensile test specimen is either nicked with a chisel or grooved on a machine, transversely about 1-16 in. deep, in three places about 2 ins. apart. The first groove should be made on one side, 2 ins. from the square end of the specimen; the second, 2 ins. from it on the opposite side, and the third. 2 ins. from the last and on the opposite side from it. The test specimen is then put in a vise, with the first groove about a quarter of an inch above the jaws, care being taken to hold it firmly. The projecting end of the test specimen is then broken off by means of a hammer, a number of light blows being used, and the bending being away from the groove. The specimen is broken at the other two grooves in the same way. The object of this treatment is to open and render visible to the eye any seams due to failure to weld up, or to foreign interposed matter, or cavities due to gas bubbles in the ingot. After rupture, one side of each fracture is examined, a pocket lens being used if necessary, and the length of the seams and cavities is determined. The broken specimen shall not show any single seam or cavity more than ¼ in. long in either of the three fractures.

A number of administrations specify that plates which are used for throat sheets, dome collars or which undergo severe flanging shall be furnished to fire-box steel specifications. The specifications for methods of inspection, variations in weight. etc., vary considerably but otherwise the more important variations from the above specifications are as follows: The Pennsylvania, Baltimore & Ohio and Southern Railways, specify that the elongation for boiler plates shall equal 14,000,000 divided by the tensile strength in pounds, and do not reject plates for high tensile strength if the elongation is over 28%. These roads also desire that the plates shall contain 0.03 % copper. Several administrations in place of allowing a different amount of phosphorous in basic and acid steel simply specify that the amount of phosphorous shall not exceed 0.05%. The Pennsylvania Rd. specifies for fire-box steel a tensile strength of between 55,000 and 65,000 lbs. per square inch with an elongation equal to 14,500,000 divided by the tensile strength in pounds. The Baltimore & Ohio Railroad specify a tensile strength of between 48,000 and 58,000 lbs. per square inch with the same elongation. A number of administrations specify for fire-box sheets that the sulphur shall not exceed 0.035%. The Pennsylvania, Baltimore & Ohio and several other large administrations also specify that the manganese shall not exceed 0.45% or the silicon 0.03%. The Pennsylvania Rd. desires that the plates shall contain 0.03% of copper but reject if they contain more than 0.05%. The Baltimore & Ohio Railroad desire that the plate shall contain 0.02% of copper but reject if they contain more than 0.03%. In general, however, it may be stated that the specifications of the American Railway Master Mechanics Association represent the average material specified for use in boiler steel. There is a tendency to use steel either slightly softer, or slightly harder than that specified by the Association for fire-box plates and also to insist on the sulphur and phosphorous content being

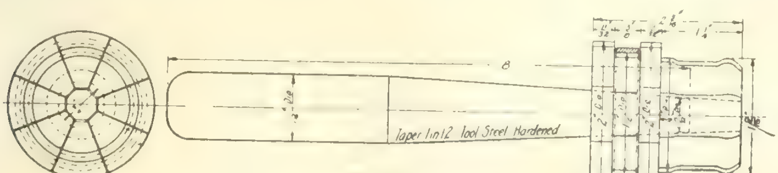


Fig. 35

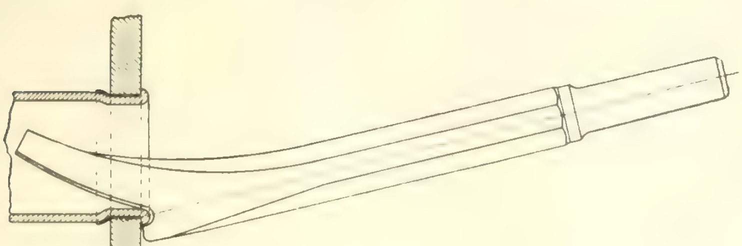


Fig 36

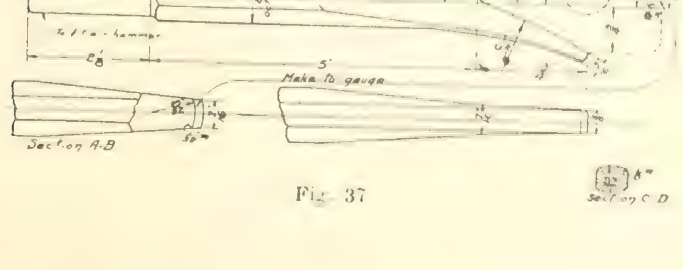
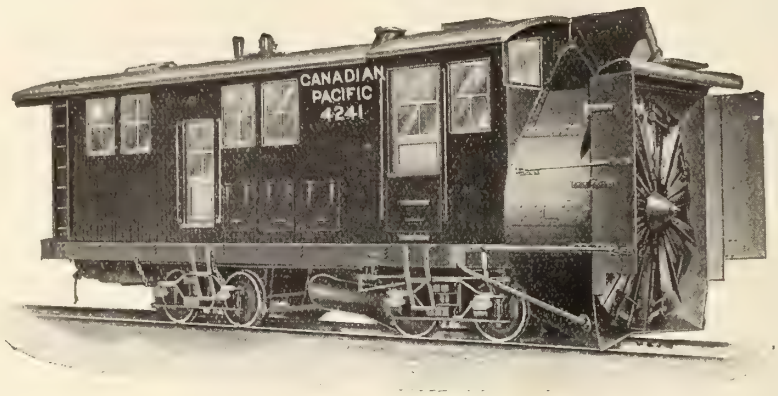


Fig 37

ROTARY SNOW PLOWS



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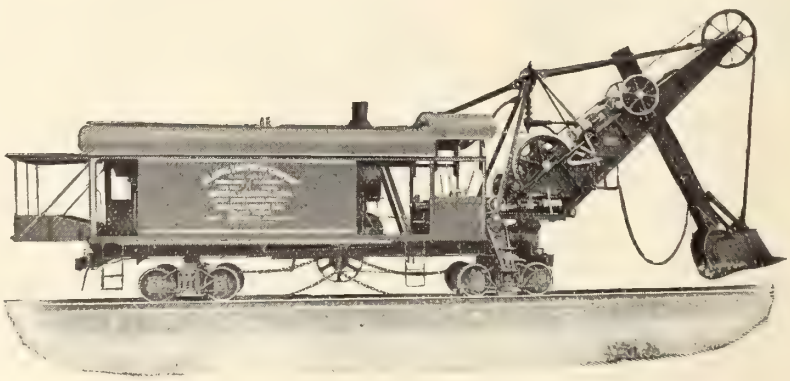

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somewhat below that mentioned. Many specifications specify that the steel desired for fire-box plates is the best that can be made by modern methods and the various specifications are evidently drawn with this end in view.

Tube Material.—For many years charcoal iron has been considered the best material for boiler tubes. Seamless steel is now extensively used, and is considered by many preferable for that portion of the tube which is inserted into the tube sheet, as it is found to give longer life before renewal is required. A number of administrations replying express a preference for the lap welded charcoal iron tube, while others consider charcoal iron tubes resist pitting better than steel tubes but do not last as long in the tube sheet. Some administrations use a tube of charcoal iron but weld to it a seamless steel end, and where trouble is experienced by the water attacking the body of the tube this would apparently be the best practice. Usually the same material is used for the body of the tube and for the safe ends which are welded to it, after it has been removed from the boiler, in order to restore it to its original length. In some cases, however, the safe ends are made of greater thickness than the body of the tube, usually 0.135 in., and two large administrations apply steel safe ends to new wrought iron tubes before placing them in the boiler.

In order to determine the quality of the material some administrations depend entirely upon the brand, others entirely on the specification while a combination of the two is in general practice. Specifications employed are usually similar to those of the American Railway Master Mechanics Association which are as follows:

Specification for Iron Locomotive Boiler Tubes.

1—Tubes are to be made of knobbed, hammered charcoal iron, lapwelded.

2—Tubes must be of uniform thickness throughout, except at weld where an additional thickness of 0.015 will be allowed. They must be circular within 0.02 in., and the mean diameter must be within 0.015 in. of the size ordered. They must be within 0.01 in. of the thickness specified and not less than the length ordered, but may exceed this by 0.125 in.

4—Tubes must have smooth surface, free from all laminations, cracks, blister, pits and imperfect welds. They must be free from bends, kinks and buckles, and from evidence of unequal contraction in cooling or injury in manipulation.

5—Bending tests.—Strips ½ in. in width by 6 ins. in length, planed lengthwise from tubes, after having been heated to a cherry red and quenched in water at 80 deg. Fahr., shall bend in opposite directions at each end, without cracks or flaws and when nicked and broken by slight blows, these strips must show a fracture wholly fibrous.

6—Expanding test.—Sections of tubes 12 ins. long shall be heated a length of 5 ins. to a bright cherry red in daylight and then placed in a vertical position and a smooth taper steel pin at blue heat will be driven into the end of the tube by light blows of a 10 lb. hammer. Under this test the tube must stretch to 1⅛ times its original diameter without splitting or cracking. The pin used shall be of tool steel tapered 1½ ins. to the foot. In making this test, care must be taken to see that the end of the tube is smoothly trimmed.

7—One tube is to be tested, as required in pars. 5 and 6, in each lot of 250 tubes or less.

8—Crushing test.—A section of tube 2½ ins. long, when placed vertically on the anvil of a steam hammer and subjected to a series of light blows, must crush to a height of 1⅛ ins. without splitting in either direction and without cracking or bending at weld.

9—Hydraulic test.—Before shipping, each tube must be tested by manufacturer to 500 lbs. per square inch, and each tube must be plainly marked in the middle: "Knobbled charcoal, tested to 500 lbs. pressure."

10—In addition to the above tests, tubes which, when inserted into boilers, split or break while being expanded or beaded, and also individual tubes which fail to pass surface inspection will be rejected and returned to the makers at their expense.

11—Etching test.—In case of doubt as to the quality of the material, the following test shall be made to detect the presence of steel. A section of tube, turned or ground to a perfectly true surface on the end, will be polished free from dirt or cracks, and the end of the tube will be suspended in a bath of nine parts water, three parts sulphuric acid and one part hydrochloric acid. The bath will be prepared by placing water in a porcelain dish, adding the sulphuric and then the hydrochloric acid. The chemical action must be allowed to continue until the soft parts are sufficiently dissolved so that the iron tube will show a decided ridged surface, with the weld very distinct, while the steel tube will show a homogeneous surface.

Specifications for Seamless, Cold Drawn Steel Locomotive Boiler Tubes.

1—Tubes are to be cold drawn, seamless and made of open hearth steel.—It is desired that the steel from which the tubes are manufactured should have the following chemical composition:

Carbon	0.15 to 0.20%.
Manganese	0.45 to 0.55%.
Sulphur, below	0.03%.
Phosphorus, below	0.03%.

Tubes containing more than 0.03 phosphorous or sulphur will be rejected.

2—Tubes must be of uniform thickness throughout.—They must be circular within 0.02 of an inch and the mean diameter must be within 0.015 in. of the size ordered. They must be within 0.01 in. of the thickness specified and not less than the length ordered, but may exceed this by 0.125 in. They must be free from bends, kinks and buckles.

4—Bending test.—Strips ½ in. in width by 6 ins. in length, planed lengthwise from tubes, after having been heated to a cherry red and quenched in water at 80 deg. Fahr., shall bend in opposite directions at each end, without cracks or uaws.

5—Expanding test.—Sections of tubes 12 ins. long shall be heated a length of 5 ins. to a bright cherry red in daylight and then placed

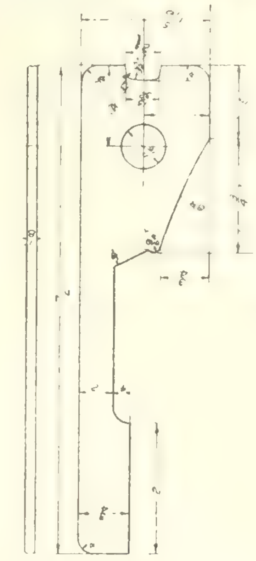

Fig. 38.

in a vertical position and a smooth taper steel pin at blue heat will be driven into the end of the tube by light blows of a 10 lb. hammer. Under this test the tube must stretch to 1⅛ times its original diameter without splitting or cracking. The pin used shall be of tool steel tapered 1½ ins. to the foot. In making this test care must be taken to see that the end of the tube is smoothly trimmed.

6—Crushing test.—A section of tube 2½ ins. long, when placed vertically on the anvil of a steam hammer, and subjected to a series of light blows, must crush to a height of 1⅛ ins. without splitting in either direction.

7—Flattening test.—A test piece of tube 6 ins. long, when flattened lengthwise cold until the sides are separated by a distance equal to the gauge of the tube, must not show any splits or cracks.

8—One tube is to be tested as required in pars. 4, 5, 6 and 7 in each lot of 250 tubes, or less.

9—Each tube must be subjected by the manufacturer to an internal pressure of 1,000 lbs. to the square inch and must be plainly stenciled Seamless Steel Tubes, tested to 1,000 lbs.

It is unusual to adopt these specifications in their entirety and the expanding test, in par. 6 of specification for iron locomotive boiler tubes, is frequently omitted. Several administrations also use a crushing test similar to par. 8 in specification for iron locomotive boiler tubes, but employ a section of tube 1¼ ins. long, which when flattened down solid must show but slight cracks for iron tubes, and no cracks whatever for steel. Direct tensile tests are seldom used, but one administration specifies a tensile strength lengthways of the tube of 48,000 lbs. per square inch, and an elongation of 20% in 2 ins. Another large administration uses a special test in which the tubes are forced cold over a steel tapered plug, and must expand to 1.3 times their original diameter without splitting, but in general there is a tendency to simplify specifications for wrought iron tubes, and with seamless steel tubes, on account of the uniformly high quality of the material required to withstand the drawing process, there is a tendency to accept tubes made by a reliable manufacturer without extensive specifications.

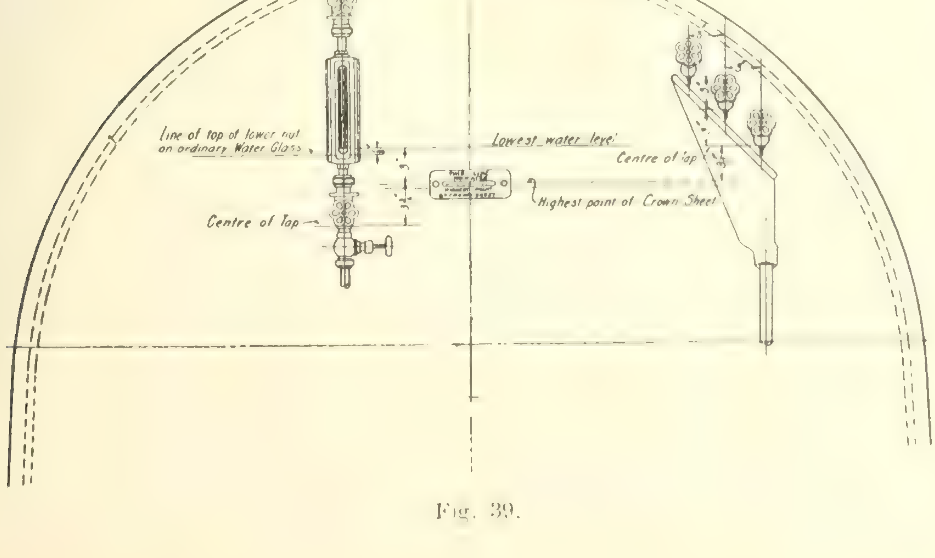

Fig. 39.

Staybolt Material.—The quality of the iron used is in most cases determined by the brand. On account of the continual bending strains which staybolts are subjected to, by the relative movement which occurs between the inner and outer fire-box sheets, the structure of the iron is at least equal in importance to its physical properties, and, with the exception of a few administrations, specifications are not used to determine whether any make of iron is acceptable or not, but are used in connection with the brand as a safe guard. One administration which depends upon specifications, expresses the opinion that the make of iron should also be taken into

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consideration, thus confirming the opinion that the method of manufacture is an important factor in the life of the stays. Where specifications are used, the usual requirements are a tensile strength of from 48,000 to 52,000 lbs., with an elongation of 28% in 8 ins. In some cases the elongation required is specified to vary with the strength. Thus an iron is accepted with 46,000 lbs. provided the elongation is 30%, and with 51,000 lbs. provided the elongation is 27%. The reduction of area of the fracture is occasionally specified, and where dependence is placed on the specification, this requirement is more important than any other in determining the extent to which the iron has been worked and its relative quality. A practical test is frequently specified to ensure that the iron can be rivetted cold without splitting and bending tests are used in which the iron is specified to bend over 180 deg. without fracturing, either hot or cold, the additional requirement being occasionally inserted that it shall be tested in two directions at right angles to each other. A test is also in common use in which the threaded bar is bent for 180 deg. over a bar having a diameter equal to its own. These tests are all directed to ascertain the required physical qualities and requirements have during the past few years been specified which are intended to ensure the suitability of the structure of the material accepted by them for staybolt purposes. A threaded bar is held firmly at one end and vibrated at the other end in a straight line or in a circle. Under these conditions the iron must stand a certain number of vibrations without fracturing. The three leading specifications in use are as follows:

(a) The free end of the bolt, which is 6 ins. in length, is moved a circle of 1-16 in. radius, at a speed of 100 revolutions a minute. and at the same time subjected to tensile strain of 2,400 lbs. per square inch. To be accepted the iron must stand the following number of revolutions; ⅞ in. bar 3,000 revolutions, 1 in. bar 2,200 revolutions and 1 1-16 in. bar 1,500 revolutions;

(b) The free end of the bar, which is 5 ins. long, is vibrated in a straight line for 1-16 in. on each side of the axis of the bar, so that its free end is deflected over a total space of ⅛ in. The bar is at the same time subjected to a tensile strain of 2,800 lbs. per square inch. To be accepted the bar must stand not less than 2,400 double vibrations before breakage.

(c) The free end of bar, which is 5 ins. in length, is vibrated along a straight line alternately ⅛ in. on each side of axis of bar, so that the end of the bar moves over a space of ¼ in. To be accepted the iron must stand not less than 2,000 double vibrations before breakage.

It cannot be said that the various tests referred to above have entirely solved the question of the best quality of iron for staybolts. A number of administrations still consider that the service test is the most reliable for determining whether a brand of iron of good quality is satisfactory for service, and experience has shown that the physical qualities may vary within wide limits, and yet satisfactory results be obtained. There is no doubt, however, that a high grade of iron is required in order to stand the continued bending which occurs.

While these specifications apply to the material for the staybolts below the top of the fire-box, many administrations use the same quality of material for the radial or crown stays, while the others accept iron for this service having a tensile strength of 48,000 to 52,000 lbs. and an elongation of from 26 to 28% in 8 ins. The latter practice is satisfactory on account of the greater length of stays above the top of the fire-box, for which wrought iron of a reasonably high quality will meet requirements.

LIFE OF FIRE-BOXES.—The life obtained from steel fire-boxes varies considerably with the quality of the water used and with the type of fire-box. No reliable information is obtainable with reference to the influence of the quality of steel on the life of the fire-box with the exception that one administration reports steel having from 0.10 to 0.18% carbon has been found to give better results than steel having from 0.18 to 0.25% while several report that a special brand of acid steel having exceptionally low phosphorous and sulphur has been found preferable. Some administrations with locomotives of an older type in which the fire-box is deep and placed between the frames and where water is of good quality report the life of fire-boxes as high as 20 years and over, but the general experience with modern engines using 180 to 200 lbs. boiler pressure is that the life varies from two to four years in bad water districts, up to 10 years and over where water is good. The exact life of fire-boxes is difficult to determine from the fact that the various sheets composing it do not last the same length of time. Where the nature of the scale is such that the sheets become easily overheated and the service is severe, side sheets in engines of the wide fire-box type are occasionally replaced in from one to one and a half years, while crown sheets which do not deteriorate so quickly give considerably longer service. Thus one administration reports that side sheets are being renewed in from one to three years while crown and flue sheets average five years life.

It is difficult to present any correct figures on account of the great variation in the conditions. The figures given above are fairly representative of the replies received from a number of administrations. The Buenos Ayres and Rosario Ry. which uses both copper and steel fire-boxes states that with copper the life of the fire-box has been from 10 to 12 years and steel about four years. This would indicate a considerably longer life for copper fire-boxes than for one made of steel, but the copper fire-box has been found impracticable in American service on account of the rapid erosion caused by the sparks, due to the high rates of combustion at which engines are frequently worked. It should be borne in mind in connection with the life of fire-boxes, that in American practice the miles run per locomotive, per annum are exceedingly high, 30,000 to 35,000 miles frequently being obtained, while individual engines in passenger service have been run from 6,000 to 7,500 miles per month. Measuring the life of fire-boxes therefore in terms of years does not represent entirely the service obtained, unless the miles run per month or per annum are taken into account and when this is done the service obtained from steel fire-boxes becomes satisfactory. The reason for the rapid deterioration of the side sheets in wide fire-box engines in service where the water is of bad quality is not entirely clear. It has, however, recently been ascribed to the inclination of the fire-box sheets towards each other at the top so that the bubbles of steam formed next the sheet are not wiped off by the ascending streams of steam bubbles from other portions of the sheet, as is the case with fire-boxes of a narrow type placed between or on top of the frames. Some boilers have recently been constructed in which the width of the fire-box is reduced in order to allow of the inclination of the fire-box sheet being outwards towards the top so as to obtain this action. Whether from this cause or not there is little doubt that overheating of side sheets occurs and that the reason is on account of insufficient circulation. Some recent experiments have indicated that an improvement may be obtained by arranging for a greater depth of water in the sides of the fire-box below the surface of the grates and this would also confirm the theory that defective circulation is a reason for the short life frequently obtained from side sheets on boilers of the wide fire-box type.

THE LIFE OF TUBES varies largely with the quality of the water. It is common practice to safe-end or weld additional portions on to the body of the tube from four to 10 times where the water is such that no pitting of the body of the tube occurs. The length of time required before the tube is removed on account of the end being so damaged by rolling and beading that it cannot be maintained in a sufficiently tight condition for proper service, varies, according to the water conditions, and type of engine, from five to six months up to three years and over. On one railway, tubes are removed for safe-ending after 40,000 to 60,000 miles in freight service and 75,000 to 110,000 miles in passenger service. On another they are removed in bad water districts after five to six months and in relatively good water districts after 10 to 12 months. The shortest life of the body of the tube reported is from two to three years while some administrations report tubes lasting as long as 15 years and over. Where no pitting occurs and the water is of an average quality, the life of the body of the tube will average from eight to 12 years before it is scrapped on account of insufficient strength. The Buenos Ayres and Rosario Ry. which uses both brass and iron tubes reports brass tubes as lasting from 10 to 12 years while iron tubes are scrapped after four years on account of pitting. This evidently is caused by the quality of the water and there would not appear to be a very great difference between the life of the brass and iron tubes where the water is not of such a quality that the body of the tube is attacked.

(To be continued in next issue.)

Railway Commissioners' Enquiries.

The Board of Railway Commissioners has asked each railway under its jurisdiction to file by Oct. 1 a statement showing separately for each division, or each district, the number of level crossings on its lines, either with the company's own tracks or with other companies' tracks, electric or steam. The statement is also to show what form of protection is now provided at the crossings, whether the interlocker is full or half, and if derails are inserted on one or both of the companies' lines forming the level crossing.

Another statement has been asked to be filed by Oct. 1, showing the location and name of street or highway at which electric bells are located, giving sufficient particulars to enable the Board's inspectors to identify the crossings.

The American Railway Bridge and Building Association will meet at Denver, Colorado, October 18 to 20, instead of at Fort Worth, Texas, as originally intended.

Orders-in-council have been passed at Ottawa, authorizing the sale to the C.P.R., at $10 an acre, of the following areas in the Yoho Park, in the British Columbia railway belt. For sidings and ways at Leanchoil, 9.50 acres; for station grounds at Wapta, 3.84 acres; for a water pipe line at Porcupine Creek, 2.16 acres; for station grounds and sidings at Ottertail, 1.15 acres.

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The latest Russel Machine has some distinct improvements that save time and trouble, consequently money. Note the new method of suspending the skidding sheaves. They are hung from a vertically hinged jib or triangle the outer end of which is guyed by two lines, one on each side, which are power tightened and can be set while skidding lines are going out. The guy lines lead back so they do not interfere with either skidding or loading.

The uppermost leg of the jib has a spring connection to the tower, reducing shocks. All strains due to skidding are absorbed by the guy lines. The swinging boom is operated by wire ropes passing through sheaves suspended from a steel frame projecting from the tower and leading to two drums on loading engine, controlled by one lever. Machine is raised or lowered by hydraulic or patented geared jacks.

Built for 2 or 4 lines with stiff or swinging boom. Constructed entirely of steel, except loading boom.

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Detroit, Mich., U.S.A.

C. P. R. Suburban Tank Locomotives.

By G. I. Evans. Mechanical Engineer C. P. R.

Two of these 4-6-4 locomotives have been designed and built under the supervision of H. H. Vaughan, Assistant to the Vice Pesident, at the C.P.R. Angus shops, Montreal, for suburban service on the main line out of Montreal. They run from Windsor St. station to Point Fortune, Que., 47 miles. The average train consists of six passenger cars and one baggage car; there are seven regular and 13 flag stops westbound, and four regular and 12 flag stops eastbound; the schedule times are 120 and 105 minutes respectively. Water and coal are taken at Rigaud, 40 miles from Montreal. The driving wheels are 63 in. in diameter and there are front and back four-wheel trucks; the capacity of the tank for coal is four tons and for water 3,000 gallons, which, in combination with a superheater, is sufficient, otherwise they could not make the water tank at Rigaud. Although in service but three months, these locomotives have already made something of a coal record, the consumption per unit mile (1,000-ton miles) was 345 lbs., and per locomotive mile 79 lbs., for the period ended July 14, which on suburban service, are very satisfactory figures. The principal dimensions, etc., are as follows:

Tractive power	28,100 lbs.
Weight on drivers, working order	135,000 lbs.
Weight on front truck, working order	49,340 lbs.
Weight on back truck, working order	51,660 lbs.
Weight, total, in working order	236,000 lbs.
Wheel base, driving	14 ft. 10 in.
Wheel base, total engine	38 ft. 10 in.
Weight on drivers ÷ tractive effort	4.8
Tractive effort × diameter drivers ÷ equivalent heating surface	753
Equivalent heating surface ÷ grate area	71
Weight on drivers ÷ equivalent heating surface	57.4
Cylinders, diameter and stroke	20 x 26 in.
Valves, diameter and kind	Piston, 12 in. diam.
Driving wheels, diameter	63 in.
Driving axles, size	9 x 12 in.
Boiler style, radial stayed, wagon top.	
Working pressure	200 lbs.
Firebox, length and width inside	114 x 41⅞ in.
Firebox, water spaces	4 in. front, 3 in. back, and 3½ in. sides.
Firebox, thickness of sheets	Top and sides ⅜ in., tube sheet ½ in., back ⅜ in.
Tubes, number and diameter	22 5 in., 173 2 in.
Length of tubes	165⅜ in.
Heating surface, tubes, 5 in. and 2 in.	1,645 sq. ft.
Heating surface, firebox	156 sq. ft.
Heating surface, total	1,801 sq. ft.
Superheating surface	366 sq. ft.
Equivalent heating surface	2,350 sq. ft.
Grate area	33.1 sq. ft.
Engine truck, kind	Four-wheel, radius bar.
Wheels, diameter	31 in.
Axles	6 x 10 in.
Water capacity, total	3,000 gallons.
Coal capacity	4 tons.

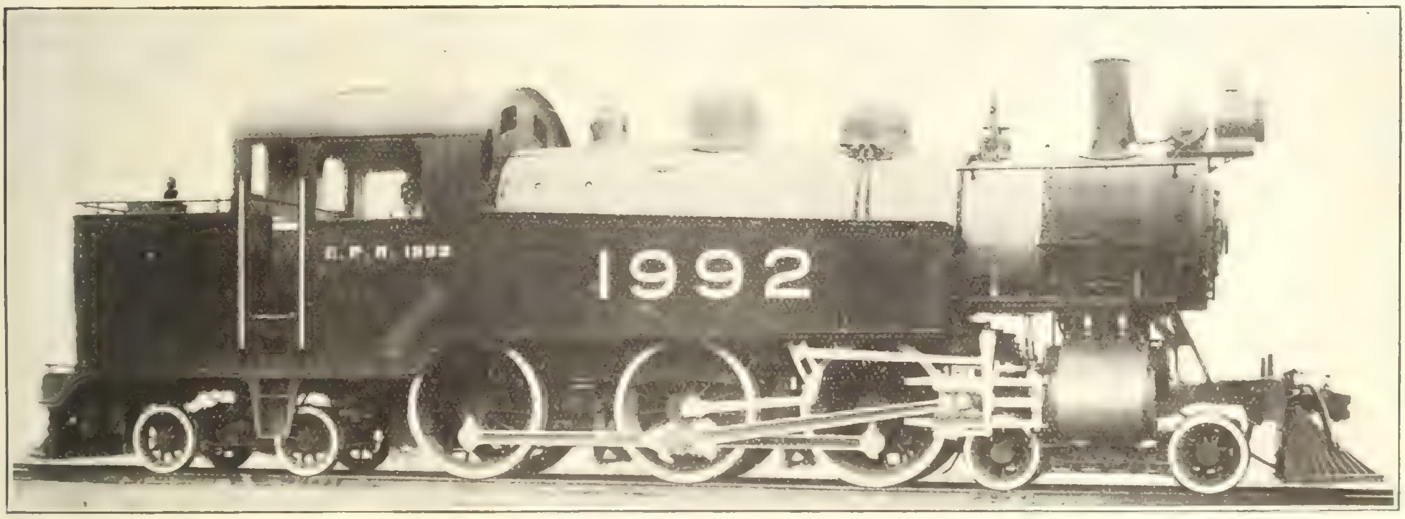
The general outline of the locomotive is shown by the line drawing and halftone engraving. Considerable attention was paid to appearance, and the outlines of the tanks, coal bunker and cab were given considerable study before they were finally decided upon. The desired effect was to be such as to give the impression that the general appearance had been developed along definite lines and not merely allowed to grow carelessly into a combination of curves and rectangles like a child's block house, as detail after detail was worked up. There is, therefore, a harmony of outline and balance of the large flat surfaces of the tanks and cab which is seldom found on American tank locomotives.

As a tank locomotive for use in the service for which these were designed must be of such capacity as to bring its weight up to the limit of the bridges, every detail of the design was carefully figured so as to obtain sufficient strength with the least possible weight. This is illustrated by a number of features in which structural steel and steel plates have been used to build up brackets, braces and cross-ties which are usually made of cast steel; as, for example, the link bearing cross-tie which also forms a support for the tanks and a frame brace. Reference to the detail of this and the outline drawing shows that there is a main vertical member of ⅞ in. steel plate riveted to a ⅝ in. horizontal plate by steel angles. The side tanks are supported from the vertical member by ¼ in. expansion plates and braced longitudinally to the horizontal plate by ¼ in. gussets. The link is carrried by the vertical member backed up by the tank longitudinal gussets. The cross-tie is secured by the main frames by vertical bolts through its horizontal member, which has a 31¾ in. frame bearing and by two 3 x 2 x ½ in. steel angles bolted to the main frames on either side and afterwards riveted to the cross-tie. As the tanks are secured to the boiler at its front end and the whole construction of tanks and cross-tie riveted and bolted together both to boiler and frames, it forms an absolutely solid support for the link; in other words, the tank has been made to reinforce the cross-tie and resists the thrust of the link.

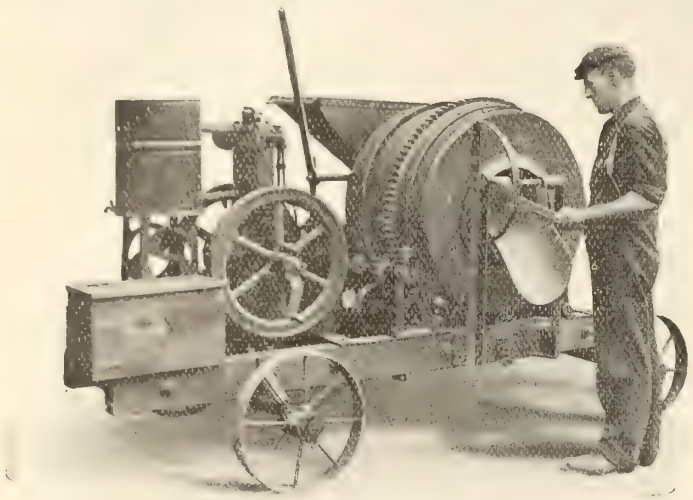
Other structural steel details are the rear engine truck cross-tie, front and back bumpers, expansion brackets, etc. The rear engine truck cross-tie is composed of a ¾ in. plate, braced by two ⅜ in. plates riveted to it. A check for the frame fit on each side was obtained by machining down a 1 in. plate to form the horizontal member. The rear bumper outside the frame is made only sufficiently strong to take push pole thrusts, but between the frames, where the pilot coupler is attached, it is strongly braced by 1 in. plate. There is a 15 in. channel facing which extends out to the sides of the back tank and has ⅜ in. top and bottom cover plates which braces it strongly together. The front bumper, which will have to withstand cornering thrusts and also protect the cylinders, is of a much stronger construction than the rear. There is a 15 in. channel facing, but the top and bottom cover plates have been made ½ in. thick and strongly reinforced by 3½ x 3½ x ⅜ in. steel angles. There is a steel casting between the frames which backs up the drawhead and also has finages to which the top and bottom cover plates are bolted.

Tanks and Cab.—The front tanks, cab and rear tank are built up together in such a way as to be continuous from front to back. The front tank is secured to the boiler at a point just back of the cylinders, where there is no expansion, which means that it is rigid with the main frame, and, as the rear tank and cab construction is solidly braced to the frames the boiler does not, as with the usual construction, expand, carrying the cab back with it, but is free to move backward between the front tanks into the cab, although supporting at the same time the weight of the rear end of the front tanks. This has been arranged by making the front plate of the cab ¼ in. thick and reinforcing it by a 3 x 3 x ⅜ in. angle which rests on top of the boiler and extends outward on each side to bolt to a lug on the top of each side tank. This angle is not studded to the boiler, but rests on a smooth filling strip on its roof sheet to permit of free movement without putting any strain on the cab front or tanks. The tanks and cab are of the usual plate construction, strongly braced, the tanks have a system of splash plates so arranged as to effectively break up any surge of water from end to end. The top of the front tank is in line with the top of the rear tank on which the filling hole is located and two 7 inch equalizing pipes connect them together.

Frames.—The main and front frames are of steel, cast in one piece, and the back splices, which are wrought-iron, are let into a machined fit 1 in. deep and bolted on by 11 bolts 1⅛ in. in diameter. Through the use of Walschaert valve gear it was possible to liberally cross-brace the frames. At the front is the front bumper casting, followed by the cylinders, guide yoke and yoke sheet, link-bearing cross-tie and waist sheet, front expansion truck cross-tie and back bump-



Canadian Pacific Railway Suburban Tank Locomotive.



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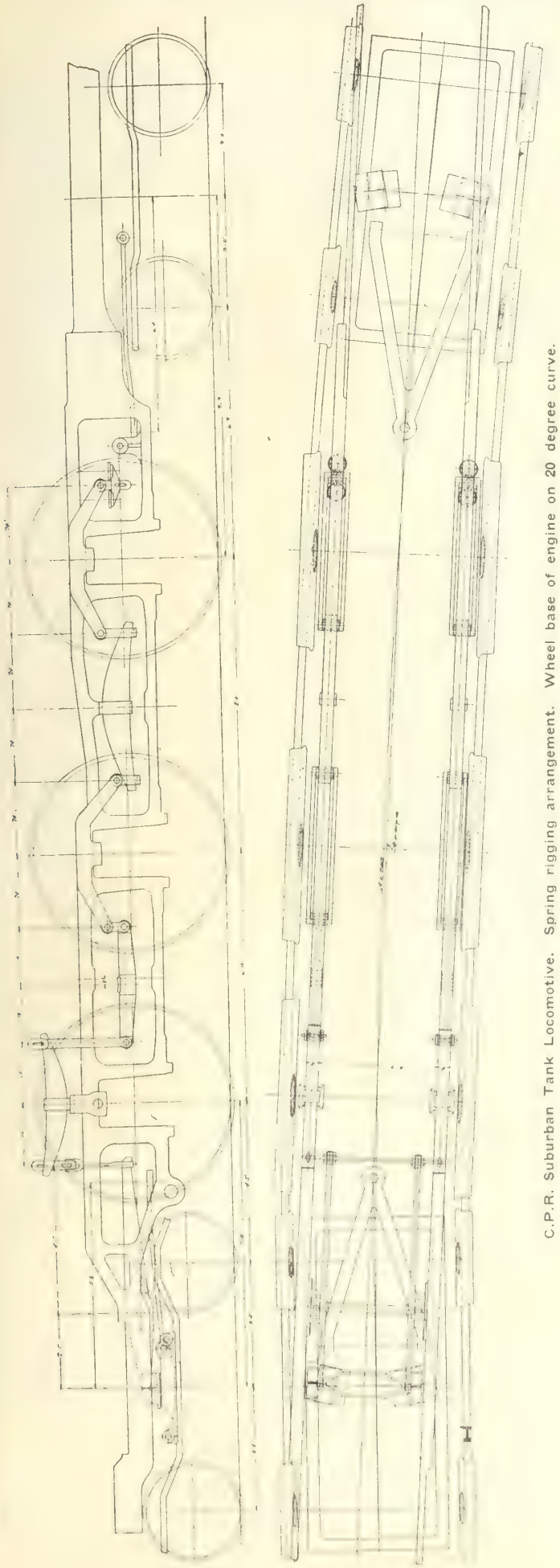
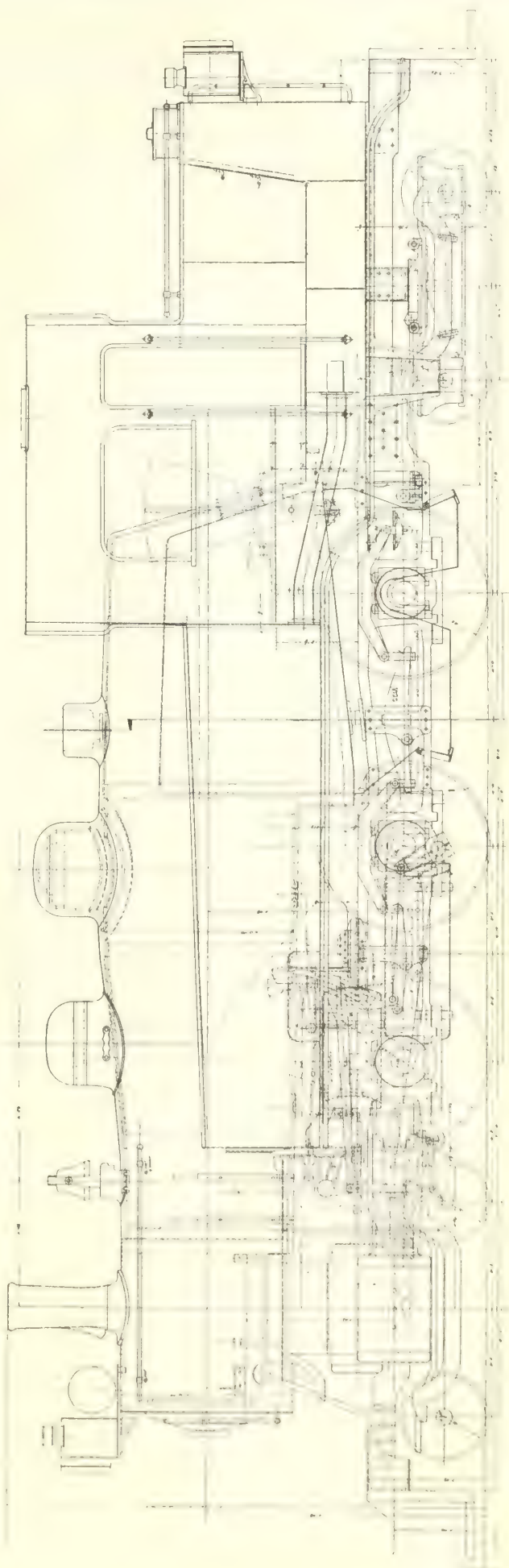


C.P.R. Suburban Tank Locomotive. Spring rigging arrangement. Wheel base of engine on 20 degree curve.



Canadian Pacific Railway Suburban Tank Locomotive.

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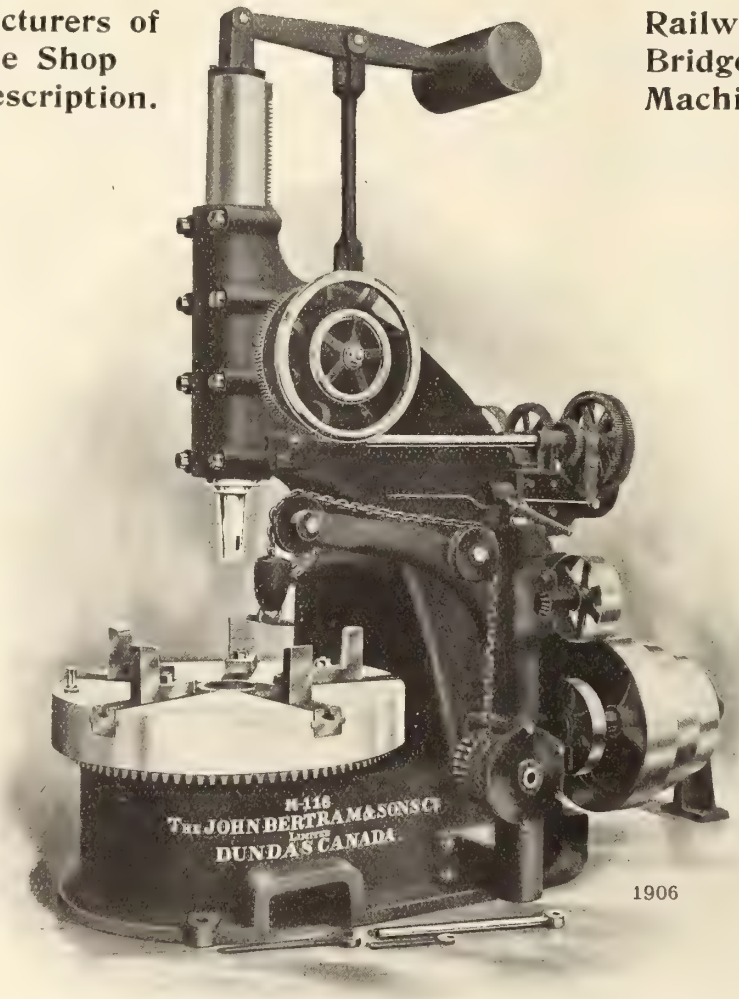

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er. The back tank itself is also built down to the frame and secured to it by two 3 x 3 x ⅜ in. steel angles, and, as the bottom of the tank is supported by two crossbars of 5-16 in. steel plate the whole construction is exceedingly rigid.

THE BOILER is of the extended wagon top type with medium width firebox. There are 173 2 in. flues and 22 5 in., 13 ft. 9⅜ in. long. All of the side stays underneath the front tanks are flexible and a new system of cross braces for the roof sheet has been used. There are 8 of these, 1½ in. diameter, connected to the roof sheet by 5 x 3 in. tees, and they are so located as to prevent bulging of the roof, which reaches a maximum at a point just above the crown. The boiler, although not of the wide firebox type, has ample capacity to supply steam to the cylinders at any speed. This is shown by the B.D. factor (tractive effort×diameter driving wheels), which is equivalent heating surface, 753, or well within the limits of good practice.

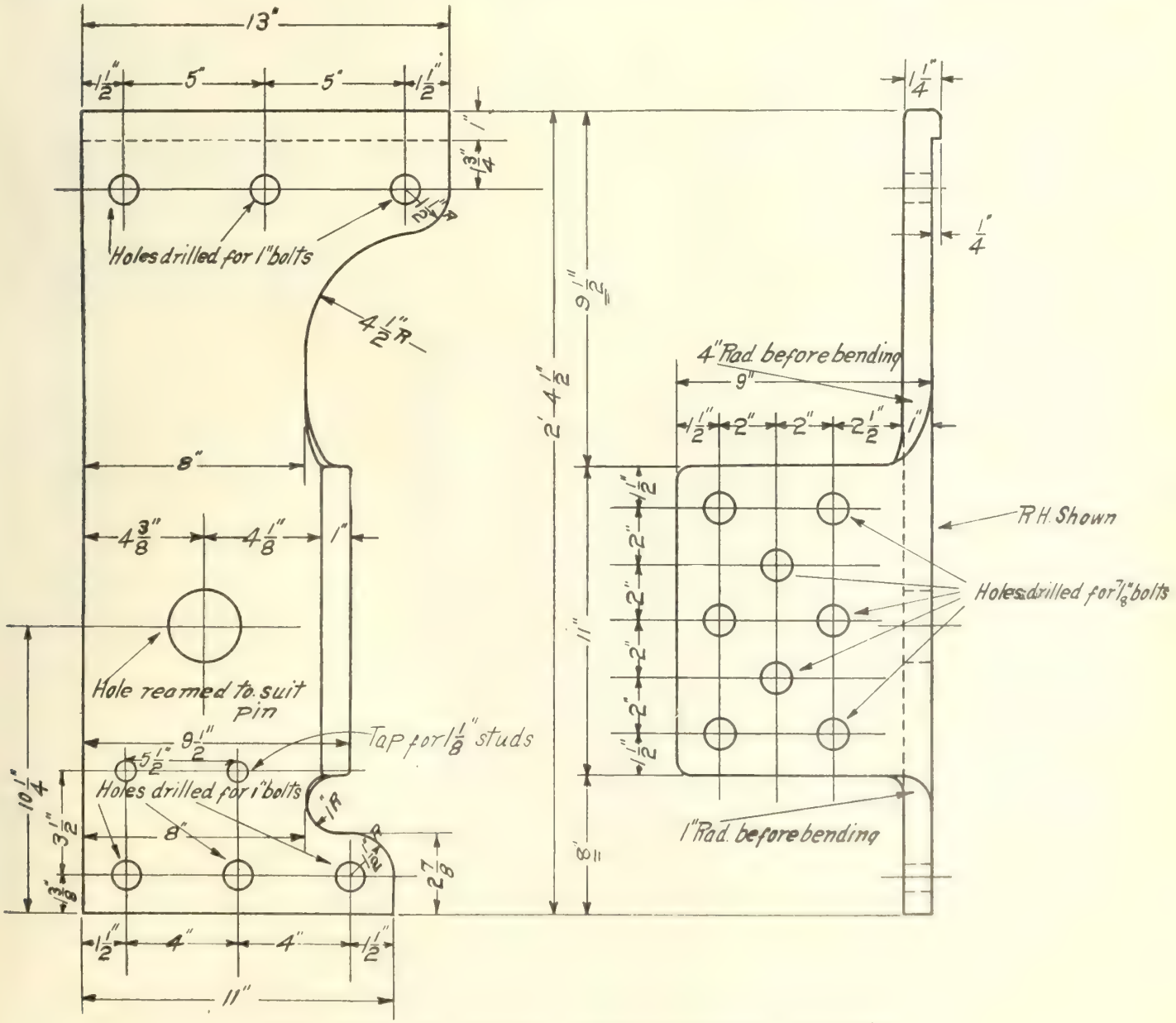
THE CYLINDERS AND VALVE GEAR are of the inside admission piston valve type, with the valve chambers cast inside the main frames. This necessitates a rocker at the front end to transfer the line of motion from the radius bar on the outside of the driving wheels to the valve stem inside the frames. The front cylinder heads are of cast steel and the back cast iron, lugged for alligator type guide bars. The valve gear is of the Walschaert type, and the details are of the C.P.R. Co.'s usual construction, except that they have been made lighter than any previously used on this road. Two 3 in. vacuum relief valves are used connecting to each steam chest.

SPRING RIGGING.—The engine is equalized from the front truck to the back driver with equalizers on each side of the front truck. The back truck takes its weight direct from the frame and in this way the points of support are as though the engine had four pairs of driving wheels equalized together and a four-wheel centre pin leading truck. Both trucks, although of the four-wheel type, have radius bars, and the length of these bars has been determined with a view of making the rear wheels do some of the guiding and relieve the front wheels of excessive flange wear. This is best explained by referring to the diagram, which shows the wheel base of the locomotive, on a 15° curve, and the lengths of the radius bars are such that when taking a curve the front flange bears against the outside rail and the rear flange on the same side is also brought close to it instead of the outside leading and inside back flanges bearing as is usual with trucks of this type. Side movement of the trucks has been provided for by a system of slides having an incline of 1¼ in. in 10 in. These inclines have a centering effect of 8,100 lbs. and work in an oil bath formed by flanges on the supporting cross-tie on the truck; in this way uneven wear should be prevented. The truck radius bar and driving equalization systems present a novel and interesting arrangement, but the results obtained in service more than justify the innovation.

THE ASHPAN is of the usual plate construction and has liberal aid spaces under the firebox ring. It is fully protected against fire throwing by an inside deflector plate extending down past the air openings.

The injector check is of the latest C.P.R. type located on top of the boiler 30 in. back of the flue sheet and is placed underneath the bell stand. The check casting proper combines the R. & L. injectors and also has a connection for a blow-off pipe. An inside deflector plate serves to distribute the water after entering the boiler.

DRIVING WHEELS, RODS AND BOXES.—The driving wheel centres are of cast steel with pear section spokes and arch section rims; cast iron hub liners are let into and studded to the hubs. These run



C.P.R. Suburban Tank Locomotive. Frame details, Expansion Plate Bracket.

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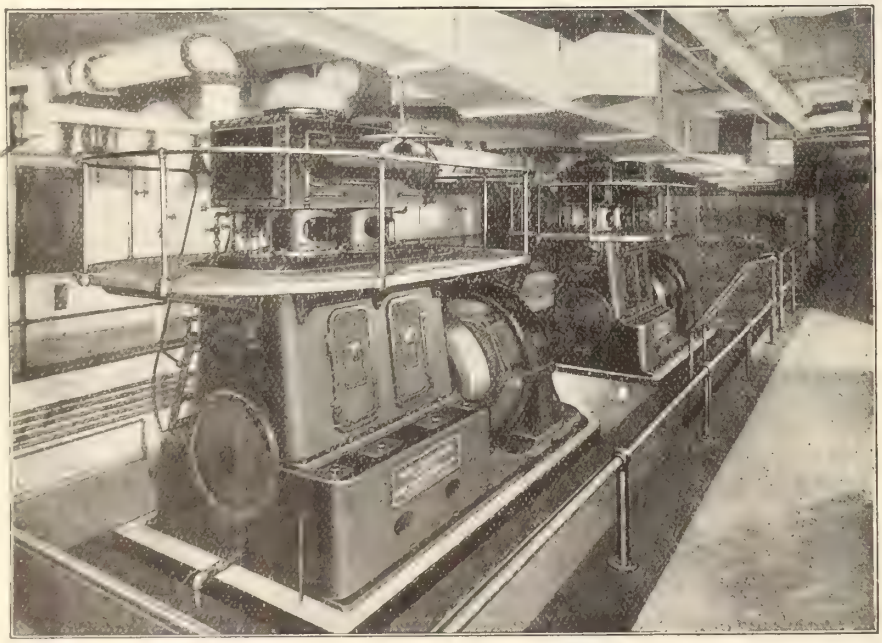

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on babbitt faces on the driving boxes. Supplementary counterbalance weights are used in conjunction with the ordinary balances opposite the cranks and the wheels are balanced in accordance with the system worked out by H. H. Vaughan and fully described in the Railway and Marine World of November, 1909. The figures for one of these engines is reproduced in one of the illustrations.

The side and main rods are I section forged from mild steel with strap connections on the back end of the main rod and main crank pin. The driving boxes are 9 x 12 in. on all wheels. Faces in contact with shoes and wedges have brass liners studded and lugged to the boxes. Grease lubrication is used throughout.

GUIDES.—The guide bars are of mild steel arranged for a crosshead of the alligator type with yokes of universal mill plate 1½ in. thick made in three pieces. The cross plate suspends the legs, which are bolted to it with nine 1⅛ in. bolts. These in turn carry the guide bars by double cast steel knees. The crosshead is exceedingly light for a crosshead of this type; it weighs 350 lbs. complete.

Removable sectional liners are used and may be replaced when worn, without disconnecting the crosshead, by simply removing the side plates, which are held in place by six ⅞ in. bolts. This is one of the most successful types of crosshead which has ever been used by this road, and the difficulty of slack between the crosshead and bars has entirely disappeared since the adoption of this type of renewable shoe.

SUPERHEATER AND SMOKEBOX.—The smokebox and superheater arrangement are illustrated by the line drawing. Single adjustable draft pipes are used with a 5½ in. exhaust nozzle and 14½ in. taper stack. Draft through the 5 in. tubes which contain the superheater is controlled by an automatically operated damper which cuts it off when steam is not being used. Considerable difficulty is experienced with operating cylinders in general and experiments are now being made as to what would be the action of the fire on the superheater pipes if the damper cylinder and automatic damper were omitted altogether.

The throttle is of an ordinary type, arranged to take steam at the top, and has no drifting valve.

MISCELLANEOUS.—The grates are of the semi-box type, arranged to rock in two sections.

Electric headlights are on both front and back ends. The dynamo is located at the front and a system of switches is arranged to cut in either headlight as required.

The Travelling Engineers' Association at its recent annual convention at Niagra Falls, Ont., decided to appoint a committee to formulate a series of standard questions and answers to be used in the education of firemen. Among the papers presented was one on superheat as applied to locomotives. The committee having this matter in charge comprised H. H. Haig, E. Shally, O. R. Rahmeyer and Max Toltz, formerly with the C.P.R. Other papers included one on new valve gears prepared by a committee of which J. McManamy was chairman; "How can the travelling engineer best educate the present day fireman to become the successful engineer of the future," by J. C. Petty; "The latest development in air brake equipment and their effect on train handling," by E. F. Wentworth. Chicago was selected as the place of meeting for the 1912 convention, and among the officers elected were the following:—Second Vice President W. H. Corbett, road foreman of engines Michigan Central Rd.; members of the executive committee: J. McManamy, road foreman of engineers, Pere Marquette Rd.; M. J. McAndrews, road foreman of engines, Michigan Central Rd.

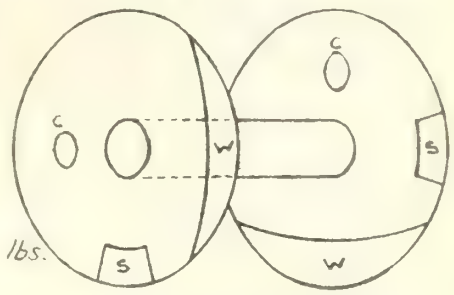
C. P. R. LOCOMOTIVE 1991. CLASS T2s WEIGHT 280,000 LBS

WEIGHT OF RECIPROCATING PARTS

Piston and Rod		465 lbs
Crosshead complete		350 lbs
Proportion of main rod (reciprocating)	Front end	215 lbs
	back end	65 lbs
Total for 1 side of engine		1095 lbs

WEIGHT OF ALL PARTS REVOLVING AT CRANK PINS

Leading wheel. Front end of leading side rod		145 lbs
Main wheel	Back end of leading side rod, 240	800 lbs
	Front " trailing " 245	
	Proportion of main rod (rev'l'g) 315	
Trailing wheel. Back end of trailing side rod		145 lbs
Total for one side of engine		1,090 lbs



Note! In the succeeding data, all the rotating weights on wheel are reduced to the radius of the crank pin as follows:

Let W = Actual weight of any mass.
" X = Distance of its c.g. from centre.
" R = Radius of crank pin.

Equivalent weight at crank pin $= \frac{WX}{R}$

	Leading Right	Leading Left	Main Right	Main Left	Trailing Right	Trailing Left
Weight hung on pin to balance W	365	370	1070	1045	400	390
Rotating weight at crank pin	145	145	800	800	145	145
Direct overbalance	220	225	270	245	255	245
Supplementary balance weights	120	120	120	120	120	120
Total overbalance, average of R and L	342 lbs.		377 lbs.		370 lbs.	

Total reciprocating weights = 1095 lbs.
Sum of total overbalance = 1089 lbs.
Total horizontal unbalance = 6 lbs. or ·0025% of weight of engine.

Maximum overbalance on any wheel $\sqrt{270^2+120^2}$ = 295 lbs. or 1.22% of wheel load in r main.

Transverse unbalance = Total reciprocating weight − [Total overbalance − Total Supplementarie]
= 1095 − [1089 − 360] = 366 lbs or .15% of engine weight

Total horizontal unbalance is the unbalanced part of the reciprocating weights, which by its inertia, tends to move the engine as a whole forward or backward on the track.

Transverse unbalance is the unbalanced part of the reciprocating weight, which by its inertia causes a nosing motion.

Maximum overbalance is the unbalanced revolving weight, which by its centrifugal force increases or decreasesthe pressure of the wheel on the rail. The force due to this weight, if large, may exceed pressure of wheel on rail, and lift the former against the springs, with possible damage to track.

A Railway to Hudson Bay.

The Minister of Railways turned the first sod for the building of the substructure of the bridge over the Saskatchewan River at Pas Mission, Sask., Sept. 6. The place at which the start was made is on what is called the Mission Island, and the ceremony was performed in the presence of J. Armstrong, who is in charge of the surveys for the railway, and a number of officials of the Canadian Northern Ry., which has a line in operation to the Pas. In the course of a short speech the Minister stated that it was the Government's intention to make the river navigable to the Pas, so that freight could be handled on it from both directions. The question of the building of a railway to Hudson Bay had been under discussion for many years, and it was now generally admitted that the line should be built. The line would be of immense value to the Dominion as a whole.

The bridge proper will be 850 ft. long and there will be about 800 ft. of approaches. The roadbed will be 40 ft. above low and 12 ft. above high water. Mackenzie, Mann & Co., the contractors, have had a bridge building plant delivered, and a gang in charge of R. W. Graham is getting out the foundations for the piers, etc.

Letters from Fort Churchill, dated Aug. 3, and from York Factory, dated Aug. 10, reached Winnipeg Sept. 8. The Fort Churchill letters state that the survey parties told off to examine the harbors there and at Port Nelson had arrived and had established their headquarters at their respective bases. The Fort Churchill party is in charge of A. G. Bachard and C. Savery, and the Port Nelson party is in charge of H. S. Pariseau and J. Stanley. The objects which these parties have in view is the making of a complete survey of the water approaches to the two ports, the discharge of the rivers, and other hydrographic work, in order to obtain the necessary data upon which to decide which port will be the terminus. The present information shows that from the navigator's point of view Fort Churchill is the more advantageous, as there is deep water right to the shore, and for some miles inland, while at Port Nelson, there is shoal water for some miles from the mouth of the river, and a channel would have to be kept dredged. On the other hand it is pointed out that the Nelson route is open for a longer period each year, and that the country through which the line will pass from Split Lake to Port Nelson, offers greater facilities for the development of a remunerative traffic than does the bare country round Fort Churchill, and the somewhat restricted areas opened up by the Churchill river and its tributaries. The parties expect to complete their work in Jan., and will return to Ottawa, overland via Winnipeg. The York Factory letters state that T. Turnbull had arrived there, and had gone on to the Nelson River to make a survey from its mouth to the Manton rapids, with a view of reporting upon its navigability, etc.

W. Ogilvie, of the Department of the Interior, is reported to be making a study of the waterways opened up by the projected line to Port Nelson, with a view of determining the possibility of developing the water powers on them, and using the electricity developed for the operation of the line.

Referring to the question of operating the line when built, W. Mackenzie, President Canadian Northern Ry., is reported to have stated in an interview at Winnipeg, Sept. 16.: "If the Government was not taking action we would build the Hudson Bay line. We hope we may have an opportunity of operating it." (Sept.

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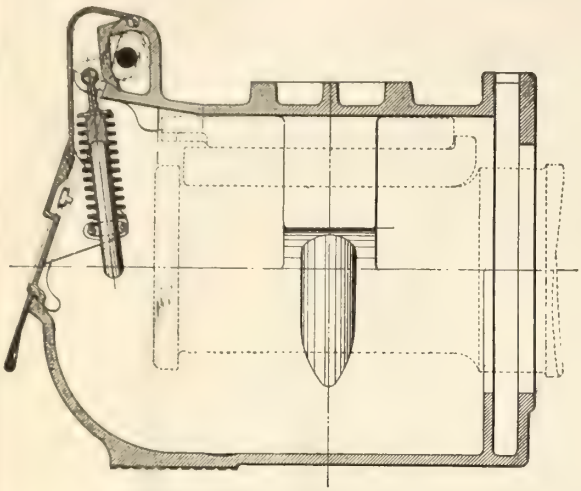

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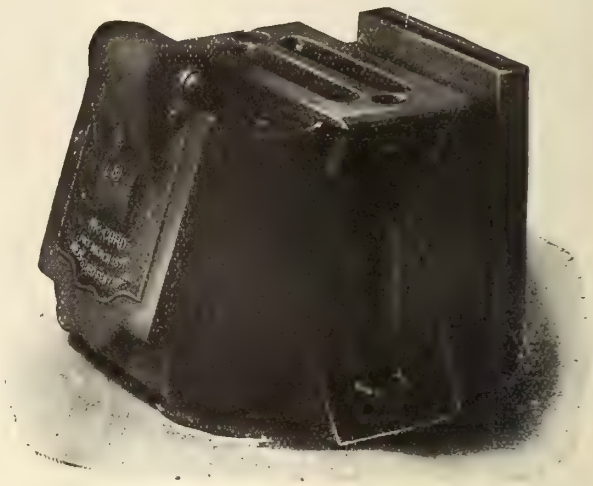

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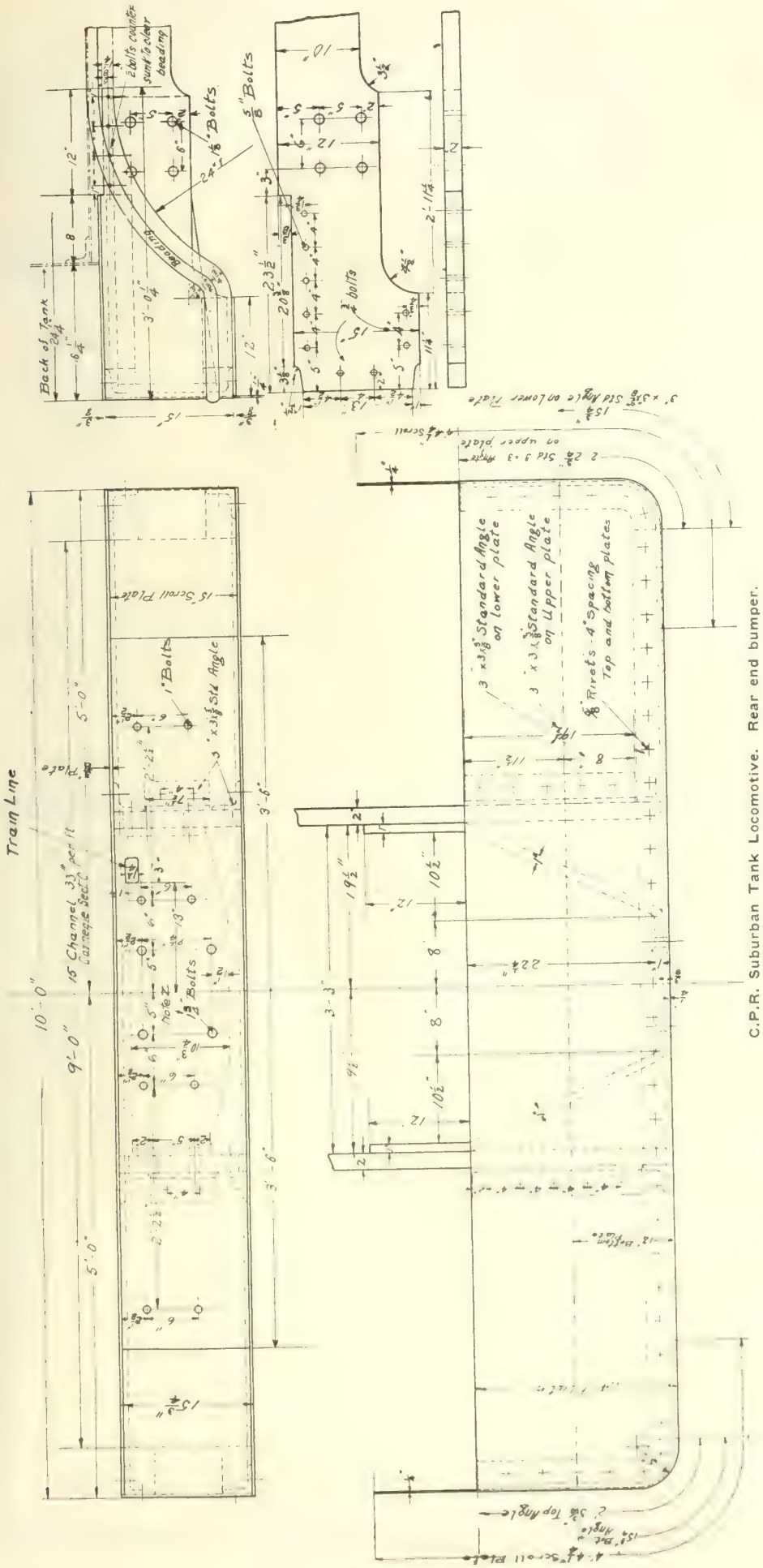

C.P.R. Suburban Tank Locomotive.

Locomotive Engineers' Requests.

The Board of Railway Commissioners will on Nov. 1 consider the following requests, etc., which have been submitted to them by the Dominion Legislative Board of the International Brotherhood of Locomotive Engineers:

At the last session of the Dominion Legislative Board of the International Brotherhood of Locomotive Engineers, held in Ottawa, March 29 to April 2 inclusive, the following resolutions were unanimously adopted and the Legislative Representative instructed to place them before you for most earnest consideration.

That sign-boards be placed at the side of the railway track defining the limits of cities, towns and villages, for the guidance and information of the men in train service.

That owing to the liability of accident and the exposure to the severe cold during winter, a law be enacted preventing the running of locomotives tender first beyond 10 miles, except in cases of emergency.

That a law be enacted requiring all railway companies in Canada to equip their locomotives with power head lamps and air bell-ringers.

That, recognizing the many dangers and the liability of accident in running over portions of the railway unknown to the engineer, a practical and competent engineer familiar with the road about to be run over, be placed upon the locomotive in addition to the regular engine crew.

That owing to the very fatiguing nature of our occupation and the constant demand for vigilance necessary for the faithful performance of our duties as locomotive engineers in handling the commerce of the country and the lives of its citizens, it therefore follows that we should be provided with clean, comfortable and sanitary quarters where we may be assured of uninterrupted repose and quiet in order to prepare ourselves for our important duty. Many terminals, we regret to say, are absolutely unprovided for in this respect. As a class we do not desire to patronize or frequent places where intoxicants are sold, and we therefore ask that the railway companies be required to establish suitable quarters at all terminals as above mentioned.

That owing to the absence of land marks in many of the localities in which our men are employed, and as a guide to inform them of their exact whereabouts in approaching stations, it was unanimously decided to recommend to you that a large sign board be placed one mile outside of yard limit.

That the matter of the removal of all snow-cleaning devices from locomotives, which was referred to you in 1908, be again brought to your attention, as we are firmly of the opinion that such devices should have no place on a locomotive, with the exception of the steel pilot plough now used by the C.P.R. in the mountain districts of British Columbia. These ploughs do not project above the buffer-beam nor do they touch the rail and are considered a reinforcement to the pilot.

That we request the Commissioners to take such action as they may deem advisable to have suitable inspection supplied for all wooden bridges.

That your attention be called to the fact that many of the modern engines now being built and used in Canada are totally devoid of any sense of comfort or convenience for the men who are obliged to spend the greater part of their time on them. Everything is apparently sacrificed in order to make them as huge and powerful as possible. As most of them carry at least 200 lbs. pressure per square inch, it means that the men who handle them are separated by only a few inches from a temperature of 387 degrees of

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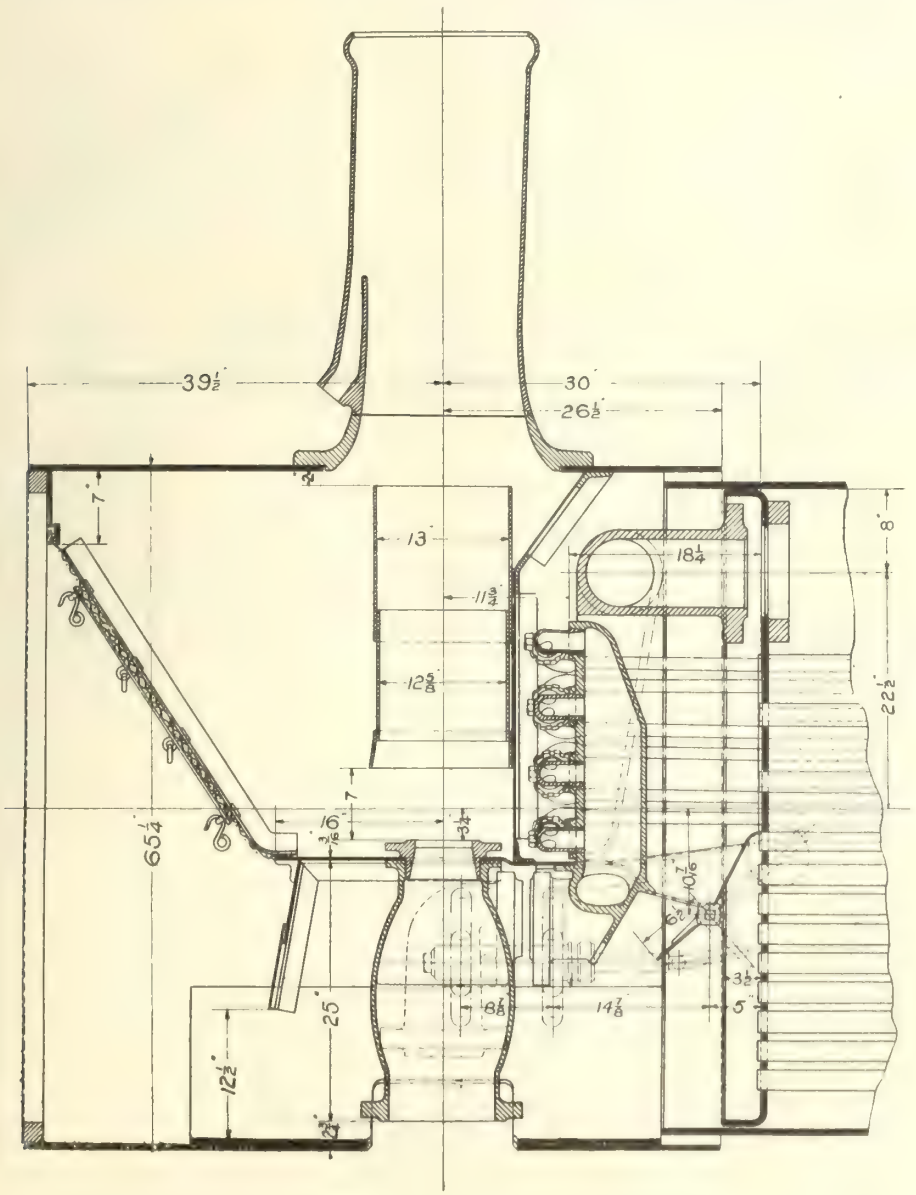
heat. To get into position to handle these monsters, the engineer is obliged to climb over obstructions in the shape of different parts of the equipment and wedge himself in the narrrow space between the side of the cab and the boiler. Should the engine run off the track and turn over, the engineer has not the slightest chance of escape and would likely be crushed and scalded to death. Further, we ask that you give this matter most earnest consideration, and endeavor to place some limit on the size of boiler and cab that will allow for ample room and breathing space. The appliances for operating the engines are not infrequently placed in such very awkward positions that the engineers are at a disadvantage in cases of great emergency. Water-glasses, steam-gauges, air-gauges and lubricators, which require almost constant attention, are often found so inconveniently located that the engineer's attention is too long diverted from the track and signals.

That owing to the unclean condition of the working parts, especially that portion under the boiler and between the frames, and the liability to accident by the engineer in attempting to crawl under the engine, between the wheels, to inspect his locomotive, we recommend that the engineer be held responsible only for such defects as may be reasonably detected from the outside, and in addition to the inspection by the engineer the engines shall also be inspected by a competent inspector at all railway terminals, and the engineer not held responsible for any defects which the inspector may find.

We are of the opinion that as the safety of life and property depends upon the sight and judgment of the men who guide the traffic and having practical knowledge of the inability, under certain conditions, to obtain more than a partial view of the track and signals, such protection should be afforded as would enable the engineer to at all times have a clear and uninterrupted view ahead. Having examined a model of a storm guard or protector and heard the endorsement of one who had used it, we are unanimous in the proposal of recommending to the management of the several Canadian railways a trial of the "protector."

That owing to the fact that not infrequently an employe of a railway company is injured through no fault of his own, and the railway company's officials eventually refer him to their claims agent, who usually requests him to wait until he is completely recovered before making a settlement, thus requiring him in many cases to become indebted for the necessities of life for himself and family, we request that monthly payment of a sum at least equal to that which they would have earned, should be made to injured employes.



C.P.R. Suburban Tank Locomotive. Smoke box arrangement. (See also pg. 825.)

Hudson's Bay and Pacific Railway.

In our August issue we referred to a prospectus or circular issued for the purpose of selling Hudson's Bay and Pacific Railway Development Co.'s shares, particularly in regard to misstatements it contained as to guarantees by the Dominion Government, etc. Our September issue contained a letter from the Company's Secretary stating that the circular was entirely unauthorized, and was published without the Directors' knowledge or consent. In acknowledging receipt of that letter, we said in part: "There appears to be no doubt that the prospectus was dated as being issued from 56 Moorgate St., and that the names of your directors were printed thereon. Copies of the prospectus were received in Canada, and it would appear to us that at least after its issue, some of your directors must have seen or heard of it. If such was the case, we would be glad to learn whether they took immediate steps to repudiate the misstatements contained in the prospectus, or whether they waited until after we had exposed the inaccuracies, and after Sir Wilfrid Laurier had given a denial on behalf of the Dominion Government. We would be glad to be informed clearly on this point. We would also like to learn definitely who the prospectus was issued by. Its evident object was to promote the sale of your Company's securities. We desire to assist as much as possible any company having for its object the development of any portion of Canada by the building of necessary railways, but when we see statements made that we know to be untrue, we feel it our duty to contradict them."

We have since received a letter from J. G. F. Greville, Managing Director of the H.B. and P.R.D. Co., as follows. "We beg to say that the knowledge of the circular or prospectus came to us purely by accident, in the following manner: On July 23, we received through the returned letter office, Liverpool, an envelope addressed to our Secretary, and on opening it found an envelope addressed to A. Ford, 16 Berry Street, Liverpool, and marked by the postal authorities, "Gone away." In that envelope was the circular with a letter from a Mr. ———, of London, offering some shares for sale. We immediately wrote Mr. ———, informing him that such circular had been issued without the knowledge, authority or consent of this company, and threatening him with an action, and demanding to know by what authority he had issued it, who had printed it, etc., and to whom the shares he offered belonged, and that he had better destroy any he had got, and call in those he had sent out. This letter was written on July 25, and he 'phoned us up, informing us that he was very sorry, that he would destroy them, and call them in, but that he had received them from a Mr. ———, of ——— St., London, and we thereupon wrote a similar letter to Mr. ——— who informed us that he had obtained the information through one of our shareholders, when we at once called a board meeting and brought the matter fully before them, in consequence of which a disclaimer was published in all the English newspapers. We knew nothing of your statements nor anything about what Sir Wilfrid Laurier had said. We think this gives you the information you desire, and in conclusion beg to say that this company never issued any prospectus of any description."

The [illegible] committee the names of the two persons mentioned by Mr. Greville.

Press reports from Prince Rupert, B.C., state that the [illegible] have placed a value of $[illegible] per acre on the G.T. Pacific Ry. lands there.

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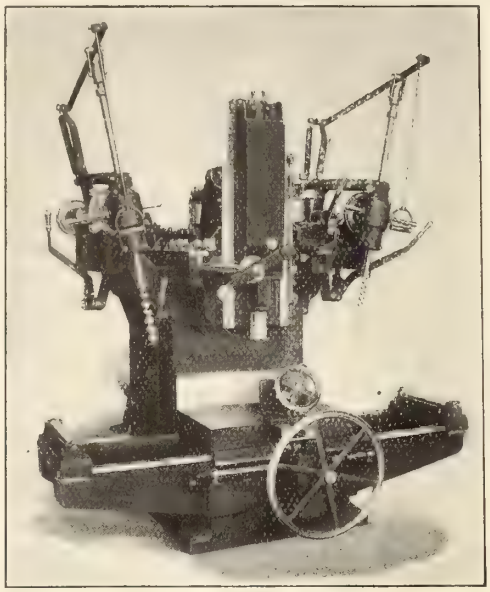

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RAILWAY DEVELOPMENT.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta and Great Waterways Ry.—A conference between the officers of the company and former members of the Alberta Government, is reported to have taken place at Vancouver, B.C., Aug. 23, to consider future plans. Nothing has been given out as to what action was decided upon, and it is not likely that anything definite will be done until after the opening of the Legislature, when the new government will state its policy.

The Government decided Sept. 11, not to make the report of the Royal Commission, relative to the agreement with the railway, public before it was presented to the Legislature.

Alberta Central Ry.—We are advised that the building of this line projected from Red Deer to Rocky Mountain House, Alta., has been started, in the vicinity of Red Deer. As it was found to be too late in the season to let any contracts, the construction is being done by daily force under the direct supervision of J. Grant MacGregor, Chief Engineer. It is expected to carry on the work as long as the weather will permit. (Sept., pg. 725).

Algoma Central and Hudson Bay Ry.—A contract has been let, we are informed, to Austin and Nicholson, Chapleau, Ont., for the delivery of 250,000 ties between the crossing of the Montreal River and the Michipicoten River, Ont. (Aug. pg. 627.)

British Columbia and Alaska Ry.—The B.C. Government received information Sept. 6, that the reconnaissance surveys had been completed as far as Fort George and Quesnel, and that the survey parties were working towards the coast. An Ashcroft dispatch of Sept. 9, states that a party of the company's engineers arrived there from Quesnel, and went on to Vancouver, having been recalled. (Sept., pg. 725).

Canada and Gulf Terminal Ry.—The building of this line from St. Flavie, on the Intercolonial Ry., to Matane, Que., is being proceeded with. Press reports state that the bridge over the Metis River has been completed; that the grading has been finished as far as Sandy Bay, and that it is expected the grading will be laid into Metis by Oct. 31.

We have been advised that work was begun on the line early in May and has since been continued over the first section from St. Flavie to Matane. Track is now being laid to the Tartigon River, mileage 21, and it is expected that the section to Matane, about 35 miles, will be ready for traffic by Nov. 1. H. Doheny is the contractor. Surveys are being made eastward from Matane towards Gaspe Basin. Arrangements have been made with the Intercolonial Ry. for the interchange of traffic at St. Flavie, as soon as the line is opened.

Graham Island.—A Vancouver press report of Aug. 29, said a gang of men was at work on the proposed railway from Queen Charlotte City to the coal fields, 12 miles. Queen Charlotte City does not appear on any existing maps, but the dispatch states that it had been decided to move the Government offices from Jedway to the newly named city. There are several charters for building railways on Queen Charlotte Islands, but the only one in which there is any mention of a Queen Charlotte as a town site or a city is on the charter for the building of the Island Valley Ry. (Sept. pg. 725).

Halifax and Eastern Ry.—We are advised that the official information furnished us and published in our last issue, that a contract had been let to Griffiths & Co., London, Eng., for the building of the line was not correct, the London directors having made some change in this respect, of which the local officers of the company at Halifax had not been informed at the time the information was given out. The local officers and the Chief Engineer are taking steps to let contracts for clearing and grading short stretches of the right of way.

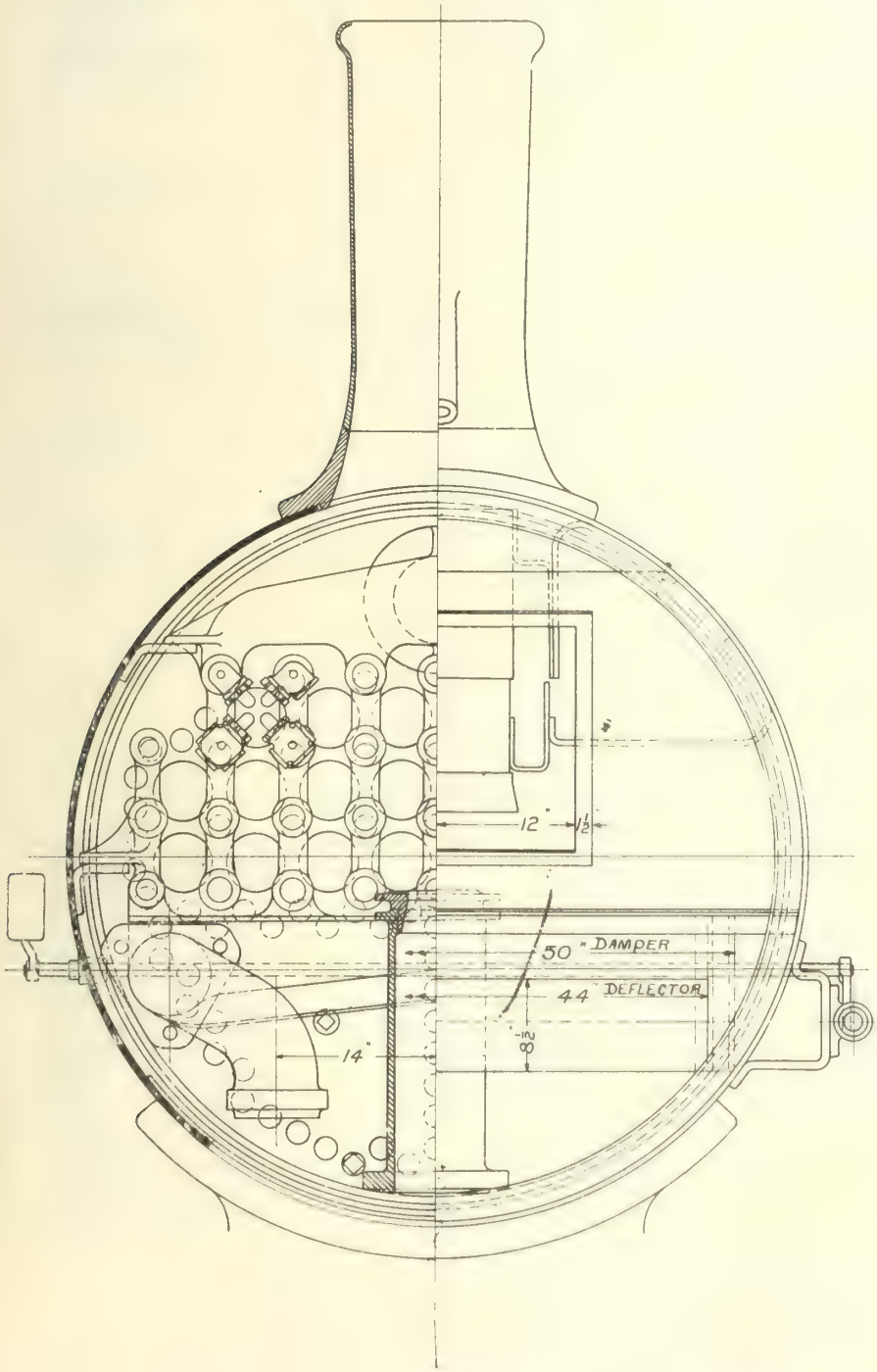
The voting on a bylaw approving an agreement with the company for the location of its terminals in Dartmouth, N.S., which was fixed for Aug. 22, was cancelled, on account of an omission having been made in the official copy of the agreement made public. An investigation showed that the omission of the words was due to a clerical error. It has been decided to bring the whole matter up again before the council.

Several survey parties are in the field working between Dartmouth and Cow Bay. (Sept., pg. 725).

Intercolonial Ry.—In an interview at Fredericton, N.B., Sept. 8, the Deputy Minister of Railways said the station and yards there were much in need of improvement, and the Managing Board would shortly give consideration to what was to be done. He could not say whether, when a new station was built, it would be for the I.C.R. only, or a joint one with the C.P.R.

The members of the Managing Board were at Campbellton Sept. 6, and gave considerable time to the consideration of plans for the laying out of the terminals there, to replace those destroyed in the fire. Press reports state that it was decided to take steps for the expropriation of additional property, in order to extend the yards. Ottawa dispatches of Sept. 12 stated that the Board had decided on the plans for the new buildings. A Campbellton press dispatch states that work has been started on the new roundhouse, the work being done under the charge of the local staff by day labor.

The Managing Board made an inspec-



C.P.R. Suburban Tank Locomotive. Smoke box details. (See also pg. 823.)

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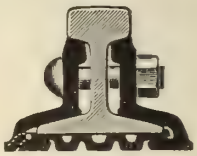
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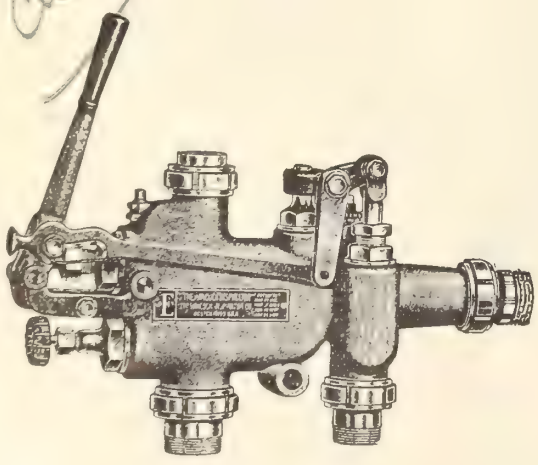
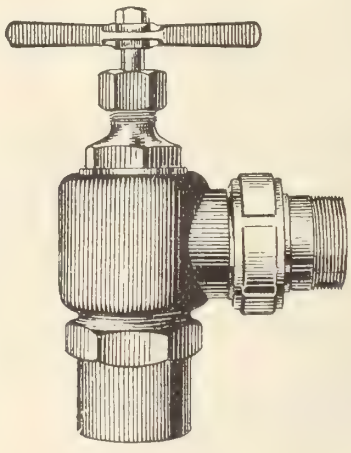




Pop Valves, Standpipes, Electric Semaphores, General Railway Supplies, Brass and Iron Body Globe, Angle and Gate Valves, Hydrants and Corporation Supplies.

tion of the Indiantown branch from Blackville to Derby Jct., including the new line from Derby, Sept. 8, and on the following day inspected the new line being built into Chatham. About three miles of the line has been graded between Nelson and Morrison Brook, and one mile of track is reported laid from the Nelson end.

A recent Ottawa dispatch referring to the agitation which is being promoted in Ontario with a view of having the Intercolonial extended from Montreal to Toronto or to the Georgian Bay, stated the question is one of those which will be considered by the Cabinet. A second dispatch points out that such an extension would cost $20,000,000. and added that it was probable that engineers would be detailed to determine routes and to prepare plans. A third dispatch said it is stated in official circles there, that such an extension was not likely to come within the region of practical politics for some years to come (Sept. pg. 727.)

Kettle Valley Lines.—We are advised that the section of the line under contract at present is the first 30 miles out from Merritt, B.C., close to the present terminus of the C.P.R. Nicola Valley branch, to a point known as Railway Pass. The line will eventually be extended to Midway, where it will again connect with the C.P.R., and thus afford a southerly route between the Boundary country and the Pacific Coast. There will be six crossings of the Coldwater River on the present section, the bridges being Howe truss spans on concrete abutments. The maximum curvature of the line is 12 degrees, and a 1% gradient has been secured up to Railway Pass. The first 12 miles is comparatively flat and the work is mainly earth work; the other 18 miles is heavy sidehill work with considerable rock. The contractors are Macdonnell, Gzowski and Co., Vancouver, and sub-contracts have been let as follows:—MacMillan and Murcheson, Vancouver, 17 miles; Holby and Owens, Vancouver, four miles; J. B. Bright and Co., Vancouver, four miles; Macdonald and Lunge, Seattle, Wash., five miles.

Penticton ratepayers have ratified the agreement with the company for its location in the town. Surveys have been started, and it is expected the construction will be begun at an early date.

The valuators appointed to fix a value for the old Midway and Vernon Ry. grade and right of way and for the adjustment of accounts outstanding by that company, met in Victoria, recently, to complete their report. The amount fixed by the valuators will be paid by the K.V. Ry., in which company the property acquired will be vested. The M. and V. right of way ends at Rock Creek, about 10 miles out from Midway, and a contract is reported to have been let to L. M. Rice & Co., Seattle, Wash., to grade from Rock Creek to Bull Creek, 35 miles, the work to be started at once.

Referring to the building of the line to Railway Pass, a press report says the line will continue along the Coldwater to July Creek, along July Creek to Boston Bar Creek, along Boston Bar Creek to the Coquihalla reaching the latter in the vicinity of St. Elmo where the Fraser will be bridged so as to bring the line across to Ruby creek to connect with the C.P.R. This will give the Kettle Valley three junction points with the C.P.R., the other two being at Midway and Merritt. (Sept., pg. 727).

Klondike Mines Ry.—We are advised that the company's line is 31 miles long, that no extensions have been made during the past year, and no further construction is contemplated at present. (July, 1909, pg. 477).

Liverpool and Milton Ry.—We are informed that while an act has been passed authorizing the company to extend its lines, no construction is likely to be done at present. Negotiations have been going on for the last two years between the company and the Halifax and South Western Ry, in reference to the former being absorbed by the latter. It is not likely that either company will do any work towards extending the line this season. (May, pg. 557.)

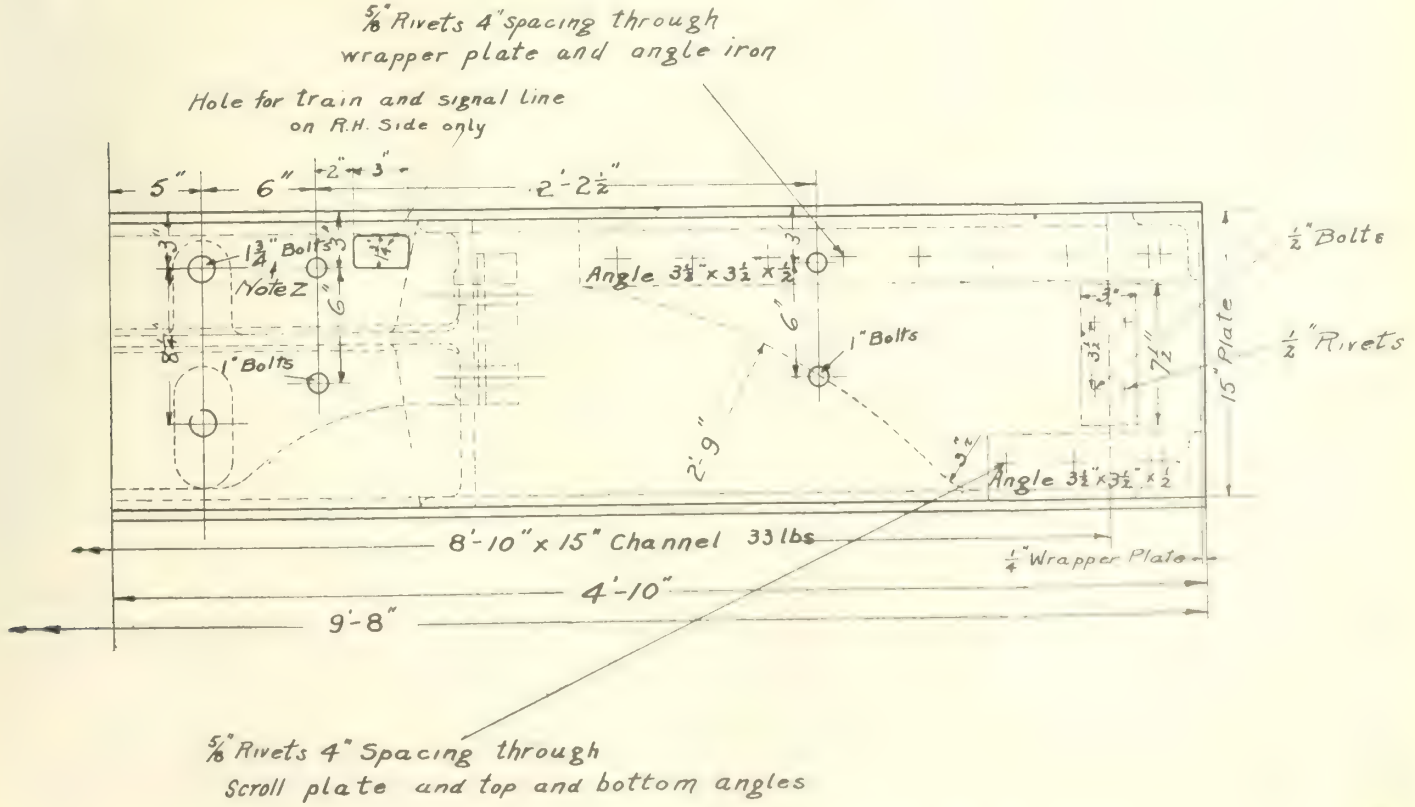
Manitoulin and North Shore Ry.—The contract let to O'Boyle Bros., Construction Co., (Ltd.,) Sault Ste. Marie, Ont., is for the construction of about 18 miles of line from the north side of Goat Island channel near Little Current, northerly to Whitefish River, Ont (Sept. pg. 727.)

Michigan Central Rd.—The St. Thomas, Ont., city council has granted the company a permit for the erection of a roundhouse there, estimated to cost $50,000. (Sept., pg. 727).

New Brunswick Coal and Ry. Co.—The roundhouse at Minto, N.B., was totally destroyed by fire Sept 14, together with two locomotives and a flat car. (Dec., 1909, pg. 883.)

Newfoundland Exploration Syndicate.—Under the terms of an agreement made between the Government and the N.E.S., Dec., 1909, and ratified last session of the Legislature, the N.E.S. is given the exclusive right to prospect for coal within the colony, except on certain specially reserved areas. The sum of $15,000 is to be expended during 1910, and a further $10,000 during 1911, in the event of coal in workable quantities not being found during 1910. The company's rights may be renewed after 1911, on terms to be agreed upon. In the event of coal being found in workable quantities the N.E.S. is to be given grants of lands, not to exceed four in number, the area of each grant not to exceed seven square miles, and no two areas to be nearer to each other than seven miles. The company is also to receive grants of land in fee simple for the right of way for railways, tramways, shipping ports, and sites for stations, buildings, yards, etc., together with alternate five acre blocks of land on either side of such railway or tramways, (should such land be in the gift of the crown). The agreement is signed on behalf of the N.E.S., by F. E. Proctor, V. B. G. Cooper, directors; and A. H. Gurr, secretary.

Northern New Brunswick and Seaboard Ry.—When the Canada Iron Corporation acquired the iron ore fields at the junction of the Austin Brook with the Nipisiguit River, some 23 miles from Bathurst, N.B., the Dominion Government had under consideration the build-



C.P.R. Suburban Tank Locomotive. Front end bumper. (See also pg. 829.)

F. E. RICHARDSON, Pres. and Treas. ESTABLISHED 1865 W. L. MILLER, Secretary

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THE ELECTRIC HEADLIGHT

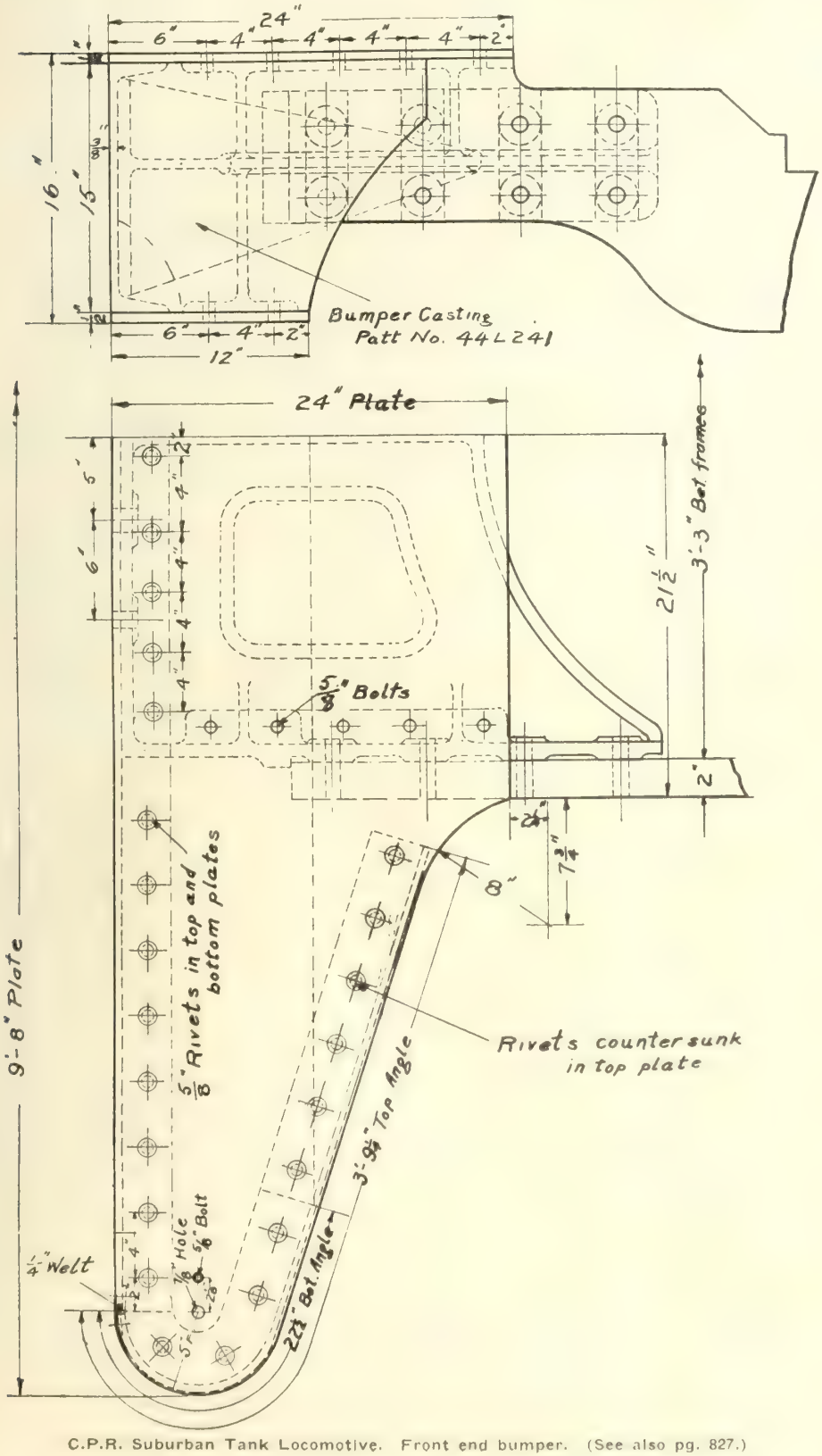
The following letter was received under date of May 8, 1908, from Mr. J. W. Cleary, Travelling Engineer Pyle-National Electric Headlight Co.:

"I learn from_____the Master Mechanic here, that an engineer running between_____ and_____discovered a broken rail with the Pyle-National Electric Headlight and made the stop without ditching his train. One or two pairs of wheels got off, but that was a small affair to what it would have been where a foot of the rail was broken off. Also an engineer running east of here found some cars shoved out on the main line. He saw them with the 'Electric' and made the stop without hitting them."

PYLE-NATIONAL ELECTRIC HEADLIGHT CO.
MONADNOCK, CHICAGO

ing of a branch line from the Intercolonial Ry, there. Two routes had been surveyed, one from Red Pine station, 14 miles, and the second from Black's Cut, 19 miles. Subsequently the company came to an understanding with the Dominion and the provincial Governments, and the line from Black's Cut to the mines was built by Wheaton Brothers, the contractors. The ore trains run from Black's Cut, over the I.C.R for four miles to Bathurst, the harbor at which place is to be dredged to allow of steam and other vessels being brought in to be loaded. At present the ore is being shipped from Newcastle. (Sept. pg. 727.)

The Northern Quebec Colonization Ry. Co. was incorporated last session of the Dominion Parliament to build a railway from Tadousac, at the mouth of the Saguenay River, westerly along the north shore to Lake St. John, thence northwesterly to between Lake Chibougamau and Lake Mistassini, Que.; thence northwesterly to Hannan Bay. Ont.; and from between Lake Chibougamau and Lake Mistassini southerly to Weymontachene, Que., on the National Transcontinental Ry. The provisional directors are: N. Drouin, J. Picard, W. Ray, Quebec; P. Touriguy, Victoriaville, Que.; J. B. Phillips, Haileybury, Ont. (April, pg. 271).



C.P.R. Suburban Tank Locomotive. Front end bumper. (See also pg. 827.)

Ottawa Rideau Valley and Brockville Ry.—A meeting for the organization of this company has been called to be held at the office of D. H. MacLean, Central Chambers, Elgin St., Ottawa, Oct. 4. The notice is signed by the following for the provisional directors:—A. McDermott, R. E. Elliott, F. A. Heney, E. W. Clark, G. E. Kidd, D. H. MacLean, W. C. Maclaren, J. H. Gilmour. (Aug., pg. 629).

Pincher Creek, Cardston and Montana Ry.—Under the terms of the company's act of incorporation, a meeting of shareholders for organization was called for Sept. 30. We were recently advised that the directors then already decided on were W. C. Teter, banker, 10 Wall St., New York City, and E. Van Etten, a director of the New York Central and Hudson River Rd. The three other directors had not been decided on at the time of our advice, but in accordance with the provisions of the act of incorporation they must be Canadians domiciled in Alberta. The company has power to build a railway of about 125 miles from the International boundary, via Cardston and Pincher Creek, to Pincher station on the C.P.R., with a branch line up the south fork of the Old Man River to the boundary of British Columbia. Surveys are being made for these lines under the charge of J. H. Fine, of Philadelphia, the company's Chief Engineer. No contract has yet been let, but we are advised it is expected to let one soon after the organization of the company has been completed, and to start building the line this fall. A contract has been let to A. J. McGuire for the supply of ties for the line.

Some delay is reported to have been met with in the survey on account of bush fires, but the preliminary work was reported completed Aug. 26. The provisional plans for the line from the boundary were submitted to the Alberta Government Aug. 29, and were approved Sept. 10. The plans show a line from the boundary, (where connection is to be made with a line to be built southerly to a junction with the Great Northern Ry. 28 miles south of Coutts), north westerly through Cardston and Pincher Creek to the west side of sec. 34 at the south fork of Old Man River.

It is said that the company has acquired control of another charter authorizing the building of a line through almost the same territory, and that at the next session of the Alberta Legislature it will apply for an extension of the charter permitting it to run the main line through Alberta by way of Calgary and Edmonton to the Peace River country. It is said a line will also run south into the Kootenay coal fields.

The additional lines projected also include a branch to the Kootenay coal fields, where it is reported that the company has secured large areas of coal lands.

Port Hood-Richmond Ry. Coal Co.—We are advised that so far the company is merely engaged in coal mining, although its charter authorizes the building of a line from Port Hood to Port Malcom, N.S. J. H. Henderson, Port Hood, N.S., is the company's chief agent. (June, pg. 451.)

Portland Canal Short Line Ry.—There has been deposited with the Department of Public Works at Ottawa, plan and description of a proposed railway wharf and trestle approach thereto, to be constructed at the mouth of Bear River, Stewart, B.C., and notice is given that application is being made for the approval of the same.

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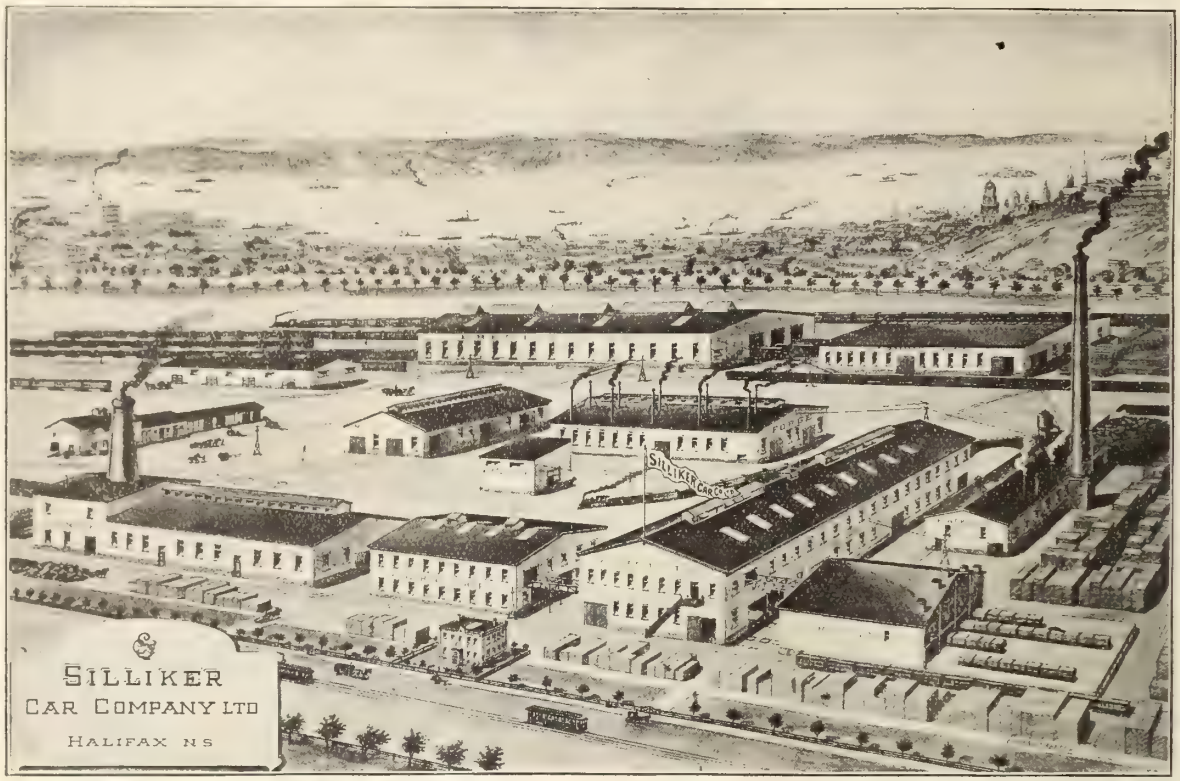

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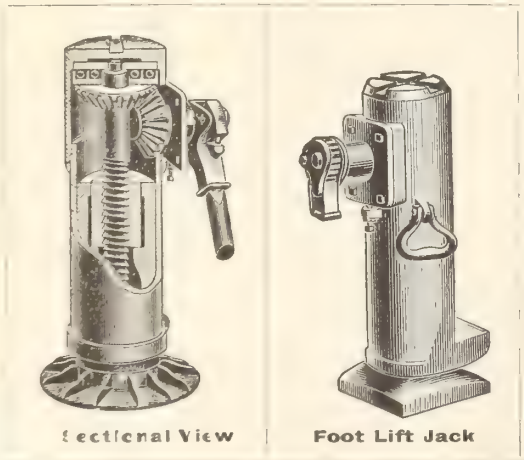
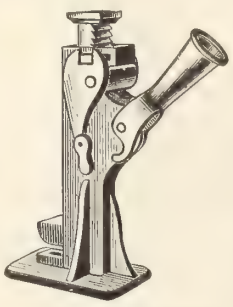


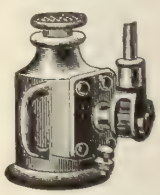
Sectional View | Foot Lift Jack

50 Styles 8 to 100 Tons Capacity
Carried in stock for IMMEDIATE DELIVERY



15 Ton Track Jack

Traversing Jack



Journal Jack

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Stock Carried by MUSSENS LIMITED, Montreal and Winnipeg

T. Cameron, who has been in charge of a grading contract on the line was in Prince Rupert, Aug. 30, and stated that nine miles were ready for track laying. A vessel with a cargo of rails for the line was lying in the harbor waiting for the completion of the wharf so as to unload. The plans for the station have been approved and the building will be started immediately. (Sept., pg. 727).

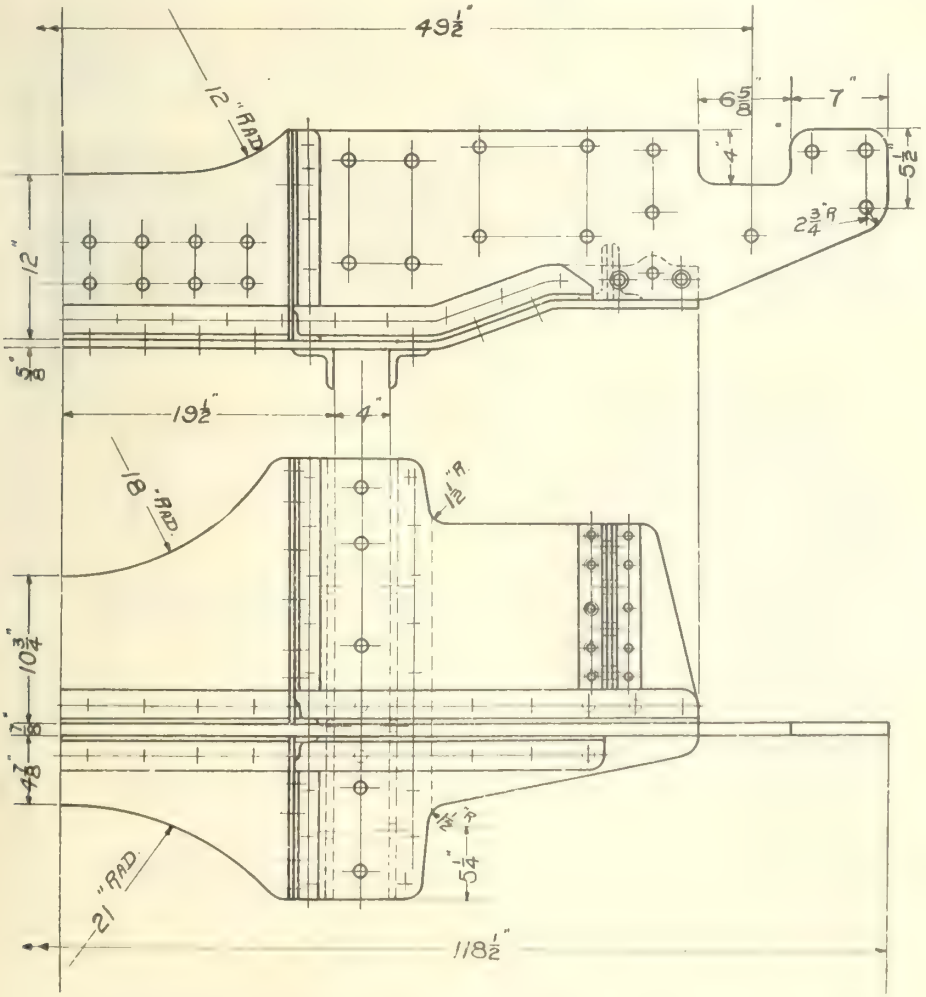
Port Simpson to Skeena River.—The British Columbia Legislature is being asked to incorporate a company with this title to build a railway from Port Simpson or Work Channel, to the eastern boundary of B.C. The route provisionally outlined in the application is via the south side of Work Channel to the Skeena River; along the north bank of this river to Hazleton, thence to the junction of the Bulkley and Skeena rivers; along the right bank of the Bulkley River to the Suskewa River, along the banks of the latter river and across a low divide to the head of Babine Lake, thence to the north end of Stewart Lake, and by the McLeod Lake to the Misnichinca River, along the valley of that river and by Summit Lake to Pine River Pass; thence northwesterly to the head of Pine River, along its valley to Moberley Lake, and thence by the Peace River Valley to the eastern boundary of the province. Barnard and Robertson, Victoria, are solicitors for applicants.

Prince Edward Island Tunnel.—Speaking at the annual meeting of the Maritime Board of Trade at Chatham, N.B., recently, Lieut.-Governor Tweedie of New Brunswick, said he was not in favor of constructing a tunnel under Northumberland Strait to connect the mainland railways with Prince Edward Island. He said the solution of the matter lay rather in the building of warehouses on the mainland where the produce of the island could be stored. (Jan., pg. 23).

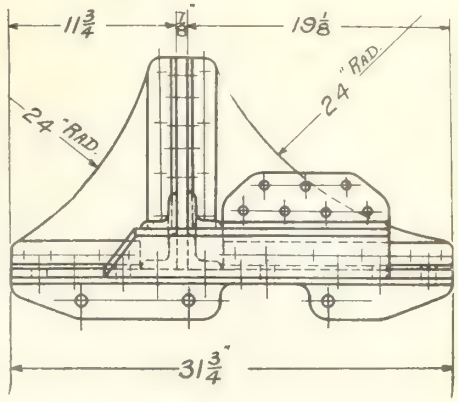
Quebec Central Ry.—The English officers of the company completed their annual inspection of the line Aug. 31. Press reports state that some new construction will be started in Bellechasse county at an early date. The only line which the company has under consideration which will pass through Bellechasse county is the extension from St. George, Beauce county to Cabano, on the Temiscouata Ry., and upon this line some work has already been done in Beauce county. Dorchester county lies between Beauce and Bellechasse counties. (Aug., pg. 631).

Reid Newfoundland Co.—We are advised that the company is erecting at St. John's, Nfld., a car building shop 228 by 50 ft. Orders have been placed for the machinery required, in addition to the present shop equipment. The company is at present building locomotives and cars for its lines, as it is required to do under the terms of the agreement approved last session of the Legislature. The company may in the future add a foundry to its shops at this point. The old car shops, President Reid said in a recent interview will be made an annex to the machine shop, where the company is at present cramped for space.

W. D. Reid, President, in speaking recently of the work on the Bonavista branch now under construction, said track was laid as far as mileage 43; the grading is finished almost down to salt water at Trinity, 52 miles. The clearing of the right of way is being kept well ahead of the graders, and on Aug. 30, the right of way had been cleared to the 58th mile. The location survey of the branch was completed. All the masonry on the line had been completed as far as Seal Cove, and the erection of the new station at Shoal Harbor had been started. (Sept., pg. 729).



C.P.R. Suburban Tank Locomotive. Frame details cross ties. (See also pg. 833.)



C.P.R. Suburban Tank Locomotive. Frame details cross ties. (See also pg. 833.)

Spokane International Rd.—Under the charter of the Cœur D'Alene and Pend d'Oreille Rd., an extension is being built from the main line of the S.I. Rd., 25.5 miles from Spokane, Wash., to Cœur d' Alene, Idaho, and a branch is also being built from Corbin. The S.I. Rd. connects at the International boundary with a C.P.R. branch leaving the Crow's Nest line at Yahk. (July, pg. 551).

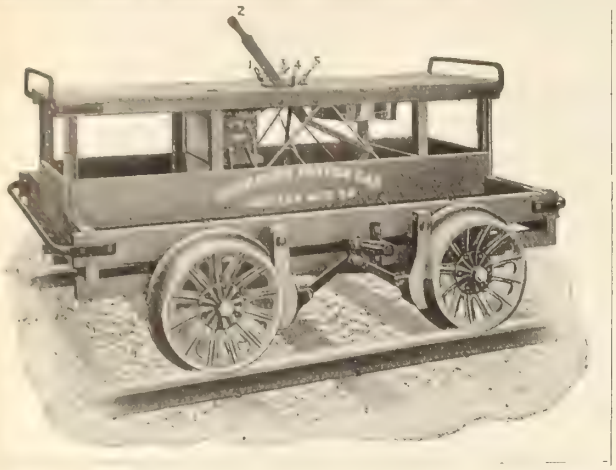
Timiskaming and Northern Ontario Ry.—On returning to Toronto from his recent trip of inspection over the line, J. L. Inglehart, Chairman of the Commissioners, said the foundations of the bridge over the Wabis River at mileage 119 3-4 are completed and it is expected to have the steel superstructure in position before the end of October. The bridge wil be 400 ft. long.

Press reports state that engineers have been detailed to make a survey for a line from Cochrane to James Bay passing through the Mattagami country in which large iron ore deposits are reported to have been discovered. (Sept., pg 729.)

Toronto.—The city of Toronto, Sept. 9, started building an industrial spur along the east bank of the Don River into the Ashbridge's Bay district. The line, which will be connected with the G.T.R., C.P.R. and Canadian Northern Ontario Ry., is for freight only. The work is being done under the superintendence of E. L. Cousins of the City Engineer's staff, and is expected to be completed by the end of the year. (Feb., pg. 111).

Toronto, Hamilton and Buffalo Ry.—Officers of the C.P.R. and of the T.,H. & B. Ry., met in Hamilton, Sept. 13, and H. H. Adams, Superintendent, T., H. & B. Ry., subsequently made the following statement: "The officers of the companies looked into the terminal facilities, but no drastic changes were decided upon. There was no mention made of the Canadian Northern Ontario Ry. coming to Hamilton, nor was anything said about the C.P.R. securing another entrance into the city. The proposed building of the Hamilton and Guelph Ry. by the C.P.R. was mentioned, but nothing definite was said, as the company is nearly tied up with existing problems in its present road. It was announced that nothing would be done this year to double-track the line east of the city." (Sept. pg. 729.)

Vancouver Island. Referring to the reports as to the building of a logging railway from near Port Renfrew to Port San Juan, Vancouver Island we are officially informed that the Red Fir Co., Nanaimo, which was reported to be be-



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hind the project, has no knowledge of the projected line.

Western Canada Power Co.—The line from Ruskin, B.C., on the C.P.R., to the company's power plant in course of erection at Stave River Falls, was expected to be completed by Sept. 30. The line skirts the wagon road almost the entire distance. Construction has generally been easy, there being only a few rather large cuts, and two places where any great amount of trestle work was required. Grant, Smith and Co., Spokane, Wash., were the contractors. (Aug., pg. 631).

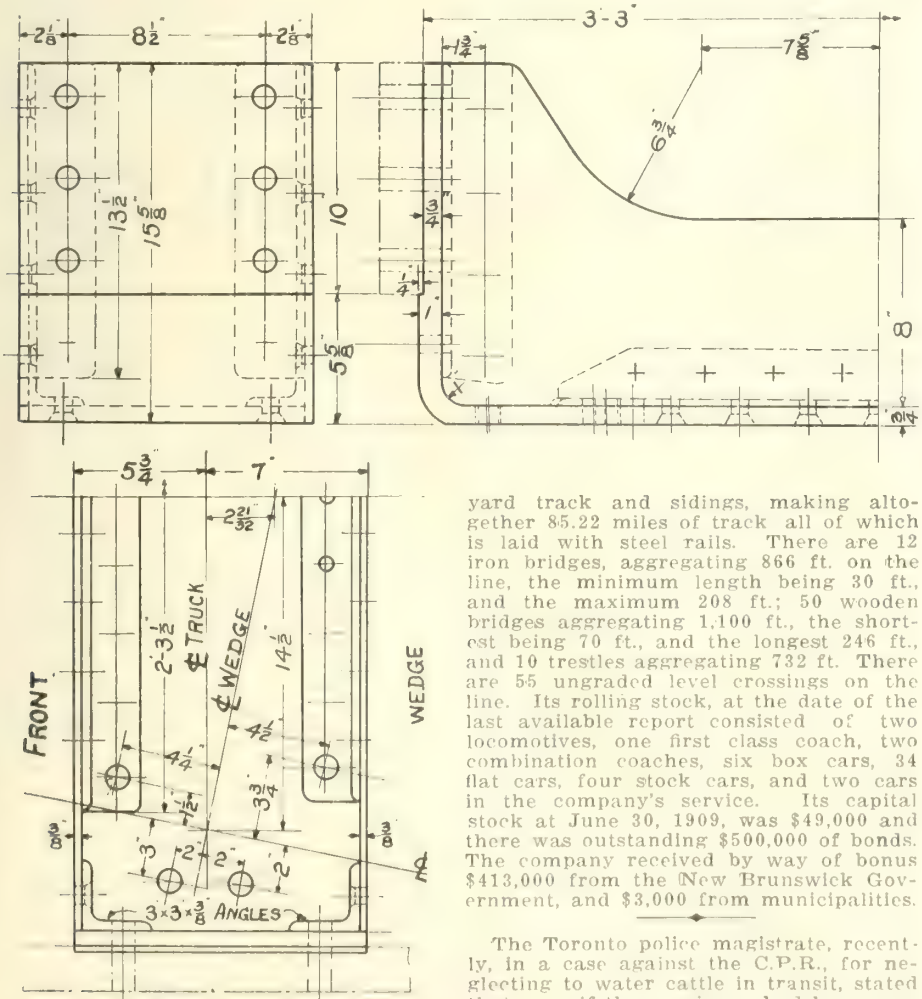
Winnipeg City Power Plant.—A Dominion order-in-council has been passed authorizing the Winnipeg city council to lease for five years a right of way for a spur line from the power line railway line between Lac du Bonnet and Point du Bois to a gravel pit to be opened on the north half of sub-division 5, sec. 2, tp. 16, range 14, east of the principal meridian. (Jan., pg. 23).

New Brunswick Southern Railway.

A special meeting of the shareholders of the company has been called to be held in St. John, N.B., Dec. 28, for the purpose of considering whether it is expedient to lease the company's railway to the C.P.R., and if so to approve of the terms, condition and form of lease. We are advised that the meeting is only a formal one, the C.P.R. having been in charge of the operations of the company for the last two years through the control of all the stock. The lease, which is for 999 years, provides that the C.P.R. shall pay an annual rental equivalent to 3% a year on the N.B.S.R. Co.'s outstanding bonds, aggregating $500,000.

The Shore Line Ry. was incorporated by the New Brunswick Legislature in 1889, and in 1895 the undertaking was declared to be one for the general advantage of Canada. The company was then given power to build a line from St. John to a connection with the Central Ry. on the St. Martin's branch, or at Norton in King's County, and to lease or otherwise acquire the line. The line built under the New Brunswick charter extended from St. John to St. Stephen, N.B., but nothing was ever done in the way of building the extension to the Central Ry., which has since been absorbed by the New Brunswick Coal and Ry. Co. The railway was not very successful and its control passed into the possession of the late Russell Sage of New York, from whose executors it has passed to the C.P.R. The title of the Shore Line Ry. was abandoned in 1901 when an act was passed by the New Brunswick Legislature authorizing the change. With a view of removing all doubts as to the company and its property an act was passed by the Dominion Parliament in 1908 recognizing the New Brunswick incorporation of the N.B.S. Ry., declaring its undertaking to be one for the general advantage of Canada, and authorizing the construction of a bridge across the St. Croix River at St. Stephen, for the purpose of making a connection with the Washington County Ry. in the State of Maine.

The N.B.S.R. is 82.19 miles long with 0.16 mile of a spur line, 2.87 miles of yard track and sidings, making altogether 85.22 miles of track all of which is laid with steel rails. There are 12 iron bridges, aggregating 866 ft. on the line, the minimum length being 30 ft., and the maximum 208 ft.; 50 wooden bridges aggregating 1,100 ft., the shortest being 70 ft., and the longest 246 ft., and 10 trestles aggregating 732 ft. There are 55 ungraded level crossings on the line. Its rolling stock, at the date of the last available report consisted of two locomotives, one first class coach, two combination coaches, six box cars, 34 flat cars, four stock cars, and two cars in the company's service. Its capital stock at June 30, 1909, was $49,000 and there was outstanding $500,000 of bonds. The company received by way of bonus $413,000 from the New Brunswick Government, and $3,000 from municipalities.



C.P.R. Suburban Tank Locomotive. Frame details, cross tie. (See also pg. 831.)

The Toronto police magistrate, recently, in a case against the C.P.R., for neglecting to water cattle in transit, stated that even if the consignor had been negligent, as alleged, the company was not absolved from responsibility, and could not contract itself out of its liability.

Canadian Northern Ry. Earnings, Etc.

Gross earnings, working expenses and net profits from July 1, 1910, with increases over, or decreases from, those of 1909-10:

	Earnings.	Expenses.	Net Earnings.	Net Increase or Decrease.
July	$1,225,100	$876,900	$348,200	$118,100+
Inc.	$ 381,600	$263,000	$118,600	.....

Approximate earnings for Aug., $1,093,000, and for two weeks ended Sept. 14, $544,300, against $807,100 and $430,100 for same periods 1909. Mileage operated, 3 297, against 3,094 during the same period 1909.

C.P.R. Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits, increases or decreases over 1909-10, from July 1, 1910:

	Earnings.	Expenses.	Net Profits.	Net Increase or Decrease
July	$8,869,214.32	5,384,594.73	3,484,619.59	1,004,748.86+
Inc.	1,729,184.39	724,435.53	1,004,748.86	

Approximate earnings for Aug., $8,926,000, and for two weeks ended Sept. 14, $4,153,000, against $7,152,000 and $3,500,000 for same periods 1909.

DULUTH, SOUTH SHORE AND ATLANTIC RY.—Operating revenue for July, $311,982.85; operating expenses, $195,458.46; net revenue, $116,524.39, against $285,234.18 operating revenue; $203,288.70 operating expenses; $81,945.48 net revenue for July, 1909. Approximate gross earnings for Aug., $346,095, and for two weeks ended Sept. 14, $141,750, against $308,376 and $143,525 for same periods 1909.

MINERAL RANGE RD.—Operating revenue for July, $58,133.73; operating expenses, $72,552.53; deficit, $14,418.80, against $73,665.33 operating revenue; $62,850 operating expenses; $10,815.33 net revenue for July, 1909. Approximate gross earnings for Aug., $63,944, and for two weeks ended Sept. 14, $29,349, against $74,015 and $34,395 for same periods 1909.

MINNEAPOLIS ST. PAUL AND SAULT STE MARIE RY.—Operating revenue for July, $1,228,655.09; expenses and taxes, $776,816.90; operating income, $451,838.19, against $1,144,521.82 operating revenue; $737,164.58 expenses and taxes; $407,357.24 operating income for July, 1909. Approximate gross earnings for Aug., $1,998,739, and for two weeks ended Sept. 14, $957,013, against $1,785,028 and $1,117,326 for same periods, 1909.

CHICAGO DIVISION.—Operating revenue for July, $806,661.07; expenses and taxes, $545,595.35; operating income, $261,065.72, against $718,412.08 operating revenue; $464,230.06 expenses and taxes; $254,182.02 operating income for July, 1909.

Grand Trunk Ry. Earnings, Expenses, Etc.

The following figures show the earnings of the G.T.R., C.A.R., and G.T. Western Ry. and D., G.H. & M. R. separately for July:

GRAND TRUNK RAILWAY.	
Earnings	$2,538,400
Expenses	1,826,750
Net earnings	$711,650
CANADA ATLANTIC RAILWAY.	
Earnings	$126,000
Expenses	135,900
Deficit	$9,900
GRAND TRUNK WESTERN RAILWAY.	
Earnings	$394,400
Expenses	335,700
Net earnings	$58,700
DETROIT, GRAND HAVEN AND MILWAUKEE RY.	
Earnings	$121,200
Expenses	120,200
Net earnings	$1,000

Approximate earnings for Aug. $2,888,149 and for two weeks ended Sept. 14, $1,921,444, against $2,879,169 and $1,511,111 for same periods 1909.

TRAFFIC RETURNS OF THE SYSTEM

Aggregate from July 1 to Aug. 31—

	1910.	1909.	Dec.
Grand Trunk	£1,151,928	£1,163,036	£11,107
Canada Atlantic	59,283	69,779	10,496
G.T. Western	183,405	215,267	31,862
D.G.H. & M.	57,084	66,425	9,341
Total	£1,451,700	£1,514,506	£62,806

The C.P.R. staff records show, we were officially informed, Sept. 9, that the number of employes exceeds 76,000, of whom nearly 12,000 are in Montreal.

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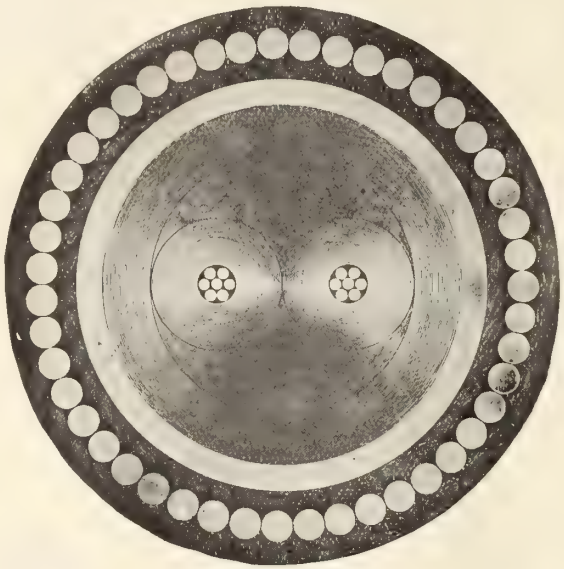

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G. T. R. Betterments, Construction Etc.

New England Southern Ry.—E. H. Fitzhugh, Vice President G.T.R., was in Providence, R.I., Sept. 7, to confer with the Mayor as to the improvements which the newly appointed Harbor Commission proposes to carry out. Providence is the terminal point of the new line which the Central Vermont Ry., a G.T.R. subsidiary, proposes to build in order to secure an additional deepwater outlet.

Montreal Track Elevation.—R. S. Logan, Assistant to the President, in a recent interview upon the doing away with level crossings in Montreal, is reported to have said: "We have been considering this complicated question for fully 10 years, and we are to-day little farther advanced, but perhaps these latest plans may go through—who knows? Our engineers are at least going into the matter very thoroughly, and will have plans ready for the Board of Commissioners when the matter is to be taken up. Perhaps a definite announcement will then be made."

Ottawa Station and Hotel.—Work has been resumed upon the station annex, the walls of which were expected to be completed by Sept. 30. The work of tearing down the various old buildings on the site of part of the new building is being proceeded with, and the work generally on the station and hotel is being gone on with.

Toronto Belt Line.—The G.T.R. belt line has been reconstructed between the old Northern Ry. on Davenport St., and Yonge St., and was expected to be ready for freight operation by Sept. 30.

Bathurst St.-Humber Improvement, Toronto.—Actual work on the depression of the tracks between Bathurst St. and to the east of Sunnyside, and their elevation from Sunnyside to the Humber, was started Sept. 15. The engineering staff in charge of the work is located at No. 1 Cowan ave. The work at present being done is the preparation of the additional tracks necessary for the carrying on of traffic while the work is being gone on with on the new roadbed. Two steam shovels and one pile-driver are already at work. The operations are being directed by J. R. W. Ambrose, the company's grade separation engineer in Montreal, and S. D. McCooe is in charge of the work as superintendent.

Guelph Station.—A conference has been arranged between the citizens and the company for the purpose of discussing the question of the use of Jubilee Park, for the expropriation of which for station purposes the company has given notice.

Stratford-Goderich Line.—The ballast pit on the hill near Saltford bridge, Mitchell, Ont., has been reopened, and a siding laid into it for taking out ballast for the line between Stratford and Goderich, upon which heavier rails are being laid.

Goderich Yards.—Two additional sidings are being laid in the yards at Goderich, Ont., on a portion of the hillside recently taken in above the overhead bridge on the Stratford road. They will have accommodation for 75 cars. (Sept., pg. 751.)

Dominion Grade Crossing Fund.—The Dominion Parliament appropriated $1,000,000, spread over 10 years in aid of the elimination of grade crossings. The Board of Railway Commissioners has laid down the principal that the fund is to be used to assist municipalities and railway companies to abolish level crossings where such abolition is for the benefit of the public. About $25,000 of the fund was used in 1909, and about the same amount has been appropriated for the work this year.

Railway Commissioners' Traffic Orders.

Summaries of other traffic orders are given on another page under "Orders by Railway Commissioners":—

EXCURSION AND OTHER SPECIAL PASSENGER TRAFFIC.

11395. Aug. 15.—Whereas railway companies, subject to the provisions of the Railway Act, are occasionally offered excursion or other special passenger traffic which, if accepted, must be moved immediately, or with less than the three days notice required by the Act for filing the necessary special tariffs, and without affording the Board time for dealing with such matters by the customary procedure; and whereas by sec. 332, "the Board may, owing to the exigencies of competition or otherwise, notwithstanding anything in this section contained, determine the time or manner within and according to which publication of any such tariff is to be made;" and whereas the prompt acceptance and movement of the said traffic appears to the Board to be in the public interest; it is ordered that the Chief Traffic Officer of the Board be authorized to deal with such urgent cases on application of the companies by telephone or telegraph, and, in his judgment, and on behalf of the Board, to give the required permission, subject to such conditions as may seem to him to be necessary, including the immediate publication and filing of the requisite tariff; or to require the formal submission of the application to the Board.

COAL RATES FROM SOUTHERN SASKATCHEWAN.

11550. Sept. 1.—Re complaint of Eureka Coal & Brick Co. of Estevan, Sask., alleging discrimination in freight rates charged by the C.P.R. on coal from Estevan, as well as discrimination in switching charges on coal at Estevan in favor of shippers at Roche Percee and Bienfait; and re application of Roche Percee Mining Co., of Roche Percee, Sask., for order directing the C.P.R. to reduce the rate on coal from Roche Percee to all points east on its line, to the rate now charged on the same commodity from Bienfait to all points east on its railway; and for an order removing the switching charge of $2 a car now exacted from the applicant company; and for an order directing a rebate of all overcharges paid by the applicant company. Upon hearing the applications at the sittings of the Board held at Regina and Winnipeg in Feb. and Nov. respectively, 1909, in the presence of counsel for the Western Dominion Collieries Company and the Eureka Coal & Brick Co., the evidence offered, and what was alleged at the hearing; and upon reading the reports of the Chief Traffic Officer—It is ordered that the applications be dismissed.

SUPPLEMENT 3 TO CANADIAN CLASSIFICATION 14

11599. Sept. 2.—Re application of Canadian Freight Association, under sec. 321 of the Railway Act, for order approving a proposed Supplement 3 to Canadian Classification 14:—The Canadian Freight Association having published the proposed advanced ratings in The Canada Gazette, as required by sec. 321; and the Board having furnished copies of the proposed supplement to the Canadian Manufacturers Association and the Boards of Trade of Montreal, Toronto, Winnipeg and Vancouver, and afforded sufficient time for the reception of objections to the proposed changes: Upon consideration of the said objections; and upon the hearing of the application in the presence of representatives of the railway companies the Managers of Transportation to the Canadian Manufacturers Association and the Montreal Board of Trade, and representatives of the Canadian General Electric Co., the Canadian Westinghouse Co., the Northern Electric Co., and the Otis-Fensom Elevator Co.; and upon the report and recommendation of the Chief Traffic Officer of the Board—It is ordered that the additions and changes embodied in the said proposed supplement 3 to Canadian Classification 14 be approved, subject to the following exceptions and additions:—

(1) The application for approval of the proposed increase in the carload rating of elevators and parts, in mixed carloads, from 6th to 5th class, is refused.

(2) The application with respect to the classification of churns is refused.

(3) The proposed ratings of electrical dynamos, generators, motors, transformers, and converters, small detached parts boxed, also of motors and pumps, combined, crated, small detached parts boxed, viz. l.c.l. 1st class, c.l. 5th class, to be changed to read l.c.l. 1st class c.l. 6th class; and the proposed ratings of dynamo bases (iron), detached from the dynamo, 1,000 lbs. per piece or over, viz. l.c.l. 3rd class, c.l. 5th class, to be changed to read "Same as castings."

(4) To the proposed rating of 2nd class, l.c.l., on rubber tiling, boxed, there be added a carload rating of 4th class.

And it is also ordered: (a) That the proposal of the Chairman of the Advisory Committee of the Canadian Freight Association, contained in his letter to the Board dated July 25, 1910, that, at the suggestion of the Deputy Minister of the Department of Naval Service, the classification of military stores and ordinance be applied also to naval stores and ordnance, be approved.

(b) That the proposed reduction in the rating of iron and steel fence gates, l.c.l., from 2nd to 3rd class, submitted to the Board in a letter from the Chairman of the Advisory Committee of the Canadian Freight Association dated Apr. 6, 1910, be approved.

(c) That the proposed rating of 2nd class on hockey sticks, l.c.l., finished or unfinished, in boxes, bundles, or crates, submitted to the Board in a letter from the Chairman of the Advisory Committee of the Canadian Freight Association, dated Aug. 19, 1910, be approved.

And it is further ordered: That the classification of churns, modified to read "hand churns," in straight carloads, be reduced from 5th to 6th class; and that the various ratings of churns so modified, be retained in the "hardware" and "woodenware" lists, and added to the "implement" list.

RATINGS OF OLD RAILS.

11562. Sept. 2.—Re application of Canadian Freight Association, dated July 3, 1909, under sec. 321 of the Railway Act, for approval of Supplement 2 to Canadian Classification 14: It having been arranged at the hearing at Ottawa, Sept. 22, 1909, for the proposed change in the ratings of old rails (iron or steel) to be held in suspension pending the furnishing by applicants of additional information relative thereto, order 8184, Sept. 25, 1909, approved the said supplement, subject, inter alia, to the condition that the proposed change with respect to old rails (iron or steel) be struck out, and the said additional information having since been filed with the Board, and upon consideration thereof—it is ordered that the application be dismissed.

Kingston's Ambition.—The City Council of Kingston, Ont., has directed the City Clerk to write the Presidents of the G.T.R., the C.P.R., and the Canadian Northern Ry. asking them to state what inducements they would require to build a line through their city. The G.T.R. main line between Montreal and Toronto passes north of Kingston, the city being reached [illegible]. The C.P.R. has an entrance into the city over its Kingston and Pembroke Ry., which has its headquarters in Kingston.

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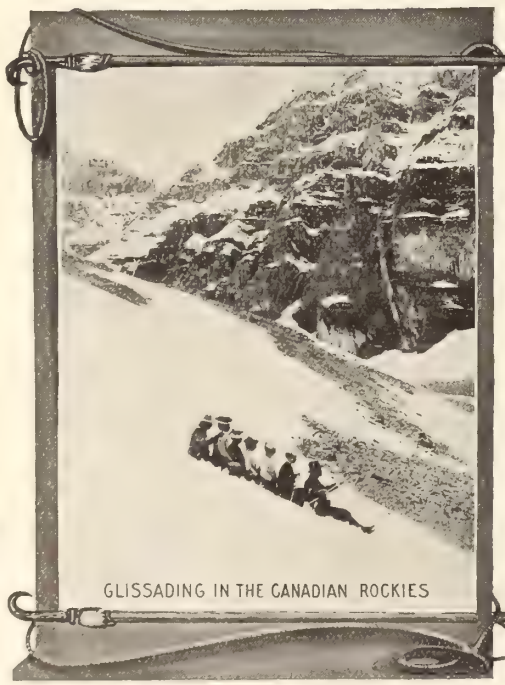

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Or any agent of the company.

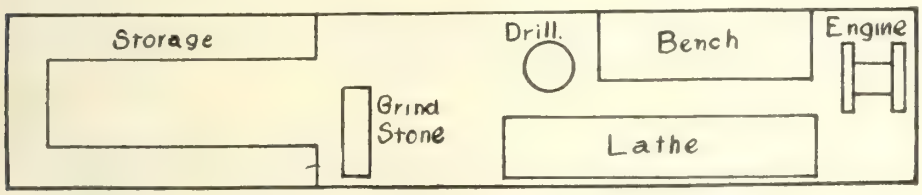
G. T. P. R. Machine Repair Cars.

The Grand Trunk Pacific Ry. has in use several machine cars for making repairs to locomotive and construction machinery at outlying points. They are ordinary box cars, arranged with windows for lighting purposes.

The equipment consists of a 12 inch lathe, a small drill, and grindstone; one of the cars also contains a shaper. The power used is a Fairbanks 6 h.p. gasoline engine, belted to a line shaft from which the power is transmitted to the machines.

As the work of construction has advanced farther west, and part of the road been put in operation, it has been found that one or two of the cars kept close to the front answer all requirements for light repairs. The cars, which would thus otherwise be thrown out of service, have been installed at divisional and round house points pending the providing of regular machine shops.

The advantage of having these cars close to the front on construction work can readily be seen. Without them, a foreman frequently has his ingenuity taxed to keep the equipment in working shape. A case in point is the breaking of a cast iron steam pipe on a steam shovel. This pipe broke off short next to the flange, about an hour before stopping time. By binding a piece of rope around the break and flange and running carefully it was possible to finish the day. The pipe was then removed and placed in the lathe, and the broken ends faced off, the inside of pipe and flange threaded and a two inch pipe nipple screwed in. When a new steam pipe arrived a week later from the general stores the repaired pipe was still giving perfect service and was left in place.



Another case is the chipping off of a piece of the seat on a locomotive throttle. The engine became unsafe to handle without brakes partly set. The breaking of a brake hanger pin disabled the brakes. A new pin was made in the lathe and the throttle removed and faced while the engine was being washed out. The machine car in this case saved a trip of over 100 miles over partly ballasted track.

International Traffic Control.—In an interview at Vancouver, B.C., Sept. 6, J. P. Mabee, Chairman of the Board of Railway Commissioners, is reported to have said that a basis of agreement for the control of international commerce between Canada and the U.S., was reached at the recent conference he had with M. A. Knapp, Chairman of the Interstate Commerce Commission. The details were being worked out, and when everything was completed the agreement would be presented to the Dominion Parliament and to Congress for ratification. M. A. Knapp, in an interview at Washington, D.C., Sept. 13, is reported to have said that another conference would be held either in Oct. or early in Nov., when he and Mr. Mabee, would further consider the matter. Mr. Knapp added that he expected to have his report ready for presentation by Jan. 1.

The Armstrong Cartage Co., which handles the C.P.R. and the Toronto, Hamilton and Buffalo Ry. cartage business in Hamilton, Ont., is building a large storage warehouse at the head of Victoria Ave. The basement is to be fitted with a cold storage plant.

October Birthdays.

Many happy returns of the day to:—

R. A. Burford, cashier C.P.R. ticket office, New York City, born at Brooklyn, N.Y., Oct. 4, 1878.

G. E. Burns, Freight Claims Agent C.P.R. Eastern Lines, Montreal, born at St. Thomas, Ont., Oct. 6, 1863.

T. C. Burgess, Commercial Agent G.T.R., Minneapolis, Minn., born at New York City, Oct. 2, 1853.

F. F. Busteed, C.E., General Superintendent British Columbia Division C.P.R., Vancouver, born at Battery Point, Que., Oct. 10, 1858.

J. M. S. Carroll, Montreal Sales Manager Canadian Rubber Co., born at Ballarat, Australia, Oct. 22, 1874.

C. E. Cartwright, ex-Division Engineer C.P.R., Vancouver, B.C., born at Toronto, Ont., Oct. 13, 1864.

L. V. Druce, Commercial Agent G.T.R. and G.T.P.R., Vancouver, B.C., born at London, Eng., Oct. 20, 1873.

J. Earls, ex-Secretary and Treasurer Canadian Freight Association at Toronto, Ont., born in Ireland, Oct. 30, 1838.

C. E. Friend, General Auditor Canadian Northern Ry., Winnipeg, born at Brighton, Eng., Oct. 12, 1871.

W. P. Fitzsimmons, Commissioner of Industries G.T.R., Montreal, born at Detroit, Mich., Oct. 27, 1868.

A. H. Harris, Special Traffic Representative C.P.R., Montreal, Que., born in Devonshire, Eng., Oct. 15, 1855.

J. H. Hughes, Assistant Superintendent C.P.R., North Bay, Ont., born at Charlottetown, P.E.I., Oct. 7, 1865.

J. W. N. Johnstone, General Passenger Agent Reid Newfoundland Co., St. John's, Nfld., born at Campobello, N.B., Oct. 4, 1878.

W. M. Kirkpatrick, General Freight Agent Ontario Division through traffic, C.P.R., Toronto, born at Kingston, Ont., Oct. 8, 1874.

W. B. Lanigan, Assistant Freight Traffic Manager C.P.R., Winnipeg, born at Three Rivers, Que., Oct. 12, 1861.

J. W. Leonard, General Manager C.P.R. Eastern Lines, Montreal, born at Epsom, Ont., Oct., 1858.

W. T. Marlow, Import Freight Agent C.P.R., Montreal, born at Limerick, Ireland, Oct. 25, 1872.

R. Marpole, General Executive Assistant C.P.R., Vancouver, B.C., born in Montgomeryshire, Wales, Oct. 9, 1850.

F. G. Martyn, Assistant Superintendent C.P.R., West Toronto, Ont., born at Bury, Que., Oct. 7, 1848.

H. Paton, President Shedden Forwarding Co., director Bell Telephone Co., Montreal, born at Johnstone, Renfrew, Scotland, Oct. 5, 1852.

D. Pottinger, Assistant Chairman Government Railways Managing Board, Moncton, N.B., born at Pictou, N.S., Oct. 7, 1843.

N. L. Rand, ex-Master Mechanic I.C.R., Moncton, N.B., born at Shediac, N.B., Oct. 28, 1843.

H. G. Reid, Master Mechanic C.P.R., North Bay, Ont., born at Pembroke, Ont., Oct. 27, 1863.

W. S. Rollo, joint agent G.T.R. and Central Vermont Ry., St. John's, Que., born at Dundee, Scotland, Oct. 8, 1852.

J. K. Savage, Chief Train Dispatcher C.P.R., Brandon, Man., born at Forreston, Ill., Oct. 5, 1876.

Sir Thomas G. Shaughnessy, K.C.V.O., President C.P.R., Montreal, born at Milwaukee, Wis., Oct. 6, 1853.

A. B. Spence, Chief Dispatcher Reid Newfoundland Co., St. John's, Nfld., born at Harbor Grace, Nfld., Oct. 21, 1882.

C. W. Spencer, ex-General Manager Mackenzie, Mann & Co.'s Railway Lines east of Port Arthur, Montreal, born at Kemptville, Ont., Oct. 31, 1857.

W. S. Taylor, ex-Treasurer C.P.R., born at Dornoch, Sutherlandshire, Scotland, Oct. 18, 1839.

E. N. Todd, Export Freight Agent C.P.R., Montreal, born at Huntington, Que., Oct. 17, 1879.

L. H. Wheaton, Division Engineer National Transcontinental Ry., Moncton, N.B., born at Sackville, N.B., Oct. 5, 1866.

G. B. Wyllie, Travelling Passenger Agent Illinois Central Rd., Buffalo, N.Y., born at Toronto, Ont., Oct. 15, 1851.

The Bay of Quinte Railway.

Following the purchase of the Central Ontario Ry., the Marmora Ry. and Mining Co.'s line, and the Irondale Bancroft and Ottawa Ry., the Mackenzie, Mann & Co., interests have secured the Bay of Quinte Ry. which has a total of 89.37 miles of line, distributed as follows:—Deseronto to Bannockburn, Ont., 76,00 miles; Deseronto westerly, 2.00 miles; and Yarker to Sydenham, 11.37 miles. These lines were built under different charters, and finally amalgamated under the title of the Bay of Quinte Ry. The company also operates over 19 miles of the G.T.R. In the official report the mileage is divided as follows:—main line, 78 miles; branches and spurs, 11.37 miles; operated under trackage rights, 19 miles; yard tracks and sidings, 15.30 miles. There are on the line 73 unprotected level crossings; 12 iron bridges of an aggregate length of 1,010 ft., the maximum length being 200 ft., and the minimum length 24 ft.; and one wooden bridge 60 ft. long. Its rolling stock, June 30, 1909, the latest report available, consisted of seven locomotives; 8 first class passenger cars; three baggage, express and postal cars; 18 box cars, 126 flat cars, 20 gravel cars, two cabooses and three other road cars. There was outstanding on June 30, 1909, $1,395,000 of common stock, and $880,000 of bonds. The subsidies paid on account of the building of the lines were: From the Dominion Government, $350,455.25; from the Ontario Government, $84,000, and from municipalities, $197,990.43.

The B. of Q.R. head office is at Deseronto, the principal officials being President E. W. Rathbun; General Freight and Passenger Agent, J. F. Chapman; Superintendent, H. B. Sherwood. We have reason to believe that matters in connection with the operation of the line will not be changed at present, probably not until the Canadian Northern Ontario Ry. from Toronto to Ottawa is built to a connection with the B. of Q.R. near Napanee.

Cuba Ry.—The report for the year ended June 30, shows gross earnings of $2,559,335, working expenses of $1,452,036, and net earnings of $1,107,299, against $2,157,167 gross, and $950,088 net for the yearr ended June 30, 1909, The proportion of working expenses to gross earnings was 56.73% against 55.95% in the previous year. There is under contract rolling stock to the value of $476,753. In order to provide for the large increase of trade, and for the new lines nearing completion, the shareholders have authorized the creation of a mortgage to secure an issue of 5% improvement and equipment bonds, the amount to be issued not to exceed $[illegible] 000 a mile of completed railway.

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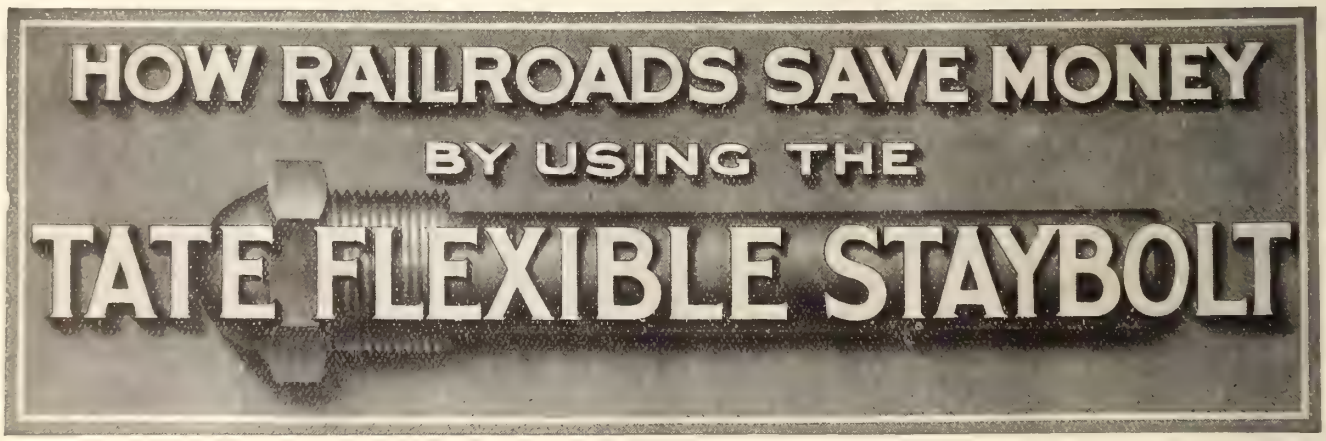

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Orders by the Railway Commissioners.

Beginning with June, 1904, we have published **in each** issue summaries of orders passed by the **Board** of Railway Commissioners, so that sub**scribers** who have filed our paper have a continu**ous** record of the Board's proceedings. No other **paper** has done this.

The dates given of orders, immediately following **the** numbers, are those on which the hearing took **place** and not those on which the orders were is**sued**. In many cases orders are not issued for a **considerable** time after the date assigned to them

11387. Aug. 11.—Amending order 11276 approving C.N.O.R. location in Belleville and Thurlow tp.

11388. Aug. 11.—Authorizing building of drain in con. 7, Malahide tp., Ont.

11389. Aug. 11.—Approving revised location of Eye Hill Creek extension of C.P.R. Pheasant Hills Branch from sec. 3, tp. 39, r. 28, w. 3 m., at mileage 0 and at mileage 492.2 on Pheasant Hills Branch at Macklin, to sec. 12, tp. 33, r. 22, w. 3 m., on Moose Jaw North Westerly Branch, being mileage 55.7 on extension.

11390. Aug. 11.—Authorizing C.P.R. to build bridge 24.2, Port Burwell Branch, Ontario Division.

11391. Aug. 11.—Extending time within which Essex Terminal Ry. was authorized by order 8993 to operate along Gravel Rds., Sandwich West tp., Ont., to Sept. 15.

11392. Aug. 9.—Authorizing C.N.O.R. to build between lots 10 and 11, con. 4, Clarke tp. and rescinding order 9562, Feb. 15, authorizing the construction of subway.

11393. Aug. 15.—Ordering C.P.R. to maintain day and night watchman at crossing of Winnipeg Electric Ry. on Logan Ave., Winnipeg.

11394. Aug. 1.—Granting application of Express Traffic Association of Canada, asking that the Board accept filing of joint tariffs of international express tolls from the U.S. to Canada, by F. G. Airy, New York, as joint agent for express companies interested.

11395. Aug. 15.—Authorizing the Board's Chief Traffic Officer to deal with urgent cases on application of railway companies in connection with excursion tariffs. This order is given in full on another page.

11396. Aug. 15.—Authorizing Coldwater village, Ont., to lay pipe under C.P.R. at Grey St.

11397. Aug. 15.—Authorizing town of Taber, Alta., to lay pipes under C.P.R. at De-Veber Ave.

11398. Aug. 15.—Authorizing town of Galt, Ont., to relay pipe under G.T.R., Galt and Berlin Branch, at Blair road and George St.

11399. Aug. 15.—Authorizing A. Leofred, C.E., of Quebec, to lay mains under G.T.R. at Charny, Que.

11400. Aug. 15.—Authorizing St. Lawrence and Adirondack Ry. to extend side track east of main line at Athelstan, Que., northerly and across third concession highway, Elgin tp., to its main line.

11401. July 25.—Approving revised location of Niagara, St. Catharines and Toronto Ry. across ponds 1, 2, and 3, opposite locks 12, 13, and 14, old Welland canal, Merritton, Ont.

11402. Aug. 16.—Authorizing C.P.R. to build spur from near Agassiz, B.C., on its main line, in s. e. 27-3-29, w. 6 m., northerly to ballast pit in sec. 34-3-29, w. 6 m.

11403. June 27.—Authorizing city of Brantford, Ont., to build foot crossing over Brantford and Hamilton Electric Ry., connecting Mary and Greenwich Sts., and crossing Brantford canal level.

11404. Aug. 16.—Rescinding order 2029, Nov. 26, 1906, made upon application of the National Transcontinental Ry. Commissioners, and authorizing them to join their tracks with the C.P.R., west of Rennie station, Man.

11405. Aug. 19.—Authorizing National Transcontinental Ry. to cross, at grade, C.N.R. Dundee branch, at mileage 246.5, St. Boniface, Man., the question of the interlocking appliances to be reserved for future consideration and in the meantime applicants to install a double arm semaphore to be operated by the trainmen.

11406. Aug. 18.—Authorizing British Yukon Ry. to open for traffic the portion of its line from Best Chance mine to Pueblo mine.

11407. Aug. 18.—Authorizing C.P.R. to use bridges 29.8, 35.6, 39.3, 47.9, 65.1, 87.12, and 87.37, on Esquimalt and Nanaimo Ry.

11408. Aug. 18.—Authorizing Montreal Light, Heat and Power Co. to erect wires across Dominion Bridge Co.'s siding, Lower Lachine road, Lachine, Que.

11409. Aug. 19.—Authorizing United Fuel Supply Co. to lay pipe under P.M.R. between cons. 1 and 2, Chatham tp., Ont.

11410 to 11416. Aug. 18, 19.—Authorizing Ontario Hydro-Electric Commission to erect wires at seven points.

11417, 11418. Aug. 18.—Approving location of C.N.O.R. station grounds at Port Hope and Greenwood.

11419. Aug. 19.—Authorizing Quebec Ry., Light and Power Co. to build branch from near Riviere des Chiens station on its main line to Tobin Manufacturing Co.'s yard and to cross public road in Chateau Richer parish.

11420. Aug. 18.—Authorizing G.T.R. to substitute plan C 2-36, dated Toronto, July 6, 1910, for plan 38, deposited in the Registry Office for Waterloo Co., on Apr. 16.

11421. Aug. 19.—Ordering G.T.P. Ry. to provide farm crossing for W. J. Beggs, Colonsay, Sask.

11422, 11423. Aug. 11-12.—Authorizing Volcanic Oil and Gas Co., to lay pipe under Essex Terminal Ry. and under G.T.R. at Tecumseh road, between Sandwich East tp. and Windsor, Ont.

11424. Aug. 22.—Authorizing T. H. & B. R. to build branch in Hamilton, Ont., from its easterly belt line northeasterly across Brant St., and G.T.R. Hamilton and North Western Division to the northerly limit of G.T.R. lands; to cross at grade, Brant St. and G.T.R. Hamilton and North Western Division north of Brant St. and east of Mc-Kinstry St.

11425. Aug. 22.—Authorizing town of Wingham, Ont., to lay pipe under C.P.R. at Minnie St.

11426, 11427. Aug. 20-22.—Authorizing Coldwater village, Ont., to lay pipe under and across G.T.R. and under C.P.R., Main St.

11428. Aug. 11.—Authorizing Saskatchewan Department of Public Works to construct highway across C.P.R. in north half of sec. 14, tp. 4, r. 10, w. 2 m.

11429. Aug. 22.—Authorizing C.P.R. to build branch from its Muskoka section where it intersects the northerly boundary of G.T.R. right of way, to Roman Stone Co.'s premises, Weston, Ont.

11430. Aug. 22.—Authorizing C.P.R. to build spur for Canadian Mineral Rubber Co.

11431. Aug. 22.—Approving C.N.O.R. location and revised location through Sidney tp. and Trenton, mileage 136 to 145.1.

11432. Aug. 22.—Authorizing C.N.O.R. to build bridge over Dawes Road, York tp., at station 139.

11433. Aug. 22.—Approving location of portion of C.P.R. Weyburn-Lethbridge Branch from sec. 4, tp. 8, r. 29, w. 2 m., at mileage 106, to sec. 8, tp. 9, r. 14, w. 3 m., at mile 200.

11434. Aug. 22.—Authorizing New Brunswick Southern Ry. (C.P.R.) to build bridge 19.82 over the Digdeguash River.

11435. Aug. 22.—Authorizing G.T.R. to build siding from south end of branch built on National Carbon Mnfg. Co.'s premises on lot 30, south of the Paton Road.

11436. Aug. 11.—Authorizing Hamilton Gas Light Co. to lay pipe on Lock St. bridge and over T.H. & B.R.

11437. Aug. 23.—Authorizing United Fuel Supply Co. to lay pipe under M.C.R. on Third St., Brigden, Ont.

11438. Aug. 23.—Authorizing Port Rowan Natural Gas Co. to lay pipe under G.T.R. at Port Rowan station, Ont.

11439. Aug. 24.—Amending order 11405, authorizing National Transcontinental Railway Commissioners to cross at grade, C.N.R. Dundee Branch, at mile 246.5, St. Boniface, Man.

11440. Aug. 24.—Authorizing G.T.R. to build siding and spurs along and across Pinnacle St. and Wharf St. to Canada Bolt and Nut Co.'s premises, Belleville, Ont.

11441. Aug. 24.—Authorizing Saskatchewan Department of Public Works to build highway over C.P.R. in s.e. ¼ sec. 2, tp. 25, r. 3, w. 2 m.

11442. Aug. 24.—Authorizing C.P.R. to build additional track across Holland St., Dundalk, Ont.

11443. Aug. 25.—Declaring that G.T.R. crossing known as no. 4 side road, about two miles west of Glencoe, Ont., is protected to Board's satisfaction.

11444. Aug. 25.—Authorizing G.T.P. Branch Lines Co. to divert highway in n.w. ¼ sec. 2, tp. 41, r. 22, w. 4 m., North Alberta District.

11445. Aug. 16.—Extending time within which C.P.R. was authorized by orders 10524 and 11134 to install electric bell at crossings of William St., London, Ont., for 30 days from Aug. 11.

11446. Aug. 2.—Amending Board's requirements regarding protection of wooden trestles. This order is published in full on another page.

11447. Aug. 16.—Approving agreement of Apr. 28, between Bell Telephone Co. and P. K. Hunt, Quebec.

11448. Aug. 16.—Extending time within which C.P.R. was authorized by orders 9722 and 10753, to build spur for Standard White Lime Co., at Beachville, Ont., to Oct. 31.

11449. Aug. 15.—Authorizing G.T.P.R. to divert road in n. e. ¼ sec. 35, tp. 22, r. 7, w. 2 m., Yorkton, Sask.

11450. Aug. 16.—Authorizing C.P.R. to build spur from block 10, lot 13, Kildonan, Man., northeasterly, northerly, and northwesterly through block 10 and along blocks 11, 12, 13, 14 and 15.

11451. Aug. 16.—Extending for 30 days from date time within which C.P.R. was authorized by orders 10523 and 11135, to install electric bell at crossing of Colborne St., London, Ont.

11452. Aug. 16.—Extending time within which C.P.R. was authorized by orders 10321 and 10883, to install electric bell at crossing at mileage 81.28, Toronto section, Markham tp., Ont., until Sept. 15.

11453. Aug. 23.—Authorizing T.H. & B.R. to rebuild wooden bridge over London and Hamilton road, Brantford tp., Ont.

11454. Aug. 23.—Ordering Red Mountain Ry. to erect signboards at all highway crossings on its line in compliance with sec. 243 of the Railway Act, and that it limit the speed of trains and engines to not more than six miles an hour from Rossland station, B.C., to 100 yds. west of Second Ave. crossing.

11455. Aug. 27.—Authorizing C.N.O.R. to build between lots 32 and 33, con. A, Haldimand tp.

11456. Aug. 23.—Authorizing C.N.O.R. to take possession of Central Ontario Ry. in Trenton from its junction with the C.O.R. south of Wragg St. to the intersection of Joseph and Queen Sts.; and to join with the C.O.R. there.

11457. Aug. 27.—Approving Manitoulin and North Shore Ry. Standard Passenger Tariff C.R.C. 8 applying a rate of 4c. a mile, or fraction thereof, between all stations on its line.

11458 to 11462. Aug. 27.—Authorizing C.N.O.R. to build across roads at five points in Trenton.

11463. Aug. 3.—Amending rule 6 of Canadian Classification 14.

11464. Aug. 26.—Authorizing Saskatchewan Department of Public Works to build highway over Qu'Appelle, Long Lake & Saskatchewan Ry. in s.w. ¼ sec. 33, tp. 19, r. 21, w. 2 m.

11465. Aug. 26.—Amending order 11424, authorizing T.H. & B.R. to build branch to the Oliver Chilled Plow Works, by adding that it be completed within three months.

11466. Aug. 26.—Authorizing G.T.R. to build siding, with spur, from its Northern Division, south of Tennyson Ave., Toronto, northerly crossing Tennyson Ave. to Connell Anthracite Mining Co.'s premises.

11467 to 11471. Aug. 29.—Authorizing Water Commissioners of London, Ont., to erect wires across the London and Port Stanley Ry., C.P.R., and London and Lake Erie Ry. Ry.

11472. Aug. 27.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at Asylum side road, London.

11473. Aug. 27.—Authorizing Montreal Light, Heat and Power Co. to lay pipe under G.T.R. on Cote St. Paul Road.

11474. Aug. 27.—Authorizing C.P.R. to build two extensions to spurs already constructed for Calgary Brewing and Malting Co., on n.e. ¼ sec. 11, tp. 23, r. 1, w. 5 m.

11475. Aug. 27.—Extending time within which C.P.R. was authorized to build spur across lot 1, and block 31, parish lot 35, St. John's, Winnipeg, until Oct. 18.

11476. Aug. 29.—Authorizing C.N.R. to build across highways between secs. 15 and 16, 16 and 9, 9 and 8, tp. 5, r. 6, w. 2 m.

11477. Aug. 27.—Authorizing C.N.O.R. to build across Sidney St., Trenton.

11478. Aug. 25.—Authorizing C.P.R. to change location of its station at Keeler, Sask.

11479. Aug. 25.—Authorizing C.P.R. to build spur across 9th Ave., and on block 124, together with a branch through lots 26, 27, 28, 29 and 30, in block 124, Moose Jaw, Sask., for the city of Moose Jaw, Moose Grocery Co., and Rex Fruit Co.

11480. Aug. 25.—Authorizing C.P.R. as lessee of the New Brunswick Southern Ry. to change location of its station at Bristol.

11481. Aug. 25.—Amending order 9273, authorizing city of Winnipeg to build bridge over C.P.R. to connect Brown and Brant Sts., by approving revised plan 4886.

11482. Aug. 25. Authorizing C.P.R. to build additional siding across road allowance between n.w. ¼ sec. 19, tp. 17, r. 2, w. 3 m., and s.w. ¼ sec. 30, tp. 17, r. 2, w. 3 m.; also across road allowance between s.w. ¼ sec. 30, tp. 17, r. 2, w. 3 m., and s.w. ¼ sec. 25, tp. 17, r. 3, w. 3 m., at Parkbeg, Sask.

11483. Aug. 25.—Authorizing Montreal Light, Heat and Power Co. to lay pipe under C.N.Q.R. on Pie IX. Ave., Maisonneuve.

11484. Aug. 25. Authorizing Ontario Hydro-Electric Power Commission to erect wires across Woodstock, Thames Valley and Ingersoll Electric Ry. at Mill and Charles Sts., Ingersoll.

11485. Aug. 30.—Authorizing town of Wingham, Ont., to lay pipe under G.T.R.

11486. Aug. 30.—Authorizing Water Commissioners of London, Ont., to erect wires

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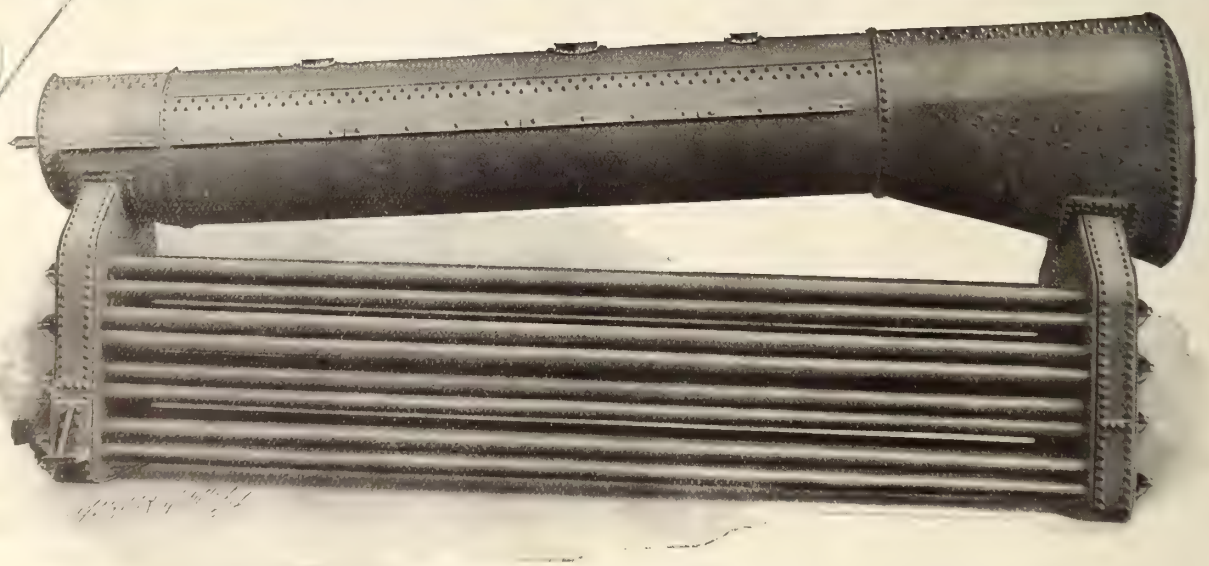

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across Bell Telephone Co.'s wires at William St. and Hamilton Road.

11487. Aug. 29.—Authorizing Simcoe Ry. and Power Co. to erect wires across C.P.R. between lots 10 and 11, con. 5, Tay tp., Ont.

11488. Aug. 29.—Authorizing Saraguay Electric and Water Co. to erect wires across C.N.Q.R. on Prefontaine St., Montreal.

11489, 11490. Aug. 27.—Authorizing city of Hamilton, Ont., to lay pipe under G.T.R. at Hillyard St. and at Wentworth St.

11491. Aug. 29.—Authorizing Nipissing Central Ry. to open for traffic the portion of its line from Cobalt to Haileybury, Ont., provided that trains operated be limited to 15 miles an hour.

11492. Aug. 30.—Authorizing Atlantic, Quebec and Western Ry. to build across road crossing 4, at mileage 51, Grand River, Que.

11493. Aug. 30.—Authorizing Saskatchewan Government, under sec. 237 of the Railway Act, to build highway across C.N.R. in sec. 35, tp. 29, r. 32, w. p. m.

11494. Aug. 30.—Authorizing C.P.R. to build additional track between sec. 36, tp. 7, r. 4, w. 5 m., and sec. 31, tp. 7, r. 3, w. 5 m., Frank, Alta.

11495. Aug. 30.—Authorizing C.P.R. to build two additional tracks between secs. 19 and 20, tp. 7, r. 23, w. p. m., De l'eau townsite, Man.

11496. Aug. 29.—Authorizing Shirra Milling Co., Caledonia, Ont., to lay pipe under G.T.R. at Caledonia station.

11497. Aug. 30.—Approving location of G.T.R. new passenger station and freight house at Bothwell, Ont.

11498. Aug. 30.—Relieving G.N.R. from providing further protection at crossing 2½ miles north of Colebrook, B.C.

11499. Aug. 31.—Approving Canadian Northern Alberta Ry. location through tp. 54, r. 27-28, and 1-3, w. 5 m., mileage 13.51 to 31.34.

11500. Aug. 31.—Approving location of new G.T.R. station at Hawksbury, Ont.

11501. Aug. 31.—Relieving C.N.R. from providing further protection at crossing in Roseburn section, immediately west of Hallboro station, Man.

11502. Aug. 26.—Amending order 11399, Aug. 15, authorizing A. Leofred, C.E., Quebec, to lay pipes under G.T.R. at Charny,

11503. Aug. 31.—Authorizing St. Maurice Valley Ry. to open for traffic the portion of its extension between Shawinigan Falls and Grand Mere, Que.

11504. Aug. 31.—Authorizing C.P.R. to build spur across block 34, across Xante St., and through Imperial Oil Co.'s premises on block 30, all on parish lot 11 D.G.S., St. John, Winnipeg.

11505. Aug. 31.—Authorizing the G.T.P.R. to cross, at grade, C.P.R. Pheasant Hills Branch, in n.e. ¼ sec. 36, tp. 36, r. 16, w. 3 m., Saskatoon District, Sask.

11506. Aug. 29.—Authorizing Water Commissioners of London, Ont., to erect wires across Bell Telephone Co.'s wires at Simcoe and Waterloo Sts.

11507. Sept. 1.—Authorizing C.P.R. to build bridge 78.5 over Baptist Creek, on its Windsor sub-division, Ontario Division.

11508.—Sept. 1.—Approving location of G.T.P.R. Prince Rupert easterly, mileage 434.5, to 482.421, Fort George District, B.C.

11509. Sept. 1.—Authorizing G.T.P. Branch Lines Co. to build across highway on its Prince Albert Branch, between sec. 36, tp. 36, r. 27, w. 2 m., Saskatoon District, Sask.

11510. Sept. 1.—Relieving G.T.R. from providing further protection at Cataraqui St crossing, about four miles west of Kingston Jct., Ont.

11511. Sept. 1.—Limiting publication of notice of application for approval of amalgamation agreement between C.N.R. and Edmonton and Slave Lake Ry.

11512, 11513. Aug. 29.—Authorizing town of Weyburn, Sask., to lay pipe under C.P.R. Souris Branch at s.e. ¼ sec. 20, tp. 8, r. 14, w. 2 m.; also under C.P.R. adjoining the town.

11514. Aug. 30.—Authorizing C.N.Q.R. to build a Y to connect its main line with its spur to St. Marc quarries, Grondines parish, and to take parts of lots 312, 314 and 315.

11515. Aug. 29.—Authorizing C.P.R. to build spur to T. W. McCohn's premises on block H, parish lot 53 D.G.S., St. James, Winnipeg.

11516. Aug. 30.—Authorizing G.T.P.R. to build spur across McDougall Ave., Edmonton, Alta.

11517. Aug. 30.—Approving location of C.N.R. through tps. 34-30 and r. 8-9, w. 3 m., from mileage 0 to 27.89.

11518. Aug. 30.—Authorizing C.N.R. to place its tracks across G.T.P.R. Tofield-Calgary branch in s.w. ¼ sec. 14, tp. 47, r. 20, w. 4 m., and to connect its Strathcona-Camrose Branch with its Vegreville-Calgary Branch in n.w. ¼ sec. 1, tp. 47, r. 20, w. 4 m.

11519. Aug. 29.—Authorizing C.P.R. to build bridge over Couchiching narrows, Orillia, Ont.

11520. Sept 1.—Authorizing town of Brockville, Ont., to lay pipe under C.P.R. at Louis St.

11521 to 11529. Sept. 1.—Authorizing Ontario Hydro-Electric Power Commission to erect wires at nine points.

11530. Aug. 30.—Authorizing Water Commissioners of London, Ont., to erect wires across Bell Telephone Co.'s wires at Simcoe and Maitland Sts.

11531. Sept. 1.—Approving standard maximum passenger toll of 3c. a mile between points on Manitoba Great Northern Ry. and 4c. a mile on Crow's Nest Southern Ry. and on New Westminster Southern Ry., also between points served by International Navigation and Trading Co. in B.C., shown in G.N.R. Standard Passenger Tariff C.R.C. 550.

11532. Aug. 30.—Allowing G.T.R. and G.T.P.R. until Sept. 1, 1911, within which to comply with requirements of sub-sec. 5 of sec. 264 of the Railway Act.

11533. Aug. 25.—Approving G.T.R. plan showing amended diversion of highway between cons. 1 and 2, Thurlow tp., Ont.

11534. Aug. 29.—Authorizing Water Commissioners of London, Ont., to erect wires across Bell Telephone Co.'s wires at Grey and Waterloo Sts.

11535. Sept. 1.—Authorizing G.T.R. to build extension of branch from west of St. Legar St., Berlin, to Anthes Furniture Co.'s premises.

11536. Sept. 1.—Authorizing C.P.R. to build two spurs across Cedar St. and J. Finlay & Sons' land, Norwood, Ont.

11537 to 11546. Aug. 29, 30.—Authorizing Water Commissioners of London, Ont., to erect wires across Bell Telephone Co'.s wires at 10 points.

11547. Sept. 2.—Granting temporary leave to National Transcontinental Ry. Commissioners to operate trains over certain portions of C.N.R.

11548. Sept. 1.—Amending order of Railway Committee of Privy Council, Sept. 23, 1898, by providing that Kingston and Pembroke Ry. may cross Montreal St., Kingston, with its freight trains, not exceeding 10 miles, and passenger trains not exceeding 15 miles, an hour.

11549. Sept. 1.—Amending order 11319, July 29, by authorizing Boston and Maine Rd. to install its standard electric bell at main road crossing, Lennoxville, provided it change the light and use disc with "danger" on it; and extending time for installation for 60 days from date.

11550. Sept. 1.—Dismissing application of Western Dominion Collieries Co. and Roche Percee Coal Mining Co., heard at Regina and Winnipeg in Feb. and Nov., 1909, respectively.

11551. Aug. 27.—Authorizing C.P.R. to build highway crossing where Stanley Ave., produced in a straight line, intersects its right of way, Fort William, Ont.

11552. Aug. 27.—Authorizing city of Fort William, Ont., to cross with its street railway G.T.P.R. spur on level, near the intersection of spur and G.T.P.R. main line at railway bridge in West Fort William.

11553. Aug. 27.—Dismissing application of city of Fort William, Ont., re C.P.R. Neebing Ave. crossing.

11554. Aug. 27.—Dismissing application of city of Fort William, Ont., to require C.N.R. to construct highway crossing at Argyle St.

11555, 11556. Aug. 27.—Authorizing C.P.R. to construct highway crossings at Mountain and Crawford Aves., Fort William, Ont.

11557. Sept. 2.—Authorizing W. J. Aikens, Dunnville, Ont., to lay pipe under Brantford St. Ry. (Grand Valley Ry.) on the Brantford and Hamilton road.

11558. Sept. 2.—Authorizing Simcoe Ry. and Power Co. to erect wires across G.T.R. on Hazel St., Waubaushene, Ont.

11559. Sept. 1.—Ordering G.T.R. to install, within 90 days, an improved electric bell at crossing of King's Road, Otonabee tp., Ont.

11560. Sept. 2.—Authorizing town of Maisonneuve to lay electric wire for fire alarm on Bennett Ave. under C.N.Q.R.

11561. Sep. 2.—Approving plan showing drain to be built under M.C.R. near Essex, Ont.

11562. Sept. 2.—Dismissing application of Canadian Freight Association for approval of Supplement 2 to Canadian Classification 14 in so far as it relates to ratings on old rails.

11563. Sept. 6.—Authorizing Seymour Power and Electric Co. to erect wires across G.T.R. in lots 8 and 9, con. 2, Thurlow tp., Ont.

11564 to 11566. Sept. 6.—Authorizing Ontario Hydro-Electric Power Commission to erect wires at two points in Hamilton and one in Preston.

11567. Sept. 7.—Authorizing C.N.Q.R. to open for traffic the portion of its line between Dugas Jct. and Rawdon.

11568. Sept. 7.—Authorizing Atlantic, Quebec and Western Ry. to build across high road to Gaspe ferry, York, Gaspe Co., Que.

11569. Sept. 7.—Approving, temporarily, agreement between Megantic People's Telephone Co. and Bell Telephone Co., Aug. 4.

11570 to 11578. Sept. 6, 7.—Authorizing C.N.R. to build across an irrigation ditch at nine points in Alberta.

11579. Sept. 7.—Approving Canadian Northern Express Co. by-law re filing tariffs of tolls.

11580. Sept. 7.—Approving Canadian Northern Telegraph Co. by-law re filing tariffs of tolls.

11581 to 11597. Sept. 6.—Authorizing C.N.R. to build across irrigation ditches at 17 points in Alberta.

11598. Sept. 6.—Authorizing C.P.R. to build spur for Edgewood Lumber Co. in lot 237, Kootenay district, B.C.

11599. Sept. 2.—Approving, in part, application of Canadian Freight Association for order approving proposed Supplement 3 to Canadian Classification 14.

11600. Aug. 31.—Approving plans and specifications of the Whitman drain under M.C.R.

11601. Sept. 7.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co. wires, East Flamboro tp.

11602. Sept. 7.—Authorizing Canada Southern Ry. to lay pipes for drainage under Wellington and Forest Sts. and Third Ave., St. Thomas, Ont.

11603. Sept. 7.—Approving, temporarily, agreement between Bell Telephone Co. and Highland Telephone Co., June 7.

11604. Sept. 6.—Approving drainage works across M.C.R. and P.M.R., according to G. A. McGubbin's reports of July 31, 1909, and May 14, 1910.

11605. Sept. 7.—Ordering that crossing of C.N.R. by National Transcontinental Ry. at mileage 246, near St. Boniface, Man., be protected by full interlocking plant, to be installed by National Transcontinental Ry. by July 1, 1911.

11606. Sept. 8.—Dispensing with publication of application for authority to build branch lines from east side of Pembina St., Winnipeg, to the Red River, and crossing Mulvey Ave. to connect with spur and authorizing C.N.R. to serve short notice on city of Winnipeg and property owners affected.

11607. Sept. 7.—Extending to Oct. 30, time within which three industrial spurs for Saskatchewan Flour Mills Co., Moose Jaw, be completed.

11608. Sept. 8.—Approving forms of freight and money receipts, MX 27 and MX 70, of Maritime Express Co.

11609, 11610. Sept. 8.—Approving, temporarily, until Dec. 1, contract forms of Pacific, Canadian, and Dominion Ex. Co.'s on file with Board under file 3518.

11611, 11612. Sept. 8.—Extending to Dec. 1 time within which North American Telegraph Co. and Bell Telephone Co. may charge telephone tolls which they were previously to July 13, 1906, authorized to charge.

11613. Sept. 7.—Authorizing C.P.R. to build spur from Western Road to Bell Telephone Co.'s premises.

11614. Sept. 7.—Authorizing C.P.R. to build extension of spur for G. N. Annable Co., Kootenay District, B.C.

11615. Sept. 8.—Approving, temporarily, until Dec. 1, contract forms, etc., of National and American Ex. Co's.

11632. Sept. 2.—Authorizing Ontario Hydro-Electric Power Commission to use its transmission wires erected across various railways and wires at 42 points.

11633. Sept. 7.—Authorizing H. A. Suggitt, of Coaldale, Alta., to lay a culvert under C.P.R.

11634, 11635. Sept. 6.—Authorizing Simcoe Ry. and Power Co. to erect wires across G.T.R. at Hazel St., Waubaushene, and in Tay tp., Ont.

11636. Sept. 13.—Authorizing C.P.R. to build bridge 40.3, on its London subdivision, Ontario Division.

11637. Sept. 13.—Authorizing C.P.R. to build additional siding, south of its main line, across Elk St., Elkhorn, Man.

11638. Sept. 13.—Authorizing C.P.R. to build bridge 80.09 over Potois Creek, on its North Bay subdivision, Lake Superior Division, Ont.

11639. Sept. 13.—Authorizing G.T.R. to build bridge between lots 89 and 90, con. 1, Tiny tp., Ont.

11640, 11641. Sept. 13.—Extending to Sept. 30 time within which C.P.R. was directed by orders 10707 and 10682 to install bells at Maple St. crossing, Hartland, N.B., and Foundry St. crossing, Woodstock, N.B.

11642. Sept. 13.—Authorizing G.T.R. to build bridge between lot 93, con. 1, and lot 93, con. 2, Tay tp., Ont.

11643. Sept. 7.—Ordering C.P.R. to reopen crossing at A. D. Hartley's farm, East Florenceville, N.B.

11644. Sept. 6.—Authorizing C.N.R. to build over and across irrigation ditch, n.w. ¼ sec. 11, tp. 25, r. 26, w. 4 m., Alta.

11645. Sept. 7.—Authorizing J. A. Thompson, of Moorefield, Ont., to lay pipe under G.T.R. in Maryborough tp.

11646. Sept. 7.—Authorizing G.T.R. to reconstruct bridge 50 over Conestage River, near Moorefield, Ont.

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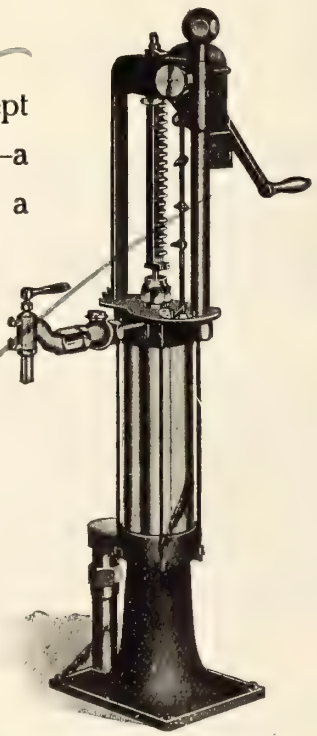

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11647. Sept. 13.—Extending to Oct. 15 time within which T. H. & B. R. was directed, by order 9026, to build highway bridge carrying Garth St., Hamilton, Ont.

11648. Sept. 13.—Authorizing city of Peterboro, Ont., to lay pipe under G.T.R. at Romaine St.

11649, 11650. Sept. 13.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at James St., Hamilton, and across Galt, Preston and Hespeler Electric St. Ry., at Galt.

11651. Sept. 13.—Authorizing Volcanic Oil and Gas Co. to lay pipe under C.P.R. at Belle River, Ont.

11652. Sept. 8.—Authorizing C.P.R. to build bridge over yard in Calgary, Alta.

11653. Sept. 14.—Approving location of G.T.P. Branch Lines Co.'s Young-Prince Albert Branch from sec. 31, tp. 40, r. 26, w. 2 m., to Prince Albert, Sask., mileage 55.148 to 111.536.

11654. Sept. 13.—Authorizing C.P.R. to build spur from near Roseberry St. to Tenth St., also four sub-spurs from blocks 70, 71 and 72, between Pacific and Rosser Aves., Brandon, Man.

11655. Sept. 14.—Authorizing C.N.O.R. to build between lots 6 and 7, con. A, Haldimand tp.

11656. Sept. 14.—Authorizing town of Grand Falls, N.B., to lay pipe under C.P.R. at Broadway.

11657. Sept. 14.—Authorizing Ontario Power Co. to erect wires across G.T.R. Welland Division in Crowland tp.

11658 to 11661. Sept. 14.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Hamilton Radial Electric Ry. in Saltfleet tp., and across Bell Telephone Co.'s wires in Waterloo tp., at three points.

11662. Sept. 15.—Approving C.N.O.R. plans for station at Brighton.

11663. Sept. 15.—Declaring that G.T.R. crossing at Main St., Glencoe, Ont., is protected to the Board's satisfaction and rescinding order 11443.

11664. Sept. 14.—Approving C.N.O.R. strain sheets for 100 ft. girder span across Factory creek on its Toronto-Ottawa line.

11665. Sept. 14.—Authorizing C.N.Q.R. to connect with National Transcontinental Ry. west of River Charest.

11666 to 11668. Sept. 15.—Approving G.T.P. Branch Lines Co.'s locations of stations at New Norway, Duhamel and Kingman, on its Tofield-Calgary branch, Alta.

11669. Sept. 14.—Authorizing C.P.R. to build two spurs for Globe Elevator Co., near Calgary Jct., Alta.

11670. Sept. 15.—Extending to Sept. 30 time within which C.P.R. was directed, by order 10707, to install electric bell at Maple St. crossing, Hartland, N.B.

11671. Sept. 15.—Relieving C.P.R. from providing further protection at crossing 1¼ miles west of Michel, B.C.

11672. Sept. 15.—Authorizing Light and Heat Commissioners of Guelph, Ont., to lay pipe under G.T.R.

11673. Sept. 14.—Authorizing Mount Stephen Mining Syndicate to lay pipe under C.P.R. three miles east of Field, B.C.

11674. Sept. 13.—Amending order 10344 by relieving Ops tp. from building approaches to bridge 2 miles west of Lindsay, Ont., and apportioning cost of building the bridge as follows: Ops tp., 20%; Railway Grade Crossing Fund, 20%, and remainder by G.T.R.

11675. Sept. 16.—Authorizing Montreal Light, Heat and Power Co. to lay a pipe under C.P.R. on St. Denis St.

11676 to 11680. Sept. 15.—Authorizing C.N.O.R. to build across side roads at five points in Sidney tp.

11681. Sept. 15.—Extending to Dec. 1 time within which city of Montreal may construct tunnel under C.P.R. at St. Lawrence Boulevard.

11682, 11683. Sept. 16.—Authorizing Esquimalt and Nanaimo Ry. to use bridges 29.8, 35.6, 39.3, 47.9, 65.1, 87.12, 87.37, 26.8, 28.2, 28.4, and 28.6, and rescinding orders 11407 and 6611.

11684. Sept. 16.—Authorizing C.N.O.R. to reconstruct eastern approach of bridge over Ottawa River near Hawkesbury by erecting 30 and 85 ft. place girder span.

11685. Sept. 16.—Authorizing G.T.R. to build sidings with spurs to Oliver Chilled Plow Works, Hamilton, Ont.

11686. Sept. 15.—Authorizing C.N.O.R. to build between lots 3 and 4, con. 1, Sidney tp.

11687. Sept. 17.—Approving location of C.P.R. new station at Strongfield, Sask.

11688. Sept. 16.—Extending to Sept. 30 time within which C.P.R. was directed, by order 11103, to install electric bell at highway crossing at Weston, Ont.

11689. Sept. 16.—Relieving C.P.R. from providing further protection at Eaton road crossing, Brighton, Que.

11690. Sept. 16.—Relieving G.T.R. from providing further protection at Ontario St. crossing, Cobourg, Ont.

11691 to 11695. Sept. 17.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at five points.

11696. Sept. 16.—Authorizing city of Toronto to lay pipe between Sunnyside and Roncesvalles Ave., under G.T.R.

11697. Sept. 15—Authorizing W. P. Ferris to lay pipe under G.T.R. South Norfolk branch in South Walsingham tp., Ont.

11698. Sept. 16.—Authorizing Provincial Natural Gas and Fuel Co. to lay pipe under G.T.R. between Humberstone and Crowland tps., Ont.

11699. Sept. 17.—Authorizing town of Montreal East to lay pipe under Montreal Terminal Ry. at Laurendeau Ave.

11700. Sept. 17.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at Mutual St., Ingersoll.

11701, 11702. Sept. 17.—Authorizing Guelph, Ont., Waterworks Department to lay pipe under G.T.R. on Liverpool and Glasgow Sts.

11703 to 11706. Sept. 17.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across C.P.R. and Bell Telephone Co.'s wires at four points.

11707. Sept. 15.—Authorizing C.N.O.R. to build between lots 24 and 25, con. 1, Sidney tp.

11708. Sept. 19.—Authorizing C.N.O.R. to build across Division St., Cobourg, overhead.

11709. Sept. 17.—Authorizing C.P.R. to build spur for F. Fairey, lots 35 to 40, and at rear of lots 32 to 36, block 72, Calgary, Alta.

11710. Sept. 13.—Rescinding order 10509, Apr. 21, re subway at Division St., Cobourg, upon application of C.N.O.R.

11711. Sept. 13.—Approving C.N.O.R. revised location through Cobourg.

11712, 11713. Sept. 13.—Authorizing G.T.R to build sidings from near Caledonia station, Ont., to Caledonia Gypsum Co.'s premises, Seneca St., and Alabastine Co.'s premises, Paris, Ont.

11714. Sept. 15.—Approving C.N.O.R. station building at Don Jct.

11715. Sept. 19.—Authorizing Essex Terminal Ry. to build branch through portions of Walkerville and Windsor, Ont.

11716. Sept. 20.—Authorizing town of Montreal East, Que., to lay pipe under Chateauguay and Northern Ry., at Laurendeau Ave.

11717. Sept. 20.—Authorizing C.P.R. to build bridge 71.53, North Bay subdivision, Lake Superior Division, Ont.

11718. Sept. 20.—Relieving G.T.R. from providing further protection at first level crossing east of Seguin Falls station, Ont.

11719 to 11722. Sept. 19.—Authorizing Water Commissioners of London, Ont., to erect wires across Bell Telephone Co.'s wires at four points.

11723. Sept. 13.—Authorizing C.N.O.R. to build across C.P.R. near Chaudiere Jct.

11724. Sept. 13.—Approving C.N.O.R. location through Gloucester tp., mileage 0 to 5.3.

11725. Sept. 20.—Authorizing G.T.P.R. to build spur track from its main line south of the C.P.R. Wetaskiwin Branch crossing, Railway and Alberta Aves., to Thirrd St., Camrose, Alta.

11726. Sept. 19.—Approving location of G.T.R. proposed station and freight house and rearrangement of tracks at Hawkesbury, Ont.

11727. Sept. 9.—Dismissing application of St. Mungo Cannery Co., New Westminster, B.C., for order directing Vancouver, Victoria and Eastern Ry. and Navigation Co. to provide railway facilities from its premises.

11728. Sept. 9.—Ordering Vancouver, Victoria and Eastern Ry. and Navigation Co. to build wooden bridges over cutting at Lakewood Drive, Woodland Drive and Broadway, Vancouver, B.C., within six months from date, to be constructed in compliance with plans to be approved by an engineer of the Board.

11729. Sept. 8.—Dismissing application of Sumas tp., B.C., for order directing C.P.R. and V.V. & E. Ry. and Nav. Co. to provide offices on Canadian side of International boundary in Huntingdon, B.C.

11730. Sept. 9.—Dismissing application of city of Vancouver, B.C., for approval of plans and mode of crossing C.P.R. at Clarke Drive.

11731. Sept. 6.—Granting application of F. and M. Allen, for order approving extension of C.P.R. from lot 7, block 54, subdivision 185, Vancouver, B.C., across lots 7 and 8, to wharves.

11732. Sept. .—Approving Vancouver, Victoria and Eastern Ry. and Navigation Co.'s application for branch line from its main line in Huntingdon, B.C., to the International boundary.

11733. Sept. 9.—Authorizing Western Canada Power Co. to join its line with the C.J.R. near Ruskin, B.C.

11734. Sept. 6.—Ordering Vancouver, Victoria and Eastern Ry. and Navigation Co. to protect North Road crossing between New Westminster and Port Moody and Barnet, B.C.

11735. Sept. 20.—Amending order 11605 re interlocking plant at National Transcontinental Ry. and C.N.R. crossing near St. Boniface, Man.

11736. Sept. 20.—Amending order 9129 re C.P.R. branch line, lot 6, con. 4, Etobicoke tp., Ont., by authorizing C.P.R. to put in switches and semaphores to be operated by hand, and to put a day and night watchman and flag its trains on and off the joint section for three months from date.

11737. Sept. 20.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across C.P.R. between lots 157 and 158, Stamford tp.

11738. Sept. 9.—Dismissing application of city of New Westminster, B.C., for order directing Vancouver Power Co. to raise its wires over Fraser River bridge.

11739. Sept. 9.—Authorizing B.C. Public Works Department to build highway crossing over C.P.R. right of way east of Kault station.

11740. Sept. 20.—Authorizing Esquimalt and Nanaimo Ry. to build spur for Cowichan Creamery Co., Duncans, B.C.

11741. Sept. 13.—Authorizing C.P.R. to use jointly with G.T.R. the spur which G.T.R. was authorized by order 4816 to build from Mowat Ave. siding, Toronto, to H. Disston & Sons' premises.

11742. Sept. 20.—Authorizing Saskatchewan Government to build highway across C.P.R. in s.e. ¼ sec. 36, tp. 1, r. 7, w. 2 m.

11743. Sept. 21.—Extending to June 1, 1911, time within which C.P.R. was authorized by order 11402 to build branch from near Agassiz, B.C., to a ballast pit.

11744. Sept. 21.—Authorizing C.P.R. to rebuild bridge over road at mileage 70.5, Toronto subdivision, Ontario Division.

11745 to 11749. Sept. 21.—Authorizing Simcoe Ry. and Power Co. to erect wires across Bell Telephone Co.'s wires at five points in Tay tp., Ont.

11750 to 11753. Sept. 9.—Authorizing Vancouver, Fraser Valley and Southern Ry. to build over certain highways in Vancouver; to cross V.V. & E. Ry. at Burnaby; and certain highways in Hastings and Burnaby, B.C.

11754, 11755. Sept. 21.—Authorizing town of Brampton, Ont., to lay pipe under C.P.R. at Jessie and Railroad Sts.

11756 to 11760. Sept. 21.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across G.T.R. at two points, and across Bell Telephone Co.'s wires at three points.

11761. Sept. 21.—Authorizing town of Irvine, Alta., to build highway across C.P.R. right of way at Dunmore St.

11762. Sept. 8.—Authorizing British Columbia Government to open certain streets in Sumas tp. across C.P.R. right-of-way.

Matheson to Mattagami.—Press reports from Matheson, Sept. 6, state that Laird, is engaged in completing surveys for this proposed line, so that construction gangs can be set at work. The work will be comparatively light as far as Porcupine Lake, to which point it is expected have the track laid by Jan. 1. Between Porcupine Lake and the Montreal River the land becomes hilly, and there will be considerable cut and fill work, as well as some rock work. Steam will be used as a motive power at the beginning, but it is proposed to develop a water power at Sandy Falls, and use electricity. The plans for developing this water power have been completed, and it is expected that the construction will be begun at once. (See Temiskaming and Northern Ontario Ry., Sept., pg. 729).

Railway Subsidy Contracts.—The Dominion Government has entered into contracts, under the act granting aid to certain railways for the building of lines as follows:—With the Esquimalt and Nanaimo Ry. (C.P.R.), for 24 miles from Duncan's, on the main line, to Cowichan Lake; (Aug. 12). With the C.P.R., for an extension of 9.5 miles of the Winnipeg Beach line to Gimli, Man.; (Aug. 22). With the James Bay and Eastern Ry., for 100 miles westerly from Roberval, Que., in lieu of the subsidy granted in 1908.

The C.P.R. has added to its passenger service a new night train each way between Toronto and Montreal. The trains arrive and depart at the Toronto end from West Toronto, and use the line to the north of the city, calling at North Toronto, and connecting with the main line east at Leaside Jct.

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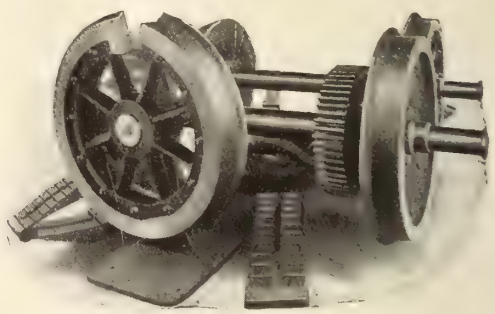

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National Transcontinental Railway.

In an interview Sept. 8, C. O. Foss, District Engineer for New Brunswick, is reported to have said that except for a stretch of four miles near Grand Falls, and the division yards at Edmonton, the N.T.R. in New Brunswick could be opened for traffic.

A defect was discovered Sept. 3, in the first caisson for the new main piers of the Quebec bridge, and it was condemned Sept. 6 by H. E. Vautelet, the only member of the Bridge Commission in Canada. It is said the caisson will have to be rebuilt.

An order-in-council has been passed authorizing the N.T.R. Commissioners to acquire the Champlain Market, Quebec, for terminal purposes, and they have paid the City Treasurer $100,000, the price of the property.

There is a considerable mileage of track laid in the Province of Quebec to which the completing touches are being given. This includes the 250 miles between the St. Lawrence River and Weymontachene, upon which recent press reports stated a train service would be operated this fall. We have been advised that there have, as yet, been no arrangements made for its operation by the G.T. Pacific Ry. The centre of construction of the next section of the line is at present at Cochrane, the Temiskaming and Northern Ontario Ry.'s terminus. From this point Foley, Welch and Stewart, working easterly, have 30 miles of track laid to Low Bush, where there is a big muskeg which is delaying the work somewhat. Westerly from Cochrane over 30 miles of track have been laid on the grading completed by Fauquier Bros. Tenders are under consideration for the supply of 7,543 tons of 80 lb. steel rails with the necessary fastenings, for delivery at Cochrane.

A temporary agreement has been reached between the Commissioners and the G.T. Pacific Ry., for the operation of the section of the line between Lake Superior Jct., Ont., and Winnipeg, so as to enable the G.T.P.R. to carry grain from Edmonton and intermediate points to Fort William.

Tenders were received by the Commissioners Sept. 27 for building freight sheds and storehouses at Lake Superior Jct., Ont., Redditt and Springfield, Man., the freight sheds to be completed by Dec. 31, 1910, and the storehouses by May 1, 1911.

The Western Construction Co., is reported to have practically completed the laying of the 12 inch water main from the Red River to the shops at Springfield, near Winnipeg. Tenders are under consideration for pipe tunnel and wiring ducts, and for the wiring system at the shops.

The question of the entrance of the line into Winnipeg from the east was settled, temporarily at any rate, Sept. 2, when an order was made by the Board of Railway Commissioners, granting running rights over the Canadian Northern Ry. for one year. This will enable the N.T.R. to be connected with the G.T. Pacific Ry.

GRAND TRUNK PACIFIC RAILWAY.

The G.T.P.R. has purchased a block of land on Broadway, Winnipeg, immediately east of the Manitoba club, and we are officially advised that Ross and McFarlane, architects, Montreal, are preparing plans for an hotel to be erected thereon.

The Minister of Railways completed his first inspection of the line Sept. 5; and on Sept. 13, C. M. Hays, President, accompanied by A. Smithers, Chairman of the Board, arrived in Winnipeg, having made an inspection of the completed line, and the sections under construction. Mr. Smithers stated that at all places where construction was in progress the contractors complained of the shortage of men. Notwithstanding this the company would not appeal to the Dominion or Provincial governments to permit the use of foreign labor.

Construction is being proceeded with rapidly and it is expected that track will be laid to Prairie Creek, Oct. 1, to the banks of the Athabasca by Dec. 1, and to Tete Jaune Cache by Sept., 1911. Reports from Prince Rupert, state that track has been laid to mileage 56, about three mile west of Hole-in-the-wall, where a bridge is being built. It is expected that track will be laid to Newtown, within two miles of Kitselas, by Oct. 30. Work is going on along the 140 mile section from Kitselas to Aldermere. Nothing definite has been settled as to the letting of a contract for the stretch between Aldermere and Tete Jaune Cache.

Grand Trunk Pacific Branch Lines.—An Ottawa press report Sept. 6 stated that a branch line would be built from Saskatoon through Melfort, to a connection with the Government railway to Hudson Bay at Pas Mission. We are, however, officially advised that if the G.T. Pacific Ry. line is connected at some future date with the Hudson Bay line, it will be done by extending the Yorkton-Canora branch northward. This branch line leaves the G.T.P. main line at Melville, Sask., from which point another branch is being built to Regina. An extension of this line southerly is projected and the question of the route is being discussed. On Sept. 15, the management stated that the route could not be changed so as to pass through Estevan.

A line has been located from Regina, westerly as far as Moose Jaw, and press reports Sept. 17, stated that a contract for grading of this line would soon be let. Speaking at Medicine Hat, Sept. 8, the Minister of Railways stated that the G.T.P. Ry. would build a branch line through that place, where the land for terminals has already been acquired.

While President Hays was in Wainwright, Sask., on his recent inspection trip he was reported to have stated that a branch line would be built from there into Battleford, and that engineers were at work on the surveys.

Foley, Welch and Stewart, have a contract for building a branch line from the G.T.P.R., about 16 miles west of Edson, Alta., southerly for about 70 miles. This branch connects with the Yellowhead Pass and the Pacific Pass coal companies' properties, in what is generally known as the Brazeau River coal fields.

We are advised that the company has secured a site adjacent to Parliament Square, Victoria, B.C., but nothing has as yet been determined as to the uses to which the property may be put. Newspaper reports stated it had been acquired for the erection of an hotel. (Sept., pg. 711).

Inverness Railway and Coal Co.

Owing to an error in composition in the extracts from the company's report for the year ended June 30, published in our Aug. issue, a slight inaccuracy occurred in the reproduction of the income account, which should have read as follows:—

Balance at June 30, 1908..		$352,894.46
Interest on bonds, etc:		
First mortgage bonds....	$105,750.00	
Bank advances	61,368.77	
Sundry creditors	17,246.79	
Interest accrued to June 30, 1909 .....$19,227.75		
Less accrued at June 30, 1908, paid during current year. 19,227.75		
	$184,365.56	
Hire of equipment	1,570.14	
		185,935.70
		$538,830.16
Colliery—Gross earnings..$490,394.61		
Operating expenses 486,070.12		
		4,324.49
Railway—Gross earnings.$187,230.22		
Operating expenses..... 115,128.63		
		72,101.59
Operation, boats, etc.		620.95
Miscellaneous		26.70
Debit Balance June 30, 1909 .....$461,756.43		

Great Northern Ry. Lines in Canada.

Midland Ry. of Manitoba.—In connection with the reports mentioned in our last issue, that a survey was being made for a line from the G.N.R. track in St. Vincent, Minn., to the Northern Pacific Rd. station at Pembina, N.D., over which the G.N.R. trains would be run to a more direct connection with the Canadian Northern Ry. than at present, we are officially advised that nothing is being done by the G.N.R.

Kaslo and Slocan Ry.—During the recent forest fires in British Columbia the line of the K. and S. Ry. was practically burned out. The line is being rebuilt as far as Sprouls, and it is reported that the work of rebuilding to the terminus at Sandon, will be completed in the spring of 1911.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—The grading on the 15 mile stretch westerly of Princeton, B.C., was reported practically completed, and several gangs of men were reported to have been laid off at the end of Aug. About 100 men were reported at work early in Sept. finishing up the work. No further work is to be done on this section of the line at present.

J. H. Kennedy, Chief Engineer, arrived in Princeton, Sept. 1, from Hope, via Coquihalla Pass and the Otter Valley. He had been going over the line of the survey made by the company's engineers who had been engaged in trying to locate lower gradients than previously obtained over the Hope Mountains. He stated that along the Coquihalla River it was expected that a gradient of 2.50% would be obtained, but there was a possibility of its being reduced to 1%. The heaviest part of the work is on the western side of Hope Mountain. The highest point reached will be at Coquihalla summit, 3,600 ft. high. From the summit along Coldwater and Otter creeks as far as Tulameen a 1% gradient can be obtained. The survey is being made to reduce gradients, not for the purpose of laying out a new route. C. Shaw, is in charge of a party making a survey between Hope and Abbotsford, west of the mountains. Construction work on the line at Abbotsford has been suspended for the present. One reason for the suspension of the work is that satisfactory arrangements cannot be made for purchasing the right of way in Chilliwack township, and that the grading gangs are being laid off as their work at Abbotsford is completed.

The company proposes to start at an early date building a 120 ft. addition to its freight station in Vancouver.

The Mayor and a delegation of the Vancouver city council recently had a conference with the Provincial Government relative to the plans for work at False Creek, in connection with the carrying out of the agreement made with the company. (Sept., pg. 735).

Those interested in the development of the Canadian north-west estimate that three new towns a week will be placed on the map in the western provinces weekly for the next three years. About 150 new towns will be opened up on the G.T. Pacific lines; the Canadian Northern [illegible] under survey, and the C.P.R. has a large number of points arranged at which townsites will be laid out.

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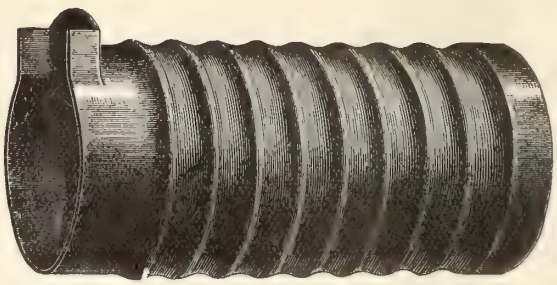

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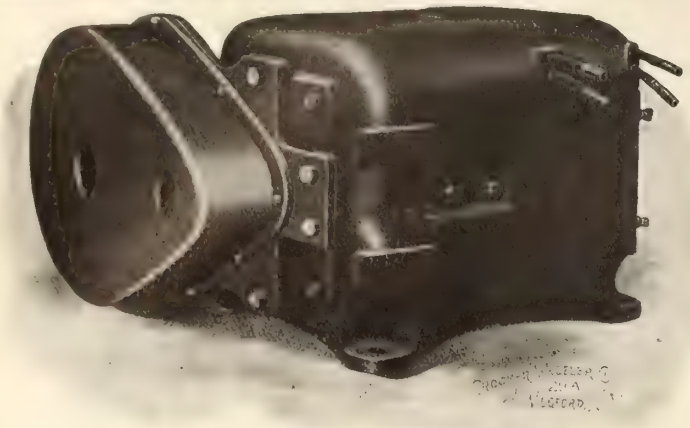
Minneapolis, St. Paul and Sault Ste. Marie Ry.—Referring to reports from Duluth, Minn., that the company was contemplating the purchase of the Minneapolis and Rainy River Ry., E. Pennington, President, stated Sept. 14, that the company had no such intention, and its engineers had not made an inspection with that object in view. Some of the company's engineers had gone over the line recently to report to some people, not connected with any railway, in the east, but for what object he did not know.

The Canadian Northern Ry. has increased the wage rate of its pipe fitters, from 32½c. to 36½c. an hour.

In the action brought by McRae Chandler and McNeil, to recover $72,000 from the Temiskaming and Northern Ontario Ry. Commission, for work done under contract, etc., the courts have ordered the plaintiffs to furnish further particulars.



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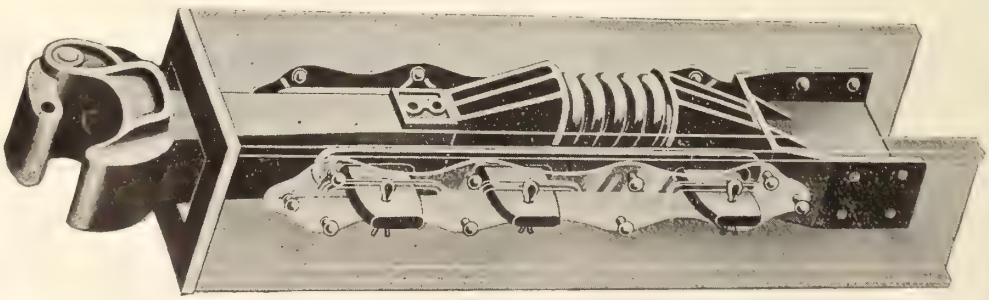

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BALTIMORE ROCHESTER CHICAGO NEW YORK

C. P. R. Annual Report.

Following is the 29th annual report addressed to the shareholders over the signature of the President, Sir Thos. G. Shaughnessy:

The accounts for the year ended June 30, 1910, show the following results:

Gross earnings		$94,989,490.33
Working expenses		61,149,534.46
Net earnings		$33,839,955.87
Net earnings of steamships in excess of amount included in monthly reports		909,235.60
Interest on deposits and loans	$904,742.19	
Interest and dividends on bonds and stocks held by the Co.:		
M., St. P. & S.S.M. Ry. bonds	159,720.00	
Mineral Range Rd. Co. bonds	50,160.00	
Montreal & Atlantic Ry. and other securities	71,214.08	
St. John Bridge & Ry. Extension Co. stock	50,000.00	
Alberta Ry. and Irrigation Co. stock	86,531.02	
M., St. P. & S.S.M. Ry. preferred and ordinary stocks	1,104,110.00	
		2,426,477.29
		$37,175,668.76
Deduct fixed charges		9,916,940.33
Surplus		$27,258,728.43
Deduct amount transferred to steamship replacement acct.	$900,000.00	
Contribution to pension fund	80,000.00	
		980,000.00
From this there has been charged a half-yearly dividend on preference stock of 2%, paid April 1	$1,102,599.98	
And a half-yearly dividend on ordinary stock of 3%, paid April 1	4,500,000.00	
And interest on instalments on new stock subscriptions, paid July 1	417,179.32	
		6,019,779.30
		$20,258,949.13
From this there has been declared a second half-yearly dividend on preference stock of 2%, payable Oct. 1	$1,112,333.33	
And a second half-yearly dividend on ordinary stock of 3½%, payable Oct. 1	5,250,000.00	
		6,362,333.33
Leaving net surplus for the year.		$13,896,615.80

In addition to the above dividends on ordinary stock, 1% was paid from interest on land funds.

The working expenses were 64.38% of the gross earnings, and the net earnings 35.62%, compared with 69.92 and 30.08% respectively in 1909.

Four per cent. consolidated debenture stock to the amount of £1,598,935 was created and sold, and, of the proceeds, £1,068,965 was applied to the construction of authorized branch lines; £98,200 was used to acquire the same amount of 1st mortgage 5% bonds; and the balance, £431,770, was devoted to the acquisition of the bonds of other railway companies whose lines constitute a portion of your system, the interest on which had, with your sanction, been guaranteed by your company.

Four per cent. preference stock to the amount of £600,000 was created and sold, the proceeds being used to meet capital expenditures that had your previous sanction.

Your guarantee of interest was endorsed on 4% consolidated mortgage bonds of the M. St. P. & S.S.M. Ry. to the amount of $2,200,000, issued and sold to meet the cost of constructing 110 miles of railway added to that system.

With the consent of your company the surplus earnings of the Duluth, South Shore and Atlantic Ry. in excess of interest on bonds held by the public and rentals, were used for necessary additions to its facilities and for the general betterment of the property.

The sales of agricultural land during the year aggregated 975,030 acres, for $14,468,564.33, being an average of $14.84 an acre. Included in this were 145,421 acres of irrigated land, which brought $26.59 an acre, so that the average price of the balance was $12.78 an acre. After further surveys and reports your directors have decided that water should be provided for the eastern section of the irrigation block, containing about 1,100,000 acres, before anything is done in the central section, and, as a consequence, they have authorized the work, which will cover about three years and involve an estimated expenditure of $8,500,000, for which they will ask your approval. The average cost an acre of irrigating this block exceeds by a considerable amount the average in the western section, due to the greater difficulty in reaching the source of water, to the mileage of the ditches, namely, 3,500 miles as compared with 1,600, and to the improved character of the structures, but, in the light of past experience, your directors are confident that the financial and other results will be eminently satisfactory. The money required for this work will of course be provided from the accumulated land funds.

Your directors have entered into an agreement with the New Brunswick Southern Ry., which extends from West St. John to St. Stephen, N.B., 83 miles, for a lease of the railway for 999 years at an annual rental equivalent to 3% per annum on the outstanding bonds of the company to the amount of $500,000. The lease will be submitted for your approval.

An arrangement has been completed for the transfer to your company on demand of practically all the capital stock of the Dominion Atlantic Ry., consisting of £270,000 of preference and £230,000 of ordinary stock, at 60% of its face value for the preferred and 20% of its face value for the common shares. Some time, probably six or eight months, must elapse before the arrangement can be made effective. The railway extends from Yarmouth to Truro, with branches to Kingsport and Torbrook Mines, 247 miles, and a connection is made with Halifax under a contract with the Dominion Government for the use of 45 miles of the Intercolonial Ry. Your directors are confident that important traffic advantages will result from the acquisition of this railway and it will give your company a foothold in Nova Scotia where you have heretofore had no interests.

You will be asked to authorize the issue and sale of a sufficient amount of 4% consolidated debenture stock to provide for the construction of the following branch lines, all of which are in the agricultural districts of Manitoba, Saskatchewan and Alberta, namely: Moose Jaw-Outlook branch, 118 miles; Weyburn-Lethbridge branch, 50 miles; Teulon extension, 56 miles; Lauder-Griffin branch, 33 miles; Craven-Bulyea branch, 21 miles; Kipp-Aldersyde branch, 58 miles; Langdon branch, 40 miles; Regina-Colonsay branch, 134 miles; Snowflake branch extension, 7 miles; Virden-McAuley branch, 36 miles.

A railway between a point near Galloway, B.C., on your Crow's Nest line, and Golden, on the main line, would be of service to settlers in the Columbia and Kootenay River valleys, and would, no doubt, encourage further settlement. The distance between the termini is about 175 miles, but it is not desirable that the railway should be constructed over the whole distance immediately, but rather in stretches of 40 or 50 miles as circumstances may seem to warrant. A charter and the ordinary subsidy for this line were given by the Dominion Parliament to a company known as the Kootenay Central Ry. Co., and your directors have, subject to your approval, made an agreement with that company for the construction of the railway in sections of such length and within such period of time as your company may designate, each section when completed to be leased to your company for 999 years at a rental equivalent to the interest at 4% per annum on the bonds of the Kootenay Central Ry., issued with the consent of your company. The transaction will be submitted for your approval.

The growth of industries at Shawinigan Falls, Que., where a large water power has been developed, and the desirability of getting a better connection with the mills at Grand-Mere led to an arrangement with the St. Maurice Valley Ry. by which it agreed to construct its line between Three Rivers and Grand'Mere, 27.7 miles, and on completion to lease it to your company for 999 years at a rental equivalent to 4% per annum on its bonds, not exceeding $35,000 a mile, issued with the consent of your company. A resolution embodying the transaction will be submitted for your approval.

The death in Feb. last of Hon. Sir Geo. A. Drummond, who joined the Board in 1903, was a source of sincere sorrow to your directors who felt that they had lost in him a most capable colleague and esteemed friend. Earlier in the year Archer Baker, the company's European Manager, who had been attached to the staff since 1881, died suddenly in London, Eng. He was a most devoted and valued officer. A. R. Creelman, K.C., the company's General Counsel, was elected a director to fill the vacancy caused by the death of Sir Geo. A. Drummond.

The undermentioned directors will retire from office at the approaching annual meeting, they are eligible for re-election: Lord Strathcona, Sir Thos. G. Shaughnessy, and T. Skinner.

CONDENSED BALANCE SHEET.

ASSETS.

Railway and equipment		$317,226,265.81
Ocean, lake and river steamships		18,460,161.38
Acquired securities (cost)		69,076,971.12
Properties held in trust for the Co.		6,473,844.95
Deferred payments on land and town site sales		27,942,113.05
Advances to lines under construction		3,485,435.67
Advances and investments		9,432,084.40
Material and supplies on hand		10,948,467.05
Current assets:		
Agents' and conductors' balances	$2,129,074.72	
Net traffic balances	130,470.29	
Miscellaneous accounts receivable	4,690,849.13	
		6,950,394.14
Temporarily invested in Government securities		10,088,734.86
Cash in hand		46,165,817.05
		$526,250,289.48

Note.—In addition to above assets, the company owns 7,539,722 acres of land in Manitoba, Saskatchewan and Alberta (average sales past year $14.84 an acre), and 4,474,094 acres in British Columbia.

LIABILITIES.

Capital stock		$150,000,000.00
Payments on subscription to new issue capital stock ($30,000,000.00)		23,530,085.00
4% preference stock		55,616,665.71
4% consolidated debenture stock		136,711,616.18
Mortgage bonds:		
First mortgage, 5%	$34,998,633.33	
Canada Central Ry. 6%	973,333.33	
Algoma Br., 1st mortgage	3,650,000.00	
		39,621,966.66
Current liabilities:		
Audited vouchers	$5,928,773.50	
Pay rolls	4,067,151.03	
Miscellaneous accounts payable	4,553,272.12	
		14,549,196.65
Interest on funded debt and rental of leased lines: Coupons due July 1 and including coupons overdue not presented	$1,208,928.67	
Accrued fixed charges	195,824.38	
		1,404,753.05
Equipment obligations		1,360,000.00
Equipment replacement fund		2,678,038.93
Steamship replacement fund		4,040,666.67
Appropriation for additions and improvements		6,295,420.93
Reserve fund for contingencies		3,809,839.10
Land grant:		
Sales of land and town sites		43,762,194.70
Surplus		42,869,845.90
		$526,250,289.48

FIXED CHARGES FOR YEAR ENDED JUNE 30.

1st [illegible] bonds 5 [illegible] due July 1, 1915	$1,749,933.66
Canada Central Ry. 2nd mortgage 6% bonds, due Nov. 1	58,400.00
St. Lawrence & Ottawa Ry. 1st mortgage bonds	38,933.34
Man. So. West. Colon. Ry. 1st mortgage 5% bonds, due June 1, 1934	127,200.00
Toronto, Grey & Bruce Ry. rental	140,000.00

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SAULT STE. MARIE, ONTARIO

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Parties intending purchasing will find it to their interest to let us have their specifications at an early date so as to insure desired deliveries.

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H & E Patent Ball-Bearing Lifting Jacks

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Foot-Lift

For Convenience, Speed and General Efficiency these Jacks are Unequalled. Are fully guaranteed. Being made of the best grades of Malleable Iron and Steel are strong and durable. Working parts entirely protected insure long wearing qualities. Sizes from 8 to 50 tons now complete. Send for prices and discounts.

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LIMITED

MANUFACTURERS OF

BASIC OPEN HEARTH STEEL RAILS

Order Books are now open for delivery during 1911. Intending Purchasers should place orders early to insure prompt delivery.

HEAD OFFICES AND WORKS **SYDNEY, CAPE BRETON, CANADA**

Ontario & Quebec Ry. debenture stock 5% 975,129.56
Ontario & Quebec Ry. ordinary stock 6% 120,000.00
Atlantic & North West. Ry., 1st mortgage bonds, due Jan. 1, 1937 ..... 323,633.34
Algoma Branch 5% 1st mortgage bonds, due July 1, 1937 ..... 182,500.00
Rental, Calgary & Edmonton Ry. 138,357.60
Rental, Farnham to Brigham Jct. ... 1,400.00
Rental, Mattawamkeag to Vanceboro.. 23,800.00
Rental, New Brunswick Ry. system .. 372,829.74
Rental, terminals at Toronto 27,049.86
Rental, terminals at Hamilton 33,812.80
Rental, Hamilton Jct. to Toronto..... 42,062.33
Rental, St. Stephen & Milltown Ry... 2,050.00
Rental, Lindsay, Bobcaygeon & Pontypool Ry. 578.79
Rental, St. Marys & West. Ontario Ry. 3,987.73
Rental, Joliette & Brandon Ry. 5,000.00
Rental, Lachine Canal Branch 973.16
Interest on Montreal & Western Ry... 16,643.68
Interest on equipment obligations ... 83,130.21

4% CONSOLIDATED DEBENTURE STOCK.

Interest from July 1, 1909..$5,448,749.76
Interest from Jan. 1, 1910.. 8,786,77
$5,457,536.53
Less received from subsidy Northern Colonization Ry. 8,000.00 5,449,536.53

$9,916,940.33

RECEIPTS.

Cash in hand, June 30, 1909 .....$21,078,812.94
Temporarily invested in Government securities 4,861,901.53
Surplus revenue 26,278,728.43
Land Department—
Lands and townsites:
Net proceeds of sales..$17,694,927.26
Less amounts remaining in deferred payments 16,403,347.36
1,291,579.90
Collection of deferred payments of previous years' sales 4,814,908.25
6,106,488.15
Bonuses—
Dominion Government subsidy on Moosejaw Branch.. 303,360.00
on Stonewall Branch (Teulon extension).. 30,800.00
334,160.00
Capital stock—
Subscription to $30,000,000 additional ordinary stock—Payments on instalments 23,530,085.00
4% preference stock—Amount realized from issue (£600,000) 2,946,611.49
Consolidated debenture stock—Amount realized from issue (£1,598,935).... 7,890,123.91
$93,026,911.45
Deduct –
Advances to lines under construction $3,485,435.67
Advances and investments 9,432,084.40
Current assets 6,950,394.14
19,867,914.21
Less amt. at June 30, 1909..16,130,755.20
3,737,159.01
$89,289,752.44

EXPENDITURES.

Dividends on preference stock—
2% paid Oct. 1, 1909 ....$1,053,933.32
2% paid April 1, 1910 .... 1,102,599.98
$2,156,533.30
Dividends on ordinary stock—
3½% paid Oct. 1, 1909 .. 5,250,000.00
3½% paid April 1, 1910 .. 5,250,000.00
10,500,000.00
Interest on instalments on subscriptions to new ordinary stock 417,179.32
Properties held in trust for the company. 907,212.23
Construction of acquired and branch lines 5,346,243.88
Additions and improvements, main line and branches 6,856,307.62
Additions and improvements, leased and acquired lines 3,412,234.54
Rolling stock, shops and machinery .. 4,119,332.65
Ocean, lake and river steamships—
Fitting Atlantic steamships for passenger service, and providing facilities at Liverpool and Montreal.. $16,110.10
Additional steamships and appurtenances for Pacific coast service 301,241.19
Additional river steamers and barges 15,826.01
Extension to s.s. Athabasca. 41,097.70
374,275.00
SECURITIES ACQUIRED—
C.P.R. 1st mortgage bonds.. $477,906.66
Calgary & Edmonton Ry. 1st mortgage bonds..... 700,000.00
Georgian Bay & Seaboard Ry. 1st mortgage bonds 399,000.00
Kingston & Pembroke Ry. 1st mortgage bonds 291,420.00
Orford Mountain Ry. 1st mortgage bonds 702,000.00
Tillsonburg, Lake Erie & Pacific Ry. 1st mortgage bonds 125,000.00
Vancouver & Lulu Island Ry. 1st mortgage bonds 175,000.00
Kingston & Pembroke Ry. stock 300.00
Minneapolis, St. Paul and Sault Ste. Marie Ry...Balance of subscription to ordinary and preferred stock...1,831,660.80
4,702,287.46
Payment of equipment obligations 270,000.00
Increase in material and supplies on hand 279,026.72
39,340,632.72
DEDUCT—
Increase in current liabilities 6,305,432.19
33,035,200.53
Temporarily invested in Government securities 10,088,734.86
Cash in hand 46,165,817.05
$89,289,752.44

EXPENDITURES ON CONSTRUCTION, ACQUIRED AND BRANCH LINES.

Pheasant Hills branch $1,510,533.05
Wolseley-Reston branch 14,220.23
Lachine Canal branch 136,610.21
Moose Jaw-Outlook branch 449,649.52
Bulyea branch 479,591.73
Virden-McAuley branch 112,238.13
Stonewall branch extension 205,507.45
Lauder-Griffin branch 24,270.91
Weyburn-Lethbridge branch 498,774.51
Snowflake branch extension 16,729.43
Langdon branch 456,621.03
Kipp-Aldersyde branch 454,232.32
Kininvie branch 55,850.78
Craven-Colonsay branch 514,281.33
Toronto-Sudbury line 264,813.54
Surveys of projected lines 152,319.71
$5,346,243.88

EXPENDITURES ON ADDITIONS AND IMPROVEMENTS, FROM JULY 1, 1909, to JUNE 30, 1910.

MAIN LINE.

QUEBEC TO BONFIELD:
Additional sidings, buildings, stations and yards $180,619.49
Permanent bridges and improvements of line 162,047.67
342,667.16
Less sale of property 42,500.00
$300,167.16
MONTREAL TERMINALS..... 495,409.61
Windsor St. station extension 235,294.50
BONFIELD TO PORT ARTHUR
Additional sidings, buildings, stations and yards 213,163.86
Permanent bridges and improvements of line 380,099.22
Wharves, docks and warehouses 901.15
Telephone dispatching equipment 23,946.79
618,111.02
PORT ARTHUR TO LAGGAN.
Additional sidings, buildings, stations and yards 886,126.15
Permanent bridges and improvements of line 359,713.93
Winnipeg station and hotel 1,451.25
Winnipeg terminals 208,518.10
Wharves, docks and warehouses 23,181.83
Double tracking..... 795,477.26
Telephone dispatching equipment 42,250.08
Right of way 31,853.08
2,348,571.68
LAGGAN TO VANCOUVER:
Additional sidings, buildings, stations and yards 488,860.01
Permanent bridges and improvements of line 308,399.32
Field Hill revision of line.. 367,009.87
Wharves, docks and warehouses 54,925.74
Right of way 41,320.58
1,260,515.52
Total main line .....$.258,069.49

BRANCH LINES.

South Western branch $8,194.80
Stonewall branch 1,229.28
Selkirk branch 22,053.03
Emerson branch 2,067.70
Nakusp & Slocan branch 17,849.21
Revelstoke & Arrow Lake branch 7,401.32
Snowflake branch 146.75
Waskada branch 2,840.09
Buckingham branch 300.70
St. Lin branch 1,424.26
St. Eustace branch 1,107.97
Lake Temiskaming branch 3,383.73
McGregor branch 5,536.67
Mission branch 51,103.71
Arcola-Regina branch 16,363.90
North Star branch 3,872.63
Lac du Bonnet branch 51.41
SOURIS BRANCH
Additional sidings, buildings, stations and yards 87,825.00
Permanent bridges and improvements of line 167,397.05
Right of way 1,052.05
ALGOMA BRANCH:
Additional sidings, buildings, stations and yards 22,098.60
Permanent bridges and improvements of line 51,378.24
CROW'S NEST PASS BRANCH:
Additional sidings, buildings, stations and yards 134,002.24
Permanent bridges and improvements of line 62,563.60
Right of way 670.97
197,236.81
CROW'S NEST PASS BRANCH:
McLeod-Lethbridge deviation.419,570.77
BRITISH COLUMBIA SOUTHERN RY.:
Additional sidings, buildings, stations and yards 68,470.50
Permanent bridges and improvements of line.121,493.40
Telephone dispatching equipment 4,630.08
Balfour extension.... 8,222.51
Yahk branch 13,342.18
216,158.67
1,307,644.35
Telegraph extensions and additions .. 162,369.37
Rented and temporary sidings 128,224.41
Total main line and branches.....$6,856,307.62

EXPENDITURE ON LEASED AND ACQUIRED LINES, FROM JULY 1, 1909, TO JUNE 30, 1910.

Ontario & Quebec Ry. $1,601,821.58
Atlantic & North West Ry. 231,032.00
New Brunswick Ry. 347,537.80
Montreal & Western Ry. 79,397.96
Manitoba South-western Colonization Ry. 114,305.50
Columbia & Kootenay Ry. 39,437.14
Manitoba & North-western Ry. 35,347.31
Great North-west Central Ry. 8,862.74
Calgary & Edmonton Ry. 518,269.62
Columbia & Western Ry. 334,853.05
Montreal & Ottawa Ry. 49,339.27
Nicola, Kamloops & Similkameen Ry.. 16,849.37
Lindsay, Bobcaygeon & Pontypool Ry. 1,163.85
Joliette & Brandon Ry. 5,864.93
St. Mary's & Western Ontario Ry. ... 28,152.42
$3,412,234.54

EARNINGS FOR YEAR ENDED JUNE 30, 1910.

Passengers $24,812,020.86
Freight 60,158,887.03
Mails 791,745.45
Sleeping cars, express, elevators and miscellaneous 9,226,836.99
Total $94,989,490.33

WORKING EXPENSES FOR YEAR ENDED JUNE 30, 1910.

Transportation expenses $27,425,237.61
Maintenance of way and structures .. 13,653,938.04
Maintenance of equipment 12,567,493.86
Traffic expenses 2,436,651.26
Parlor and sleeping car expenses.... 600,796.11
Expenses of lake and river steamers.. 858,834.34
General expenses 2,548,799.89
Commercial telegraph 1,057,783.35
Total $61,149,534.46

EQUIPMENT AT JUNE 30, 1910.

Locomotives 1,534
First and second class passenger cars, baggage cars, and colonist sleeping cars.... 1,515
First class sleeping, dining and cafe cars.... 294
Parlor cars, official and paymasters' cars .. 61
Freight and cattle cars (all kinds) 48,850
Conductors' vans 867
Boarding, tool and auxiliary cars and steam shovels 3,437

OCEAN, LAKE AND RIVER STEAMERS.

Atlantic Service.—Empress of Britain, Empress of Ireland, Lake Manitoba, Lake Champlain, Lake Michigan, Mount Temple, Montcalm, Montfort, Lake Erie, Montrose, Montreal, Milwaukee, Mount Royal, Montezuma, Monmouth, Cruiser.

Pacific Service.—Empress of India, Empress of Japan, Empress of China, Monteagle.

Pacific Coast Service.—Amur, Beaver, Charmer, City of Nanaimo, Czar, Joan, Nanoose, Otter, Princess Beatrice, Princess Charlotte, Princess Ena, Princess May, Princess Royal, Princess Victoria, Tees, Transfer No. 1, Transfer No. 2, Queen City.

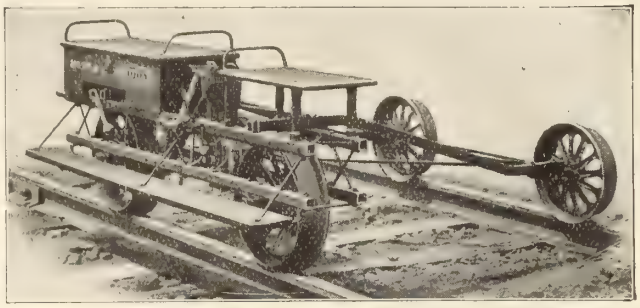
Upper Lake Service.—Manitoba, Athabasca, Alberta, Keewatin, Assiniboia.

British Columbia Lake and River Service.—Aberdeen, Bosmer, Kokanee, Minto, Moyie, Nelson, Rossland, Kuskanook, Columbia, Okanagan, Proctor, Sandon, Slocan, York, Kootenay, Valhalla, Ymir, Whatshan.

Ferry Service.—Michigan, Ontario.

BUDA MOTOR CARS

BUY THE BEST



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The use of OUR STEEL BACK SHOE will mean a saving in brake shoe maintenance, brake heads and brake beams.

THE STEEL BACK BRAKE SHOE is an economy on all railway equipment.

LET US PROVE IT TO YOU

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NEW YORK MAHWAH, N.J. CHICACO, ILL.

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"Jardine" Taps for the Boiler Shop
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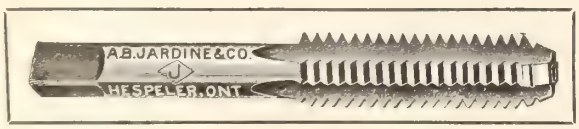

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A. B. Jardine & Co. - - Hespeler, Ont.

DESCRIPTION OF FREIGHT FORWARDED.

	1909-10.	1908-9.
Flour, barrels	7,489,812	6,683,354
Grain, bushels	112,795,345	97,236,150
Live stock, head	1,381,183	1,371,873
Lumber, feet	2,292,821,963	1,726,944,584
Firewood, cords	280,878	249,628
Manufactured articles, tons	5,468,548	4,425,241
All other articles, tons	7,567,052	5,916,248

FREIGHT TRAFFIC.

	1909-10.	1908-9.
No. of tons carried	20,551,368	16,549,616
No. of tons carried 1 mile	7,772,012,635	6,372,269,174
Earnings per ton per mile	0.77 cents.	0.76 cents.

PASSENGER TRAFFIC.

	1909-10.	1908-9.
No. of passengers carried	11,172,891	9,784,450
No. of passengers carried 1 mile	1,355,266,088	1,071,149,528
Earnings per passenger per mile	1.83 cents.	1.88 cents.

TRAIN TRAFFIC STATISTICS.

TRAIN MILEAGE.

	1909-10.	1908-9.
Passenger trains	16,119,543	14,170,522
Freight trains	20,574,576	18,816,900
Mixed trains	1,672,993	1,932,776
Total trains	38,367,112	34,920,198

CAR MILEAGE.

Passenger cars—

	1909-10.	1908-9.
Coaches and P.D. and S.	82,472,864	67,763,387
Combination	2,833,703	2,763,961
Baggage, mail and express	34,158,162	30,545,494
Total passenger cars	119,464,729	101,072,842
Freight cars—		
Loaded	433,498,575	363,036,580
Empty	118,134,609	108,873,650
Caboose	22,374,512	20,048,637
Total freight cars	574,007,696	491,958,867
Passenger cars per traffic train mile	6.72	6.28
Freight cars per traffic train mile	25.80	23.71

PASSENGER TRAFFIC.

	1909-10.	1908-9.
Passengers carried (earning revenue)	11,050,924	9,675,075
Passengers carried (earning revenue) 1 mile	1,341,255,609	1,058,912,909
Passengers carried (earning revenue) 1 mile per mile of road	133,080	108,750
Average journey per passenger miles	121.37	109.45
Average amount received per passenger $	2.20	2.04
Average amount received per passenger mile cts.	1.81	1.86
Average no. of passengers per train mile	75.38	65.76
Average no. of passengers per car mile	15.72	15.01
Revenue from passengers per passenger car mile, c.	28.47	27.96
Total passenger train earnings per train mile $	1.64	1.49
Total passenger train earnings per mile of road, $	2,902.13	2,456.20

FREIGHT TRAFFIC.

	1909-10.	1908-9.
Tons of revenue freight carried 1 mile	7,569,824,332	6,210,086,958
Tons of non-rev. freight carried one mile	1,110,379,421	995,000,557
Total tons (all classes) freight carried one mile	8,680,203,753	7,205,087,515
Tons of revenue freight carried 1 mile per mile of road	751,079	637,775
Tons of non-rev. freight carried 1 mile per mile of road	110,172	102,187
Total tons (all classes) freight carried 1 mile per mile of road	861,251	739,962
Average amount received per ton per mile of revenue freight cts.	0.778	0.760
Average no. of tons of revenue freight per train mile	340.25	299.29
Average no. of tons of non-rev. freight per train mile	49.91	41.96
Average no. of tons (all classes) freight per train mile	390.16	347.24
Average no. of tons of revenue freight per loaded car mile	17.46	17.11
Average no. of tons of non-rev. freight per loaded car mile	2.56	2.74
Average no. of tons of (all classes) freight per loaded car mile	20.02	19.85
Freight train earnings per loaded car mile cts.	13.59	13.00
Freight train earnings per train mile $	2.65	2.27
Freight train earnings per mile of road $	5,844.47	4,845.52

STATEMENT OF PENSION DEPARTMENT TO JUNE 30, 1910.

Balance at June 30, 1909	$680,317.86
Amount contributed by company for year	80,000.00
Amount received as interest	37,675.60
	$797,993.46
Payment of pension allowances for year	110,889.20
Balance in cash and investments	$687,104.26

NUMBER ON PENSION ROLL AT JUNE 30, 1910.

Under 60 years of age	56
Between 60 and 70 years of age	222
Over 70 years of age	157
Total	435

Railway Finance, Meetings, Etc.

Alberta Ry. and Irrigation Co.—Approximate net profits from all sources, exclusive of land sales, for July, $18,735, against $30,003 for July, 1909. Railway traffic receipts for Aug., $30,024, against $27,581 for Aug., 1909. Cumulative traffic receipts for two months ended Aug. 31, $58,006.

Algoma Central and Hudson Bay Ry.—A discharge of a mortgage given by the company to the Central Trust Co. of New York, Jan. 1, 1903, to secure an issue of bonds, and subsequently assigned to the United States Mortgage and Trust Co., was deposited with the Secretary of State at Ottawa, Aug. 27. On the same date a mortgage deed, dated July 1, 1910, given by the company to the U.S. Mortgage and Trust Co., to secure an issue of first mortgage 5%, fifty year gold bonds, guaranteed as to principal and interest by the Lake Superior Corporation was filed with the Secretary of State.

Bessemer & Barry's Bay Ry.—Press reports state that the Mackenzie, Mann & Co. interests have securred control of this mineral carrying line extending from near L'Amable on the Central Ontario Ry. to the older ore mines at Bessemer, Ont., five miles. This is not officially confirmed. The Dominion Parliament last session empowered the Ontario & Ottawa Ry. Co., a Mackenzie-Mann company, to acquire the Bessemer & Barry's Bay Ry. as well as a number of other lines the control of which has since been secured.

Buffalo and Lake Huron Ry.—After providing for the interest on the first and second mortgage bonds, the accounts for the half year ended June 30, showed a balance of £14,828 10s. 4d. available for dividend. Out of this the directors declared the usual dividend of 5s. 3d. per £10 share, carrying forward £1,043 17s. 1d. The dividend warrants were posted Sept. 6. The company receives £35,000 every half year from the G.T.R. as rental for the line from Goderich to the International bridge near Buffalo, N.Y., which is sufficient to pay the interest on the £763,758 of bonds, and 5¼% on the £525,130 of common stock, and a little over. Out of this surplus of income the company has secured at a cost of £8,062 17s. 8d. bonds of the nominal value of £13,894 9s. 4d.

The half yearly meeting of the shareholders was held in Liverpool, Eng., Sept. 6, when the report was adopted, and the dividend declared. The directors and officers are:—Chairman, M. H. Maxwell, Liverpool; J. M. Synge, Westerham, Kent; E. Ashton, Liverpool; Secretary, J. Lindley, London; Assistant Secretary, E. Capern, London.

Canada and Gulf Terminal Ry.—The annual meeting was held at Montreal, Sept. 7. Following are the officers and directors for the current year:—President, M. J. O'Brien, Renfrew, Ont.; Vice President, H. J. Lyons, Montreal; other directors, J. A. O'Brien, Renfrew, Ont.; F. W. Rous, Montreal; C. A. Gauvreau, Stanfold, Que.; J. A. Ross, St. Flavie, Que.; D. Caron, Guienne, Que.; A. A. Soucy, Matane, Que.

Central Vermont Ry.—Gross earnings for 12 months ended June 30, $3,785,-918; operating expenses, $2,860,278; net earnings, $925,640, against $3,795,332 gross earnings; $2,883,624 operating expenses; $911,707 net earnings for 1908-09. The balance in hand after deducting all charges for the year is $7,640, against $3,118 for the previous year. The expenses for the year were 75.5% of the gross earnings, against 75.9% for the previous year.

Dominion Atlantic Ry.—Gross earnings for July, $147,600, against $143,357 for July, 1909.

Grand Trunk Pacific Branch Lines. Co.—There has been listed on the London, Eng., Stock Exchange an additional £21,600 of G.T.P. Branch Line Co.'s 4% bonds.

Klondike Mines Ry.—Following are the officers and directors for the current year:—President, J. A. Seybold, Ottawa; Vice President, W. C. Greig; Secretary, A. Haydon, Ottawa; other directors: C. G. Kekewich, J. Latta, both of whom reside in London, Eng. The company does not make its annual report public.

Lake Superior Corporation.—Press reports state that application is being made to have the L.S.C. common stock listed on the Canadian and the U.S. stock exchanges. The company owns the Algoma Central and Hudson Bay Ry., the Manitoulin and North shore Ry., the Algoma Central Steamship Line, the International Traction Co., and the Trans St. Mary Ry., the latter two being the electric railway operated in Sault Ste Marie, Ont., and Mich., respectively.

Quebec and Lake St. John Ry.—Total earnings for July, $56,689.43; for Aug., $52,003.15, against $54,388.32 and $55,-420.84 for July and Aug., 1909, respectively. Aggregate total earnings for eight months ended Aug. 31, $376,063.25, against $387,830.72 for same period 1909. For the eight months ended Aug. 31, there was a decrease in the earnings per mile, of $38.22, as compared with the same period 1909. The mileage operated during the respective periods was 285.4 and 285.

Temiscouata Ry.—Profits for June, $6,450; for July, $4,646. Aggregate profits for seven months ended July 31, $26,474.

White Pass and Yukon Ry.—Gross earnings for July, $214,337, against $223,657 for July, 1909.

International Ry. of New Brunswick.—T. Malcolm, contractor for the building of this railway, in an interview in Montreal, Sept. 16, is reported to have said that the line from Campbellton to St. Leonards, N.B., 110 miles, would be ready for operation for its entire length, early in October. Two trains will be run each way daily. The stations on the line are Campbellton, Upsalquitch, Hillyards, Richards, Five Fingers, Jardine River and St. Leonards. The company has power to join with a U.S. company for the erection of a bridge across the St. John's River so as to make connection with the U.S. lines in Van Buren, Me., and a bridge is projected across the Restigouche River at Campbellton, N.B., to connect with the Atlantic Quebec & Western Ry. from Matapedia, which is being continued towards Gaspe. (Sept., pg. 727).

The Michigan Central Rd., is offering for sale four car ferries, heretofore operating between Detroit, Mich., and Windsor, Ont., they being of no further service, now that traffic is being diverted through the new Detroit River tunnel. Two of the ferries are of steel, and two of iron. The capacity of each is the same—21 cars. (Sept. pg 725.)

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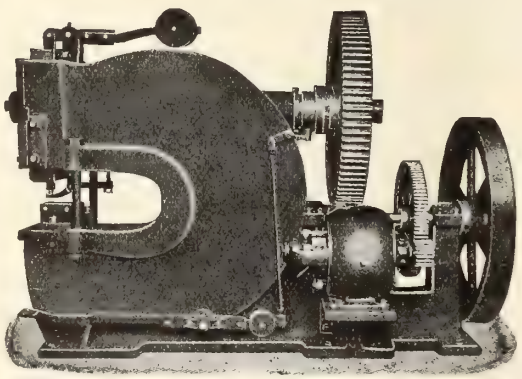

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A HISTORY OF THE PAY-AS-YOU-ENTER CAR

AND ITS LESSON

The following cities are using Pay-As-You-Enter Cars: Chicago City Railway, 839 cars; Chicago Railways, 1,328; Public Service Corporation of New Jersey, 466; New York City Railway, 555; Third Avenue Railroad, New York, 550; International Railway, Buffalo, 200; Buffalo & Lake Erie Traction Co., 10; Washington Ry. & Elec. Co., Washington, D.C., 100; Capital Traction Co., Washington, D.C., 51; Municipal Traction Co., Cleveland, Ohio, 180; United Rys. Co. of St. Louis, Missouri, 310; Portland Ry., Lt. & Pwr. Co., Portland, Ore., 25; Columbus Ry. & Lt. Co., Columbus, Ohio, 10; Wichita R.R. & Lt. Co., Wichita, Kan., 14; Jacksonville Elec. Co., Jacksonville, Fla., 5; Dallas Elec. Co., Dallas, Texas, 20; Houston Elec. Co., Houston, Tex., 41; Northern Texas Trac. Co., Ft. Worth, Texas, 25; Ithaca Street Ry., Ithaca, N.Y., 2; Peoria Street Ry., Peoria, Ill., 13; Urbana & Champaign Ry., Champaign, Ill., 3; Mutual Lt. & Water Co., Brunswick, Ga., 4; Rochester Ry. Co., Rochester, N.Y., 25; Ft. Dodge, Des Moines & So. R.R. Co., 2; Muskogee Elec. Trac., Muskogee, Okla., 6; Union Traction Co., Dubuque, Ia., 4; Topeka Ry. Co., Topeka, Kas., 12; United Rys. & Elec. Co., Baltimore, Md., 32; Detroit United Ry., Detroit, Mich., 225; Cincinnati Traction Co., Ohio, 50; Montreal Street Railway, 400; British Columbia Elec. Ry., 30; Calgary Street Railway, 18; Metropolitan Street Ry., Kansas City, Mo., 50; Edmonton Radial Ry., 4; San Antonio Traction Co., San Antonio, Tex., 6; Rockford & Int. Ry., Rockford, Ill.; Cairo Street Ry. & Lt. System, 6; Des Moines City Railway, Iowa, 12; Macon Ry. & Lt. Co., Macon, Ga.; Virginia Ry. & Power Co.; Columbia Elec. St. Ry. & Lt. & Power Co., Columbia, S.C.; Aurora, Elgin & Chicago Ry., Chicago, Ill.; Wichita Falls Traction Co., Wichita Falls, Tex.; Ottawa Electric Ry. Co., Ottawa; Bloomington & Normal Ry. & Lt. Co., Bloomington, Ill.; Corsicana Transit Co., Corsicana, Tex.; Compania Electrica y de Ferrocarriles, Mexico; The Milwaukee Elec. Ry. & Lt. Co., Milwaukee, Wis.; Springfield Street Ry. Co., Springfield, Mass.; Lynchburg Traction Co., Lynchburg, Va.; Chicago & Southern Traction Co., Chicago, Ill.; Calumet & South Chicago Ry. Co., Chicago, Ill.

THE LESSON

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Canadian Northern Ry. Construction, Etc.

The C.N.R. and St. John, N.B.—Speaking at St. John, N.B., Sept. 4, the Minister of Public Works said Mackenzie, Mann & Co., had expressed to him a strong desire to secure an outlet for their line at St. John. It had been suggested that the Intercolonial Ry. be transferred to them, but he believed that the country wished to retain that line as a government railway. If Mackenzie, Mann & Co., the Premier of New Brunswick, and himself would get together another means of meeting the wishes of the railway builders in reference to Courtenay Bay might be found.

Canadian Northern Quebec Ry.—In connection with the action instituted by the Quebec city council to recover $200,000, the bonus paid by the city to secure the location of workshops in the city, the council Sept. 10, decided to grant an extension of time to Oct. 1, to see what the company proposed to do. The application was made by the C.N.Q. Ry. Auditor, who stated that the company would carry out its obligations to the city.

The ten mile extension of the old St. Jacques branch, into Rawdon, Que., was opened for traffic Sept. 3. In connection with this branch it is stated in Montreal papers that the company expects at some future time to extend the line to Hudson Bay. It is claimed, so the reports state, that the only available pass through the Laurentian Mountains for reaching the National Trancontinental Ry. in northern Quebec is via Rawdon, and up the tributaries of the Lac Ouareau River.

Canadian Northern Ontario Ry.—Application has been made to the Board of Railway Commissioners for the approval of the location plans for the first five miles of a line from near Hurdman's bridge skirting south of the Rideau River. This is the eastern end of the line now under construction from Toronto.

The work on this line between Toronto and Trenton is everywhere well advanced, and the sub-contractors on grading are moving on beyond Trenton, from which point grading is being gone on with to Belleville. The route as approved through Sidney tp., is north of the highway from Trenton, to a point east of Belleville cemetery, thence south of the highway to the city. H. K. Wicksteed, Chief Locating Engineer, recently arrived in Belleville, for the purpose of going over the route located for the line easterly from that city, so as to connect it up at Deseronto, with the recently acquired Bay of Quinte Ry. This will necessitate a route following the bay shore, crossing the branch lines to the cement works on a viaduct, and keeping along the lake front to Deseronto. The Bay of Quinte Ry. will be utilized to Sydenham, from which place it is about 92 miles to Ottawa.

Angus Sinclair, who has the contract for building the line from Toronto to Trenton, has had his contract extended for 22 miles from Trenton to Shannonville. A press report of Sept. 17, says grading has been begun at Trenton, proceeding easterly, and that A. McGuinnis started work on the west side of the river, at Belleville, working west.

The Toronto-Trenton section of the line is expected to be opened for traffic about the end of the year, and it is hoped to have work on the Trenton-Deseronto section sufficiently far advanced, as to have it ready for traffic during the summer of 1911, and the rest of the line into Ottawa ready by the end of that year.

The question of the entrance of the line from Sudbury into Port Arthur has been before the Port Arthur city council upon several occasions recently. The city authorities are anxious to prevent the company securing all the water front north of Bare Point, and the City Engineer has prepared a plan showing an alternative route above the C.P.R. This latter line it was submitted would give a better gradient but would cost from $75,000 to $100,000 more than the shore route. H. K. Wicksteed, Chief Locating Engineer, was in Port Arthur, Sept. 3, in consultation with the municipal officers as to these proposals. He is said to have told the city authorities that the company wanted to have all arrangements completed this year so that the building of the line could be started in the spring, and carried through without any hitch.

James Bay and Eastern Ry.—Under the act granting aid to certain railways, a contract has been entered into with the Dominion Government for building 100 miles of line westerly from Roberval, Que., towards James' Bay.

Canadian Northern Ry.—The company's hotel in Port Arthur, Ont., is nearing completion. The main entrance is from Cumberland St., and there is also an entrance from the side overlooking the bay. The building is 51 by 213 ft., 94½ ft. high, and has 975,000 cubic feet of floor space. The exterior walls are Indiana limestone for the first two stories and lace-pressed brick above that. There is a deck house on the roof, and above the edge of the main walls all round there is a brick parapet, the court thus formed making a promenade and palm garden.

On the first floor are the main lobby, 27x68 ft.; cafe grill, 19.6x34 ft.; barber shop, 17x19 ft.; bar room, 17x27 ft.; ladies' parlor, 17x20 ft.; six stores each 17x47 ft. The office overlooks both entrances. On the second floor are the main restaurant, with a seating capacity for 120, and kitchen 20x69 ft. This floor also contains 10 bedrooms, 13.6x20 ft. each, and provided with bath, toilet and wash basin; also with clothes closet. The two rooms on either side, at the Arthur street end of the building, are arranged so that they can be used en suite. There are three complete bedroom floors. Each floor contains 23 bedrooms, 13 ft. 6 in. by 20 ft. each. The total number of rooms on these three floors is 69 rooms, making with the 10 rooms on the second floor, a total of 79 rooms in the hotel with bath, and adding the 24 rooms on sixth floor without baths, making a total of rooms for rental 103. In addition there are 12 servants' rooms on the sixth floor. On the roof is a fan house controlling the ventilation of the entire building, and in the basement is the boiler room, engine house, baggage room, stores, etc. The building is so arranged as to be added to when necessary.

The arrangement reported to have been completed Aug. 18, between R. J. Mackenzie for the company, and the St. Boniface city council, has been signed. It provides that if the plans of the National Transcontinental Ry. are changed along certain indicated lines, the C.N.R. will build a 38-stall roundhouse, and various other buildings, in St. Boniface, half of these buildings to be completed in 1911 and the remainder by the end of 1912. The contract on file in the city clerk's office shows that Mr. Mackenzie will endeavor to procure the erection of a steel traffic and street car bridge across the Red River at some point between Arnaud St. and Tache Ave., opposite Bannatyne Ave., Winnipeg, and the contract also contemplates the construction of a subway at Provencher Ave., and a union station in St. Boniface.

Press reports from Winnipeg, Sept. 15, state that W. Mackenzie, President, said the location for the hotel which the company proposed building in the city was the corner of Water and Main Sts., where the old Northern Pacific hotel formerly stood. The report states that the hotel will cost about $2,000,000.

A number of sub-contractors and C.N.R. engineers, etc., were recently proceeded against for trespassing on C.P.R. property, in the Rosebud country, along the route of the projected line into Calgary. After some conferences with J. S. Dennis, Assistant to the Vice President, C.P.R., an agreement was reached as to the building of the line through the C.P.R. irrigation belt.

M. H. McLeod, in an interview at Edmonton, Alta., Sept. 7, is reported to have said the contractors had the uncompleted portions of the route of the branch into Calgary covered with men, and he had hopes that the grading would be completed this year. The matter of the entrance into Calgary was taken up Sept. 1, with the city council there by President Mackenzie. The city asked the company to move the location of its tracks 25 ft. east, but Mr. Mackenzie said they could not be moved, and in the event of the Board of Railway Commissioners ordering a change, another site entirely might be selected.

The question of the location of the branch from the Vegreville-Calgary line, westerly to the Brazeau River Valley is causing a good deal of discussion. The Department of Railways in Aug., approved of the location of the line from Stewartwyn to the western boundary of range 25, and on account of the opposition of the Alberta Central Ry., it was suggested that the line might be located to Rocky Mountain House, via Lacombe, instead of Red Deer. President Mackenzie, is quoted as having said, Sept. 1, that although the line will not be completed, steel will probably be laid as far west as the Calgary and Edmonton Ry. this year.

Application is being made to the Board of Railway Commissioners for a recommendation to the Governor-in-Council for the sanction of an agreement amalgamating the Edmonton and Slave Lake Ry., with the Canadian Northern

Canadian Northern Pacific Ry.—W. Mackenzie, President, arrived in Victoria, B.C., Sept. 3, and discussed a number of matters connected with the route of the line in the province, etc., with the Provincial Government.

Work was reported to be in progress on the first 15 miles of the coast end of the line, Aug. 30. Five construction camps had then been pitched between Port Mann and Mount Lehman. C. H. Johnson had his gangs working between Port Mann and Mission City, his headquartersr being in New Westminster; C. R. Shock & Son were working on a five mile section on either side of Fort Langley, where the construction camp had been pitched, and McDonald Bros. have headquarters at Chilliwack, B.C., the end of the 60-mile section under contract. These are sub-contractors under the Northern Construction Co.

Engineers are engaged, under the direction of T. H. White, Chief Engineer, in making surveys at Port Mann for terminal yards, etc. W. Mackenzie, President, visited the site of the proposed terminals, Sept. 8, in company with T. G. Holt, the C.N.R. Executive Agent in British Columbia. In an interview at Vancouver before leaving for the east on the following said, Mr. Mackenzie is reported to have denied the report that his company intended to make application to the railway commission for a change of its route from Edmonton to the coast, and further stated that construction would be carried out with all possible dispatch, following the survey as at present located, with the possible exception of short distances where it may be necessary to deviate to avoid tunnel work or high grades. Edmonton and the coast would be connected at as early a date as possible consistent with the proper construction of a standard line with the lowest possible gradients. Con-

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TORONTO, CANADA

tracts for further sections of the line in British Columbia would be let during the current year.

At Vancouver, Sept. 9, the Board of Railway Commissioners had under consideration the C.N.P.R.'s application to use the C.P.R. right of way through the Fraser Canyon near Lytton, to which the C.P.R. raised no objection, but application was made to use the C.P.R. right of way also for seven miles above the Canyon. After some argument it was decided to engage C. E. Cartwright, to make an independent survey of the C.N.R. location in the district and to make an estimate of the alternative route suggested by the C.P.R.

Survey work is being carried on in connection with the proposed lines in Vancouver Island, under the charge of G. B. Hughes, Engineer for the Island lines. It was reported recently from Victoria that H. K. Wicksteed, expected to arrive Oct. 1, in order to pass upon upon the route located, before arrangements are made for letting contracts.

A Victoria dispatch Sept. 21, said it was reporrted that a contract had been let for building 30 miles to Sooke, the first section of the proposed line from Victoria to Barkley Sound, on the southwest coast of Vancouver Island.

Duluth, Winnipeg and Pacific Ry.—We are officially advised that the contractors, Foley, Welch and Stewart, have the whole line from Duluth to Virginia, Minn., covered with men, there being in all about 1,500 employed on the grading and timber bridging. It is expected to get about 25 miles of track laid this fall, and to finish up the work in the summer of 1911. The tunnel at Short Line Park, about eight miles from Duluth, will be about 500 ft. long. Work was started on it Sept. 13, and it is expected to have it completed in about a month. (Sept., pg. 733).

F. H. Phippen, K.C.; G. G. Ruel, G. F. Macdonnell, R. H. M. Temple and A. J. Reid, all of whom are connected in a legal capacity with the Canadian Northern Ry. and allied interests, are incorporators of the Candian Power and Paper Co., Ltd., which has been incorporated under the Dominion Companies Act, with a capital of $10,000.000, and office at Toronto.

The Secretary, Board of Railway Commissioners, has issued the following circular to railway companies: "Several accidents have occurred on railways subject to the Board's jurisdiction, due to overhead structures not being the height required by the statutes, and I am directed to ask that you report to this Board not later than Nov. 30 particulars of all overhead bridges, snow-sheds or other structures that are not of the statutory height."

G. T. R. Pacific Type Locomotive.

During the past few years the weights of express passenger trains have increased to such an extent that it has become necessary, on many roads, to employ six-coupled locomotives in high speed service. For work of this character, either the ten-wheeled or Pacific type is usually selected. With the same maximum load per driving wheel, the Pacific type shows no superiority over the ten wheeled type, as far as adhesion weight is concerned; and hence at slow speeds the tractive force developed by the two classes should be approximately the same. The Pacific type, however, possesses greater boiler capacity, and this is a distinct advantage in high speed work, or where long grades must be negotiated.

The Baldwin Locomotive Works has recently built five Pacific locomotives for the G.T.R. They are known as class P according to the railway company's classification. The tractive force exerted is 31,500 lbs., and with 131,050 lbs. on driving wheels, the ratio of adhesion is 4.15. They were built in accordance with drawings and specifications furnished by the G.T.R.

The boiler used in this design is of the extended wagon top type with wide firebox. The longitudinal seams are sextuple riveted, and welded at the ends. The side water legs of the fire-box slope inward as they rise; the staying is radial, and the front end of the crown is supported on four rows of expansion links. The fire-door opening is formed by flanging both sheets outward, and uniting them with a sleeve. The master mechanic's standard front end is used, with a short extension and tapered stack. The furnace contains a brick arch, supported on four water tubes, each three inches in diameter.

The steam distribution is controlled by balanced slide valves, driven by Stephenson link motion. The rockers are placed between the first and second pairs of driving wheels, immediately in the rear of the links; and each rocker is connected to the corresponding link by a short transmission bar. The valve rods are necessarily long and are supported by the guide yoke. This plan of motion dispenses with heavy transmission bars, such as are necessary when the links and rockers are placed on opposite sides of a driving axle.

The frames are of cast steel, with rear sections of forged iron. For a locomotive of this size, the main frames are comparatively narrow, their uniform width being four inches. Each frame is cast in one piece with a single front rail, to which the cylinders are bolted. The rear sections are 2 inches wide by 12 inches deep, and are arranged to accommodate the trailing truck, which is of the radial type with outside journals. The driving springs are underhung, and are equalized with the trailing springs.

All truck wheels under the locomotive and tender are steel tired, and were manufactured by the Standard Steel Works Co. The trailing truck wheels have cast steel centres, while the front engine truck wheels and the tender wheels have cast iron centres. The Mansell style of fastening is used in all cases.

The tender frame is composed of 10 inch steel channels and the trucks are of the arch bar type, with cast steel bolsters. The tank has a water bottom, and provision is made for carrying 7,000 gallons of water and 10 tons of coal.

These locomotives, although not of exceptional size, are the first Pacific types shipped to Canada by the builders, and are therefore of considerable interest. The principal dimensions are as follows:

Gauge, 4 ft. 8½ in.
Cylinder, 22 in. x 28 in.
Valve, balanced slide.

Boiler—Type, wagon top; material, steel; diameter, 66 in.; thickness of sheets, 9-16 in. and ⅝ in.; working pressure, 200 lbs.; fuel, soft coal; staying, radial.

Fire Box.—Material, steel; length, 96⅞ in.; width, 75¼ in.; depth, front 72¾ in., back 56¼ in.; thickness of sheets, sides ⅜ in., back ⅜ in.; crown ⅜ in., tube ½ in.

Water Space.—Front, 5½ in.; sides, 4½ in.; back, 4½ in.

Tubes.—Material, steel; thickness, 0.125 in.; number, 305; diameter, 2 in.; length, 20 ft. 7 in.

Heating Surface.—Fire box, 170 sq. ft.; tubes, 3,274 sq. ft.; firebrick tubes, 28 sq. ft.; total, 3,472 sq. ft.; grate area, 50.6 sq. ft.

Driving Wheels.—Diameter, outside 73 in., centre 66 in.; Journals, main 9½ in. x 12 in., others 9½ in. x 12 in.

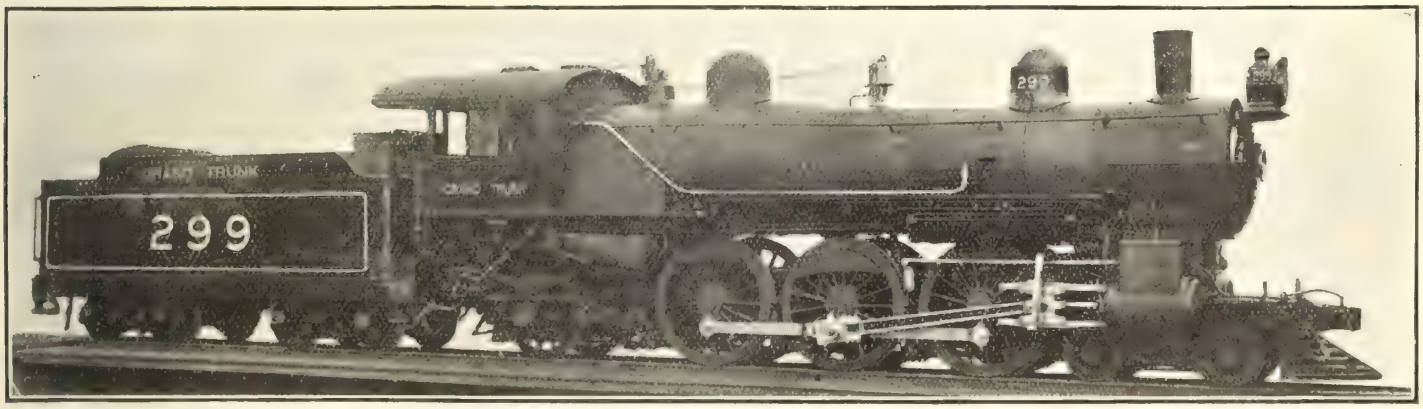
Engine Truck Wheels.—Diameter, front, [illegible] in.; journals, 6½ in. x 12 in.; diameter, back, 40 in.; journals, 8 in. x 14 in.

Wheel Base.—Driving, 13 ft. 4 in.; rigid, 13 ft. 4 in.; total engine, 33 ft. 2 in.; total engine and tender, 62 ft. 3½ in.

Weight.—On driving wheels, 131,050 lbs., on truck, front, 37,100 lbs.; on truck, back, 38,500 lbs.; total engine, 206,650 lbs.; total, engine and tender, about 345,000 lbs.

Tender.—Wheels, number, 8; diameter, 34 in.; journals, 5½ in. x 10 in.; tank capacity, 7,000 gals.; fuel, 10 tons.

Service, passenger.



Grand Trunk Railway Pacific Type Locomotive.

Grand Trunk Ry.—U.S. press reports Sept. 16, stated that the G.T.R. directors had authorized the purchase of the Chicago Great Western Rd., if satisfactory terms could be arranged. C. M. Hays, President G.T.R., and the President of the C.G.W. Rd., were said to have had a conference Sept. 15.

Judge McGibbon, of Prince Edward Island, has been appointed Chairman of the Board of Conciliation and Investigation under the Lemieux act established to adjudicate on the question of wages and conditions of labor of the maintenance of way men on the Canadian Pacific, Canadian Northern, and Grand Trunk Railways. Messrs. McGuigan and Lee are the other two members of the board, representing the railway companies and the men respectively.

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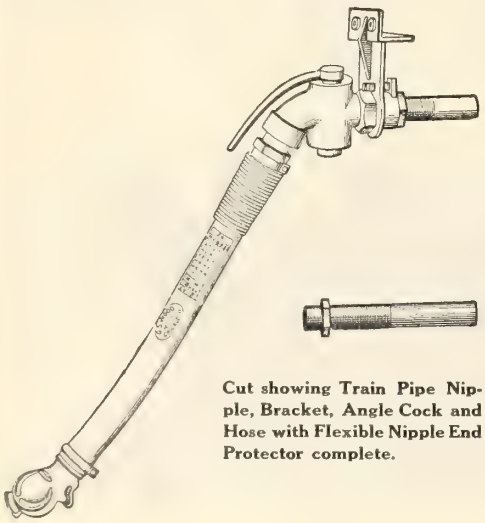

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The Maritime Provinces.—The developments of the C.P.R. in Nova Scotia and New Brunswick is causing much speculation there at present particularly in Halifax and St. John. It is reported in Halifax that that city is to become the sole winter port for both passengers and freight and that in order to make it the more accessible a new line will be built, starting from near Fredericton, N.B., in as straight a line as possible through New Brunswick and Nova Scotia to Halifax, and that this line will be hurriedly pushed forward in the very near future. Another dispatch while suggesting the building of the line from Fredericton, to Halifax, says that the Nova Scotian port will be made the terminal for the Trans-Atlantic passenger trade, while St. John, will remain the freight terminal. The reports from St. John, N.B., claim that the company has purchased additional property in the city and on the water front, and that this purchase would give the company a commanding position at the head of the harbor, as well as on the West side, and terminals of its own for steamships on the Bay of Fundy service could be constructed there giving quick connection by the bay route. On Sept. 9, the Mayor of St. John stated that obstacles in the way of the transfer of the west side shore lots to the C.P.R. as a site for railway yards near the elevator, had been overcome, and he expected that the transfer would be made by the city very soon.

Place Viger Station Improvements.—A press report states that a contract was let Sept. 12, for the alterations and additions to the station and hotel at Place Viger, Montreal, to John Stewart & Co. The old buildings have already been cleared off the site, and the foundation of the new station has been put in. The entrance to the station, instead of facing Craig St., at present, will be at the corner of Craig and Berri streets, where a large rotunda will give entrance alike to the station and the hotel. The hotel entrance proper, however, will face the Viger Gardens, and the whole of the space now occupied by the station will be given over to the hotel, while the station itself will extend from Craig along Berri to Notre Dame. Into this new station the trains will be able to run without the sharp curve necessitated at the present time. There will be nine tracks in the station.

St. Louis de Mile End Station.—A permit has been issued for building a new station at a cost of $37,000 at St. Louis de Mile End, Montreal. It will be on the St. Louis boulevard, and will be 262 by 40 ft., and two stories high. D. L. Loomis & Sons are the contractors.

Lake Temiskaming Colonization Ry. Extension.—The Minister of Public Works for Quebec, stated in a speech at Ville Marie, Que., Aug. 29. that if the C.P.R. did not build its projected line from South Timiskaming within the next two years the Government would do so. (See also Long Soo and Abitibi Ry., July, pg. 549.)

Ottawa Yard Facilities.—The city authorities received notification from the company Sept. 14, of a project for extending its limits in the neighborhood of Wellington St. viaduct for the purpose of increasing the yard facilities and putting up new buildings. In his letter Vice President McNicoll said considerable land had been acquired and it was proposed to purchase an additional area taking in several blocks. The intention of the company is to erect a larger roundhouse and other buildings on the land acquired. The assessment on the property within the area indicated by the company is about $15,000.

Arrangements are being made between the Mayor and Vice President McNicoll for a meeting to discuss the project for a tunnel in the city.

Kingston and Pembroke Ry.—During the past three years, we are advised, the company has reballasted the main line with the exception of about 16 miles, which were in good shape. During the current season a large amount of ballasting was done, over $30,000 having been appropriated for that purpose. The other betterments included new work to bridges and culverts at five points; a siding off the Bradford branch; replacing 10 miles of fencing northward from Godfrey, and general repairs to bridges and culverts at 75 points.

Smith's Falls to Toronto.—Referring to the reports that the company was about to undertake the building of another line from Smith's Falls into Toronto, D. McNicoll, Vice President, in a recent interview, stated that it would rest entirely on the engineers' report. It was a question of gradients rather than route; it was most important to get a level line first, but the question of the route had also to be considered. One of the reports referred to stated that a line was to be built from Smith's Falls to Belleville and thence to Toronto, and another report was to the effect that the new line to Toronto would branch off the main line at either Perth or Bathurst. The company controls the Campbellford, Lake Ontario and Western Ry. charter, which was projected to give a line nearer the lake front than the present line. Several surveys have been made over the route proposed for this line, but nothing further has been done.

Toronto Improvements.—Vice President McNicoll, in an interview at Toronto, Sept. 13, said he was working on plans for a greater freight terminal in Toronto, but they had not taken definite shape. A few days previously he was quoted as saying that the company had made plans for Toronto and would shortly be making a proposition to the city council. These plans might include warehouses, new lines, new yards, freight sheds, stations and all things dealing with terminal matters. His own opinion was that the present site of the union station will become an undesirable one for a passenger station, and that with the development of the city northerly, he would not be surprised if, in course of time, the big station of the city will be located in the north.

Men started work Sept. 1, in the preparation of new freight terminals at North Toronto. The foundations for a freight shed have been completed and the brickwork is being proceeded with. Three new sidings have been laid, and other work is to be done.

West Toronto Yards.—Officials of the company and the York township council arranged, Aug. 30, for the protection of three level crossings. Two 30 ft. subways are to be put in, one at Elizabeth St., and one at the Scarlett Plains, while an 8 ft. subway is to be put in at Jane St. This latter subway is to be widened to 30 ft., at the cost of the municipality when desired. J. Oborne, General Superintendent, stated that the company would ask the council for some concessions at a later date in connection with the Toronto yards.

Lambton-Islington Second Track.—Steel has been laid on the second track which has been built from Lambton station to near the entrance to the golf club house, at which point, there is to be a change in the alignment, as the grading to the Humber river, and to near Islington station is being done on the north side of the existing tracks. Beyond Islington station, to the new line to Mimico, the grading is being done on the south side of the present tracks. The bridge and building department has a gang enlarging the culverts on the present line to accommodate the second track. The present second track from Toronto westerly ends at the eastern end of Lambton station, which building will have to be moved before connection can be made with the second track now being laid west of there.

Islington-Mimico Branch.—The branch line from west of Islington, to Mimico, Ont., has been ballasted, and the connection with the G.T.R. has been made. Land has been acquired to make a connection at the Islington end, so that trains may be run from the branch either east or west.

Ingersoll to Code Jct.—The grading and culvert work on the 4.5 miles of line between Code Jct., on the Toronto-Windsor line, and Ingersoll, Ont., is well advanced. The contractors are Macondell and Fletcher. This piece of line will connect up the old Tillsonburg, Lake Erie and Pacific Ry., now terminating at Ingersoll, with the St. Mary's and Western Ontario Ry., another C.P.R. subsidiary now having its eastern terminal at Code Jct., and will enable trains from St. Marys to be run through to Ingersoll direct instead of to Woodstock as at present.

In connection with the reports that the company contemplated the abandonment of Port Burwell, as a terminal for its cross lake ferry, the Dominion Government has under consideration the building of a 1,200 ft. breakwater at the southwest side of the harbor, with a view of preventing the formation of a sandbar, which is proving an obstacle to navigation.

London Improvements.—In an interview at London, Sept. 14, Superintendent McNeillie, stated that he expected to receive orders to go ahead with the improvements at the station and terminals any day. The roundhouse would be the first building to be erected.

A London press dispatch, Sept. 7, stated that plans had been received in the city showing a new station at Quebec road, a 26-stall roundhouse, machine shops, office buildings, and a considerable re-arrangement of the yards.

London-Port Stanley, Ont.—Press reports state that the company has been having surveys made for a line from near Belmont through Yarmouth tp., to Orchard Beach, on Lake Erie.

Thessalon Station and Yards.—An agreement has been reached by which a new station, 112 ft. long, will be built and additional siding accommodation provided at Thessalon, Ont., on the Algoma branch line.

Fort William, Ont.—A contract is reported to have been let to O. A. C. Stewart & Co., Winnipeg, Man., for the abutments and piers for the bridge over the Kaministikwia River, Fort William, Ont.

Subway at Kenora, Ont.—Plans were submitted to the Kenora town council, recently, for a subway under the C.P.R. tracks, at Main St., the work to cost about $40,000. The company will provide 70% of the cost; 20% will come from the Dominion level crossing elimination fund, and 10% will be provided by Kenora. The subway will be built by the C.P.R.

New Western Lines.—The shareholders will be asked at the annual meeting, Oct. 5, to authorize the directors to issue 4% consolidated debentures to provide for building the following branch lines in Manitoba, Saskatchewan and Alberta: Moose Jaw-Outlook branch, 118 miles; Weyburn-Lethbridge branch, 50 miles; Teulon extension, 56 miles; Lauder-Griffin branch, 33 miles; Craven-Bulyea branch, 21 miles; Kipp-Aldersyde branch, 58 miles; Langdon branch, 40 miles; Regina-Colonsay branch, 134 miles; Snowflake branch extension, seven miles; Virden-McAuley branch, 36 miles. These lines have either been completed, or are practically completed.

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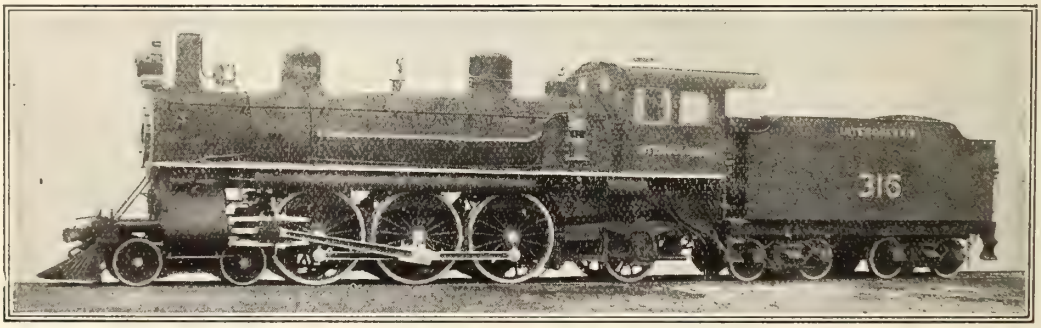

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A contract has been entered into with the Dominion Government under the act granting aid to certain railways, for building an extension of the Winnipeg Beach line to Gimli, Man., 9.5 miles.

Winnipeg-Portage la Prairie Second Track.—The second track between Winnipeg and Portage la Prairie, Man., was expected to be completed Sept. 15.

Estevan Westerly.—In order to provide employment for settlers and their teams, W. Whyte, Vice President, has authorized the grading of about 20 miles westerly from Estevan, Sask. The work has been started.

Port Moody, Indian River and Northern Ry.—The line under construction is 18 miles long, and extends from Emerson's spur, at the eastern end of Port Moody, B.C., at which point it connects with the C.P.R. main line, to Indian River. This river flows into the north arm of Burrard Inlet. Work is going on between Port Moody, and a point on the north shore of Burrard Inlet, at a distance of about four miles from Emerson's spur. The line follows the eastern and northern shore of the inlet for the whole of the four miles, and is designed primarily to develop valuable water frontage on that portion of the Inlet for industrial purposes. So far as at present located the line has a maximum gradient of 0.7% and an easy curvature. With the exception of some trestle work across a portion of the mud flat at the extreme eastern end of the Inlet, there is no bridging of any importance on this four miles. It is expected that steel will be laid upon the four miles by the end of Nov. The contractors are Macdonell, Gzowski & Co,. Vancouver.

A press report states that over a mile of the line was ready for track laying, Aug. 30. In the course of the grading hard pan was struck which made construction more difficult and prevented the completion of the four miles by Sept. 1, as was at first contemplated.

Esquimalt and Nanaimo Ry.—The section of the Alberni extension as far as Cameron Lake has been completed, and it was expected that a train service would be placed in operation over it by Sept. 30. Work on the five mile section round Cameron Lake is being proceeded with satisfactorily, and it is expected that it will be completed by the end of the year. The grading is expected to be completed right into Alberni by Jan. 1, and the bridge work will be completed by Mar. 30, 1911, so as to allow the track laying gang to begin work at Cameron Lake, April 1.

A contract has been entered into with the Dominion Government under the act granting aid to certain railways, for building a line from Duncans, on the main line, to Cowichan Lake, 24 miles.

A Victoria dispatch of Sept. 20, said the company was calling for tenders for building the Comox branch.

Minneapolis, St. Paul and Sault Ste. Marie Ry.—U.S. press reports state that a certificate has been granted to the company permitting it to build a line in Superior, Wis., from its present terminal to the ore docks; also an extension of the line to the proposed plant of the U.S. Steel Corporation, via the Tomahawk Bay route. (Sept., pg. 731).

Hudson's Bay and Pacific Ry.—G. Atwood, Chief Engineer of the Hudson's Bay and Pacific Ry., which has opened offices at Prince Albert Lake, has announced that he has been authorized to expend any monies necessary to complete a detailed survey for a route from Prince Albert to Fort Churchill. He says he has a large number of men in the field, and makes the announcement in refutation of the rumors that the London backers of the road were about to withdraw their support.—Prince Albert press dispatch.

Resignation of Thomas Tait.

A Melbourne, Australia, cable of Sept. 21, states that Thomas Tait, Chairman Victorian Railway Commissioners, has resigned and will return to Canada. The reason for his resignation, as stated in the dispatch, is on account of a recent accident at Melbourne, by which a number were killed and others injured. From the last Australian papers to hand it would appear that the accident was caused by the carelessness of some minor officials at the Melbourne terminus. The news of Mr. Tait's resignation is a matter of great surprise in Canada, as he has met with great success in his administration of the Australian railway, and has received much endorsement in Parliament and in the Victorian press generally.

Mr. Tait was born at Melbourne, Que., July 24, 1864, and entered railway service Sept., 1880, since when he has been, to July, 1881, clerk G.T.R. Audit Department; July to Oct., 1881, clerk in office of Assistant to President Chicago and Grand Trunk Ry.; Oct., 1881, to Apr., 1882, clerk in G.T.R. Solicitor's Office, Belleville, Ont.; Apr. to Oct., 1882, clerk General Manager's office, G.T.R.; Oct., 1882 to Sept., 1886, private secretary to Vice President and General Manager C.P.R.; Sept., 1886, to May 23, 1887, clerk General Traffic Manager's office, C.P.R.; May 23, 1887, to Feb. 1, 1889, Assistant Superintendent C.P.R.; Moose Jaw, Sask.; Feb. 1, 1889, to Mar. 12, 1890, Superintendent Ontario Division C.P.R., Toronto; Mar. 12, 1890, to Mar. 1, 1893, General Superintendent Ontario and Quebec Division, C.P.R.; Mar. 1, 1893, to May 3, 1897, Assistant General Manager C.P.R.; May 3, 1897, to Apr., 1901, Manager C.P.R. Eastern Lines; Apr., 1901, to Mar., 1903, Manager of Transportation, C.P.R. He sailed from Vancouver for Australia, May 1, 1903, having received the appointment of Chairman of the Victorian Railway Commissioners.

Since the above was put in type, we have been advised that Mr. Tait and his family will sail from Australia Nov. 30, via India and Europe, for Canada.

White Pass and Yukon Railway Rates.

British Columbia press dispatches early in September stated that the Board of Railway Commissioners had made an order respecting rates on the W.P. & Y. Ry. On Sept. 16, the Secretary of the Board at Ottawa advised us that no formal order had reached him for issuance.

The order was evidently promulgated in B.C., as the Vancouver World published it Sept. 13, as follows:—

"The British Yukon Ry. Co., the British Columbia Yukon Ry., and the Pacific & Arctic Ry. and Navigation Co., and the White Pass & Yukon Ry. Co. are to cease from discriminating against the applicant (Conrad), and in favor of the Atlas Mining Co., R. R. Neil and W. D. Greenhough and any and all said parties. That said railway companies cease and desist from discriminating in favor of the locality in which the Atlas mining properties are located and against the locality in which the mines of the applicant are located.

"That said railway companies file with the board on or before Nov. 1 tariffs showing the rates granted to the Atlas Mining Co., pursuant to the contract entered into between the Pacific & Arctic Ry. & Navigation Co. and the Atlas Mining Co., dated March 21, 1910.

"That said railway companies file with the board on or before Nov. 1 a tariff amending or supplemental to C. R.C. 9, issued Sept. 16, 1909, by the Pacific & Arctic Ry. & Navigation Co., the British Columbia Yukon Ry. Co., and the British Yukon Co., forming the 'White Pass and Yukon route,' giving carload rates of $1.75 a ton on ore and concentrates from Cariboo to Skagway.

"That the said railway companies grant to all shippers of ore and concentrates upon their line or lines of railway proportional rates and privileges at least as favorable as those granted to the Atlas Mining Co. under said contract.

"That said railway companies in due course obtain for the applicant if he notifies them in writing so to do, the same or as favorable ocean rates as they have obtained for the Atlas Mining Co., or in the event of said railway companies being unable to obtain the same or as favorable ocean rates for the applicant, then they are to cease and desist from obtaining discriminatory ocean rates for the Atlas Mining Co. and handle the ore of applicant, and that of all other shippers over their lines upon terms and conditions as to wharfage and otherwise exactly similar to that granted by said contract to the Atlas Mining Co."

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers to distinctly understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

W. W. Butler, Second Vice President and Director of the American Steel Foundries Co. while retaining those positions, has severed his active connection with the company in order that he may devote all his time to the Canadian Car & Foundry Co. and his other Canadian interests.

The Canada Iron Corporation Ltd. has issued an exquisitely printed and well illustrated, bound book, of 126 pages, containing full particulars of its activities, and information as to its iron mines, blast furnaces, car wheel and pipe foundries and machine shops, together with standard pipe and car wheel specifications.

The Canadian Gold Car Heating and Lighting Co. has issued a catalogue embodying all the various devices and special fixtures connected with its systems of train heating, with detail illustrations of all the parts. The descriptions given, cover steam and vapor heating, combined coal-fired heaters with hot water circulation, and electric heaters, as well as equipment for Pintsch gas and acetylene lighting systems.

A press dispatch says:—"Since the relining of the blast furnaces, the Nova Scotia Steel Co. has been putting all previous records for daily production far in the rear. Before the improvements were completed, the average daily output was 180 tons. Since that time, the average has been greatly increased, and some remarkable days have been put in. On one day the output was 210 tons, on another, 230 tons, and on another, 275 tons."

I.C.R. Buildings at Campbellton.—We are officially advised that as the season is so far advanced only temporary buildings will be put up to replace those burned, with the exception of the locomotive house and this work is being done by railway employes under the direction of the engineer, using as far as possible second hand materials which are available. Plans are being prepared for a station house, to be built next summer

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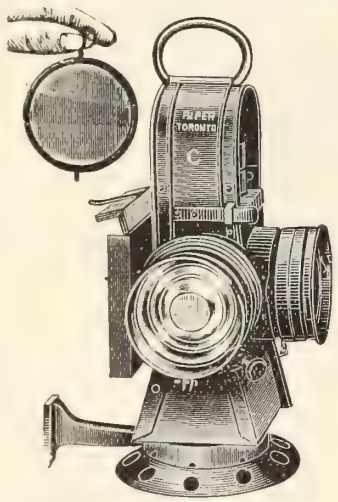

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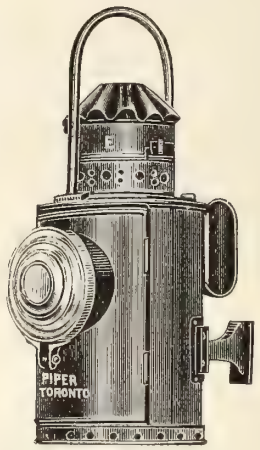

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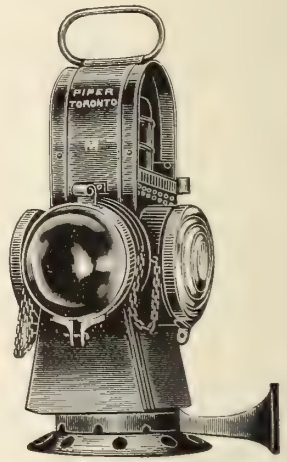

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MONTREAL

TRANSPORTATION APPOINTMENTS.

The information under this head, which is almost entirely gathered from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Algoma Central and Hudson Bay Ry.—G. A. Montgomery, heretofore Superintendent Manitoulin and North Shore Ry., has been appointed Superintendent Michipicoten Division A.C. & H.B.R., vice R. Y. Seelye, who was also Superintendent Helen Mine, and who has been appointed General Superintendent of Mines, Lake Superior Corporation. Office, Michipicoten Harbor, Ont.

Boston and Maine Rd., Maine Central Rd.—C. S. Mellen, President New York, New Haven and Hartford Rd., has also been appointed acting President B. & M., and M.C. Rds., vice L. Tuttle, resigned.

Canadian Freight Association, Western Lines.—W. E. Campbell has been appointed Secretary Treasurer, with jurisdiction over freight inspection and car rental on all lines in Canada west of and including Port Arthur, Ont.

A. C. Ferguson, heretofore acting Manager Canadian Car Service Bureau, Western Lines, has been appointed Chief Clerk Canadian Freight Association, Western Lines, Winnipeg office.

J. Burchell, heretofore Manager and Secretary-Treasurer, Canadian Car Service Bureau, Western Lines. Vancouver, will until Jan. 1, 1911 continue the work of supervision of freight inspection and car rental on lines in British Columbia, and all reports, correspondence, etc., should continue to be addressed to him.

Canadian Northern Ry.—T. Musgrove, heretofore freight repair foreman, has been appointed coach yard foreman at Winnipeg, vice A. E. Lewis, resigned.

T. A. Howell, heretofore in charge of the Salvation Army's immigration work at Toronto, has been appointed General Immigration Agent, C.N.R. Office, Toronto.

G. F. Southall, heretofore in the Salvation Army's immigration department at Toronto, has been appointed Travelling Immigration Agent, C.N.R. Office, Toronto.

Canadian Pacific Ry.—C. E. E. Ussher, heretofore Assistant Passenger Traffic Manager, Winnipeg, has been appointed Passenger Traffic Manager, vice Robt. Kerr, retired. Office, Montreal.

A. P. Walker, Assistant Division Engineer, Toronto, who has been on leave of absence, has returned, and resumed his duties.

M. A. Fullington, who acted as Assistant Division Engineer, Toronto, during the absence of A. P. Walker, has been granted a short leave of absence.

R. H. Pierce, heretofore Assistant Superintendent, has been appointed Superintendent Sleeping, Dining and Parlor Cars and News Service, District 4. Office, Moose Jaw, Sask.

R. R. Smart, heretofore Car Service Agent, Moose Jaw, Sask., has also been appointed Fuel Agent, Saskatchewan Division. Office, Moose Jaw.

G. Moth, heretofore Trainmaster at Moose Jaw, Sask., has returned to the locomotive service.

A. A. Smith, heretofore Trainmaster at Moose Jaw, Sask., has been appointed Trainmaster District 1, Alberta Division, vice A. N. Hobkirk, transferred. Office, Medicine Hat, Alta.

H. O. Whitney has been appointed Roadmaster Lethbridge subdivision, District 1, Alberta Division, vice —. Barry, assigned to other duties. Headquarters, Medicine Hat.

A. N. Hobkirk, heretofore Trainmaster District 1, Alberta Division, Medicine Hat, has been appointed Trainmaster District 2, Alberta Division, vice W. R. Loucher, transferred to Moose Jaw, Sask. Office, Calgary, Alta.

A. Houghton has been appointed Assistant Trainmaster District 2, British Columbia Division, vice A. Halkett, appointed Trainmaster at Moose Jaw, Sask. Office, Kamloops, B.C.

R. C. Barker, heretofore Chief Dispatcher District 2, British Columbia Division, Vancouver, B.C., has been appointed Chief Dispatcher District 3, B.C. Division, vice F. Walker, transferred. Office, Nelson, B.C.

F. Walker, heretofore Chief Dispatcher District 3, British Columbia Division, Nelson, B.C., has been appointed Chief Dispatcher District 2, B.C. Division, vice R. C. Barker, transferred. Office, Vancouver, B.C.

A branch office has been opened at Antwerp, Belgium, for the working of the Company's continental business, instead of it being represented by an agent as heretofore. T. McNeil, heretofore Traffic Manager Manchester Liners, Ltd., Manchester, Eng., has been appointed Agent, vice S. E. Cruse, resigned. Office, 25 Quai Jordaens.

Delaware and Hudson Co.—The office of General Auditor has been created, and the following change made in the organization of the accounting department: The Comptroller will have charge of the general, corporate and fiscal accounts. The General Auditor will have charge of the operating revenue and expense accounts. Allen McCarty has been appointed General Auditor. Office, Albany, N.Y.

Grand Trunk Pacific Ry.—The following agents have been appointed:—Rivers, Man., A. Donnelly; Pope, Man., S. Edwards; Lazare, Man., J. A. Jacques; Atwater, Sask., S. C. McDonald; Venn, Sask., R. M. Sutherland; Wainwright, Alta., A. M. McCorkle; Tofield, Alta., A. B. Dowling; Edmonton, Alta., W. H. Oliver.

Grand Trunk Ry.—G. Beckingham, heretofore Roadmaster, Point St. Charles, Montreal, has been appointed General Roadmaster Eastern Division, vice D. McCooe, promoted. Office, Montreal.

D. McCooe, heretofore General Roadmaster, Montreal, has been appointed Superintendent of Grade Separation at Toronto, and will have entire charge of all construction work in connection therewith. Office, Toronto.

F. W. Egan, having recovered his health, has resumed his duties as Superintendent Western Division, Detroit, Mich.

J. Ehrke, who has been acting Superintendent Western Division, Detroit, Mich., during the absence of F. W. Egan, has resumed his duties as Assistant Superintendent District 25 (Main line), and District 26. Office, Battle Creek, Mich.

The following agents have been appointed:—Newtonville, Ont., P. C. Brown; Pickering, Ont., F. S. Allin; Omemee Jct., Ont., H. S. Snider; Georgetown, Ont., J. T. Cameron; Lucan, Ont., W. J. Dore; London East (Pass.), Ont., C. Sampson; Ridgeway, Ont., A. Yaeck; Alma, Ont., W. J. Dobbie; Dalkeith, Ont., D. J. Mackintosh.

Manitoulin and North Shore Ry.—F. Robinson, heretofore Trainmaster and Chief Dispatcher, Algoma Central and Hudson Bay Ry., Sault Ste. Marie, Ont., has been appointed Superintendent M. & N.S.R., vice G. A. Montgomery, transferred to A.C. & H.B.R. service. Office, Sudbury, Ont.

Michigan Central Rd.—G. E. Gott, heretofore Night Chief Train Dispatcher, has been appointed Chief Train Dispatcher, vice G. W. Babbitt, deceased. Office, St. Thomas, Ont.

W. H. McNabb has been appointed Night Chief Train Dispatcher at St. Thomas, Ont., vice G. E. Gott, promoted.

New York Central and Hudson River Rd., West Shore Rd., Boston and Albany Rd.—L. F. Vosburgh, heretofore Assistant General Passenger Agent, has been appointed General Passenger Agent, vice Gerrit Fort, resigned. Office, Grand Central Terminal, New York.

Pere Marquette Rd.—C. M. Booth, heretofore First Assistant General Freight Agent, has been appointed General Freight Agent, vice P. F. Gaines, deceased. Office, Detroit, Mich.

J. E. Williams, heretofore Chief of Tariff Bureau, has been appointed Assistant General Freight Agent, with general supervision of the Tariff Department, and such other duties as may be assigned. Office, Detroit, Mich. The position of Chief of Tariff Bureau has been abolished.

R. P. Paterson has been appointed Assistant General Freight Agent. Office, Detroit, Mich.

Reid Newfoundland Co.—T. Power has been appointed Roadmaster Division 2, between Whitbourne and Clarenville, including Placentia Branch, vice D. Ferguson, transferred.

W. C. Harvey has been appointed Travelling Marine Engineer, vice P. Stewart.

Transportation in Europe.

Following up his books on "Railroad Freight Rates," and "The Working of the Railroads," which deal with the operation of railways in the U.S. and Canada, L. G. McPherson, lecturer on transportation at John Hopkins University, has written a book dealing with transportation in Europe, the information upon which it was written having been collected during a visit to Europe with the National Waterways Commission. Mr. McPherson presented a formal report of his investigations to the Commission, and the present volume is a rearrangement and amplification of the report. After an introductory chapter, in which the author contends that continental Europe as a whole is the proper basis for a comparison of its traffic conditions with those existing in the United States, there are chapters dealing with land roads and interior waterways, the development of the railways, railway passenger tariffs, railway freight tariffs, concerning freight traffic, international rail traffic, phases of Government control, comparative usefulness of inland waterways and railways, and a summary of the situation on the continent. These chapters pass under review the whole traffic conditions of continental Europe, tracing the development from the days when the sole means of communication between one place and another, the undeveloped natural waterways, and pack trails on land, through the different stages to the present day condition of affairs. The development of transportation in England is dealt with separately, "because," as the author observes, "of its isolated position, its physical characteristics, and its peculiar political and economic development." The transportation status in England, he says, "although in certain general features analogous to that of the continent of Europe, is in important respects widely different." In addition to these differences there is also, he points out, a close relation between many English and United States institutions, which makes such separate treatment desirable. The book is full of information and gives a carefully written, full and well balanced review of the European situation. The book is published by H. Holt and Co., New York, and may be obtained through the Railway and Marine World's Book Department. The price is $1.62, including postage.

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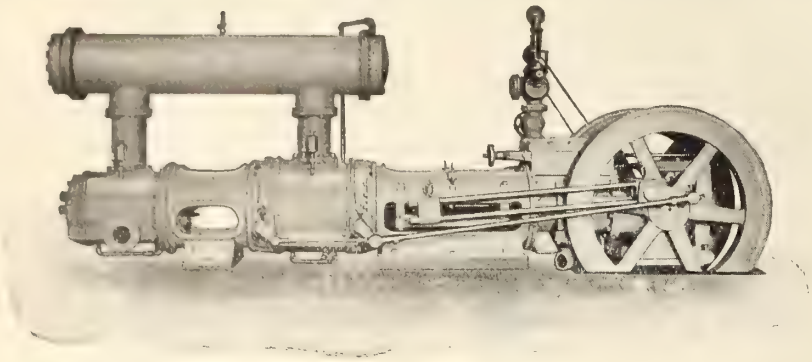

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MAINLY ABOUT PEOPLE.

A. MacMurchy, Solicitor C.P.R., Toronto, has returned there from England.

Mrs. Hayter Reed, wife of the Manager in Chief C.P.R. Hotels, has gone to England for a short visit.

Dr. N. A. Macnab, in charge of the hospital on the G.T. Pacific Ry., west of Edmonton, Alta., died there Sept. 16.

J. C. S. Bennett, C.P.R. official photographer, returned to Montreal, Sept. 14, from a tour through Western Canada.

R. S. McCormack of the C.P.R. Legal Department, Toronto, was married there to Mrs. E. E. Weir, of Hastings, Ont., Sept. 5.

W. Poupore, who died in Montreal, recently, aged 91, was father of W. J. Poupore, contractor for railway and canal works.

James Mills, LL.D., one of the Board of Railway Commissioners, has retired from the Board of Regents of Victoria University, Toronto.

W. J. Hatch, General Air Brake Inspector, C.P.R., Montreal, was elected Third Vice President of the Air Brake Association, at its recent convention.

W. M. Ryder, who died at St. Johns, Que., recently, aged 92, was father of E. A. Ryder, Secretary to the President, Boston and Maine Rd., Boston, Mass.

G. J. Bury, General Manager C.P.R. Western Lines, Winnipeg, attended a meeting of Western railway men in Chicago, Ill., Sept. 9 and following days.

J. M. Curry, Mayor of Amherst, N.S., and associated with the Canadian Car and Foundry Co., was married to Miss A. M. Mackeen, in Montreal, Sept. 7.

R. J. Mackenzie, of Mackenzie, Mann & Co., Winnipeg, bought in Toronto, Aug. 27, the pacing stallion Joe Patchen II., reports stating that the price paid was $12,000.

Lucius Tuttle, who has resigned the Presidency of the Boston and Maine and Maine Central Rds., was, from Jan., 1887 to 1889, Passenger Traffic Manager C.P.R., Montreal.

W. J. Crossen of the Crossen Car Manufacturing Co., Cobourg, Ont., is one of the directors of the Northumberland-Durham Power Co., and of the Central Ontario Power Co.

H. Murray, of Holmes, Murray and Sharkey, having a grading contract on the G.T. Pacific Ry. Tofield-Calgary branch, died Aug. 31 from injuries inflicted by a discharged laborer.

Miss Phyllis Hendrie, daughter of the late Wm. Hendrie, Hamilton, Ont., founder of the railway cartage firm of Hendrie & Co., and also engaged in railway contracting, was married to Allan Case of Toronto, recently.

P. V. Johnson, Seattle, Wash., who was associated with his brother, C. J. Johnson, on a grading contract on the Canadian Northern Pacific Ry., at New Westminster, B.C., died suddenly at Harrison Hot Springs, B.C., Aug. 31.

D. Murphy, C. E., who was engaged in construction of the lift locks on the Trent Valley Canal, died in a Montreal hospital, Sept. 14, as the result of an accident, his motor cycle having been run down by an automobile

J. T. McKenney, City Agent Northern Pacific Rd., Duluth, Minn., who was formerly ticket agent for the N.P. Rd., in Winnipeg, is reported to have been appointed District Passenger Agent same road, at St. Paul, Minn.

C. F. Merry, who was active in promoting the Dakota Southern Rd., a line which was projected to run to Valley City, S.D., and on to Winnipeg, Man., was arrested at Carrington, N.D., Sept. 11, on charges in connection with the promotion of the company.

N. Curry, President Canadian Car and Foundry Co., Montreal, has been elected Vice President of the Canadian Manufacturers Association. J. S N. Dougall, President Dougall Varnish Co., Montreal, has been elected Vice President of the Association for Quebec province.

Wm. Mackenzie, of Mackenzie, Mann and Co., exhibited a number of Jersey cattle from his farm at Kirkfield, Ont., at the Toronto Exhibition, which secured the following awards:—two senior championships, eight first prizes, one second prize, two third prizes and two fourth prizes.

F. A. Delano, President Wabash Rd., with one of his daughters and some friends started for a tramp in the bush near the Delano summer residence, near Cliff Lake, Mich., Sept. 4, and got lost. The party was found Sept. 6 on the shore of Lake Superior, seven miles from the Huron Mountain Club, having suffered considerably from exposure and want of food.

In referring to G. J. Bury, General Manager C.P.R. Western lines, in our last issue, it was mentioned that he started his railway career as stenographer for Wm. C. Van Horne. As a matter of fact he commenced work under Thos. G. Shaughnessy, when the latter was Purchasing Agent, afterwards becoming Mr. Van Horne's Secretary, and for a number of years he was between Messrs. Van Horne and Shaughnessy's offices.

N. S. Dunlop, represented the C.P.R., at the recent conference held at Boston, Mass., of the Railway Gardening Association of America. This association has for its object the promotion of flower planting and shrub growing on station grounds and railway property generally, with a view to making the places which are at present unsightly, attractive, and of making the bare places round railway stations attractive by providing seeds, bulbs, etc., for the station agents and other employes, and in advising as to the laying out of the waste land at stations and other places.

N. DesBrisay, whose appointment as Travelling Passenger Agent, St. John, N.B., was announced in our last issue, was, from June 14, 1904, to May 31, 1905, clerk in District Passenger Agent's office, St. John; June 1, 1905, to June 7, 1907, ticket clerk, City Ticket office, St. John; June 14, 1907, to Dec. 5, 1908, ticket clerk, s.s. Empress of Ireland; Dec. 5, 1908, to May 24, 1909, exchange ticket agent, Halifax, N.S.; May 27, 1909, to Nov. 19, 1909, exchange ticket clerk, Quebec; Nov. 19, 1909, to May 4, 1910, exchange agent, Halifax, N.S.; May 5 to July 15, 1910 exchange agent, Quebec; all service with the C.P.R.

L. F. Vosburgh, who has been appointed General Passenger Agent New York Central and Hudson River Rd., West Shore Rd. and Boston and Albany Rd., New York, entered railway service in 1893, since when he has been, to 1895, assistant night ticket agent Lake Shore and Michigan Southern Rd.; 1895 to 1897, assistant ticket agent, same road; 1897 to 1903, City Passenger Agent, same road; 1903 to 1906, General Western Passenger Agent, same road; 1906 to Feb. 1, 1910, General Eastern Passenger Agent, New York Central Lines, New York; Feb. 1 to Sept. 1, 1910, Assistant General Passenger Agent, New York Central Lines, New York.

Robert Kerr, who has retired from the position of Passenger Traffic Manager C.P.R., was born at Toronto, Aug. 23, 1845. He entered railway service in 1866, since when he has been, to 1879, warehouse clerk, etc., Northern Ry. of Canada; 1879, Through Freight Agent same road; 1879 to 1884, General Freight and Passenger Agent Northern and Northwestern Rys.; June 1, 1884, to Jan. 1, 1896, General Freight and Passenger Agent C.P.R. Western and Pacific Divisions, Winnipeg; Jan. 1, 1896, to June, 1899, Traffic Manager C.P.R. Lines West of Lake Superior; June, 1899, to Sept., 1910, Passenger Traffic Manager C.P.R., Montreal.

C. J. Panser, roadmaster Winnipeg Beach and Teulon branches C.P.R., died suddenly at his home in Winnipeg, Sept. 9, aged 64. Referring to Mr. Panser's death, Vice President W. Whyte, said:—"He came to Winnipeg in 1881 from the Southern Minnesota division of the Chicago, Milwaukee and St. Paul Rd., where he was employed under J. M. Egan, who was at that time Superintendent of the Milwaukee line. When Mr. Van Horne, now Sir William, came to the C.P.R. he brought with him Mr. Egan and Mr. Panser, the latter being employed on construction work, and shortly rose to the position of roadmaster, which he occupied from 1882 to the time of his death."

W. S. Kinnear, who recently resigned the Assistant General Managership of the Michigan Central Rd., on the completion of the Detroit River Tunnel of the construction of which he had charge, has been appointed President of the Kansas City Terminal Railway Co. at Kansas City, Mo. This company has been formed by the twelve large railway systems entering Kansas City, and the work contemplated consists of revamping the present Kansas City Belt Ry., operating some 61 miles, completing a six track belt line around the city and building a new union station. The total estimated expenditure is about $39,000,000 of which about $6,000,000 will be spent on the new union station.

The Galt Hospital at Lethbridge, Alta., was founded in 1885, by the late Sir Alex. Galt, its first home being a small wooden building. This was removed in 1891 when the existing main building was erected, also by Sir Alex. Galt, who also bequeathed the institution an endowment now amounting to $40,000. A nurses' home was added by E. T. Galt, and in 1908, he offered to donate $30,000 for extensions to the hospital if the city of Lethbridge provided a similar amount. This was done, and the new buildings erected, were opened Sept. 1, by Sir Wilfrid Laurier. The hospital is administered under the provisions of an act of the Alberta Legislature, E. T. Galt, President of the Alberta Ry. and Irrigation Co., being Chairman; and P. L. Naismith, General Manager A.R. and I. Co., being Vice Chairman.

C. E. E. Ussher, who has been appointed Passenger Traffic Manager C.P.R., Montreal, was born at Niagara Falls, Ont., Dec. 29, 1857, and entered railway service in 1874, since when he has been, to May, 1876, clerk in Auditor's office, Great Western Ry.; May, 1876, to June, 1880, clerk in General Passenger Department same road; June, 1880, to Apr., 1883, chief ticket clerk Wabash, St. Louis and Pacific Ry.; Apr. to Nov., 1883, rate clerk Chicago and Atlantic Rd.; Nov., 1883, to Nov., 1886, in commercial business at Hamilton, Ont.; Nov., 1886, to May, 1889, chief ticket clerk C.P.R.; May, 1889, to Jan. 1, 1898, Assistant General Passenger Agent C.P.R., Montreal; Jan. 1, 1898, to Dec., 1906, General Passenger Agent C.P.R. Eastern Lines, Montreal; Dec., 1906, to Sept. 30, 1910, Assistant Passenger Traffic Manager C.P.R., Winnipeg.

Howard G. Kelley, whose portrait appears on the first page of this issue, was born in Philadelphia, Pa., Jan. 12, 1858, and entered railway service in 1881, since when he has been, to 1884, Assistant Engineer on location, construction and bridge construction Northern Pacific Rd. Western and Pacific Divisions; 1884 to 1887, engaged in mining; 1887 to Jan., 1890, Resident Engineer and Super-

Intendent of Bridges and Buildings, St. Louis Southwestern Ry. System, including the St. Louis Southwestern Ry. of Texas; Jan., 1890, to Mar., 1898, Chief Engineer same road; Mar., 1898, to July, 1907, Chief Engineer Minneapolis and St. Louis Rd., and from July, 1900, to July, 1907, also Chief Engineer Iowa Central Rd., and from Mar., 1898, to Mar., 1899, also Consulting Engineer St. Louis Southwestern Rd.; from July, 1907, Chief Engineer G.T.R., Montreal. He is a Member of the Institute of Civil Engineers of Great Britain, and of the American Society of Civil Engineers, and served two terms as President of the American Railway Engineering and Maintenance of Way Association.

Robt. Kerr, who has retired from the position of Passenger Traffic Manager C.P.R., was the guest of a number of representatives of various transportation companies, at dinner, Sept. 30, at the Windsor Hotel, Montreal, when he was presented with a grandfathers' clock with full set of chimes. The committee which had the arrangement in hand, consisted of:—G. T. Bell, Assistant Passenger Traffic Manager, G.T.R.; G. Hannah, General Passenger Agent, Allan Line; R. F. Macfarlane, General Passenger Agent, White Star-Dominion Line; W. Stitt, General Passenger Agent, C.P.R.; T. Henry, Manager Richelieu & Ontario Navigation Co.; V. G. R. Vickers, Superintendent Dominion Ex. Co.; W. A. Cooper, Superintendent Sleeping, Dining and Parlor Cars Service, C.P.R.; Guy Tombs, General Freight and Passenger Agent, Canadian Northern Quebec and Quebec and Lake St. John Rys.; F. J. McClure and W. A. Coates, General Passenger Agent, and General Freight and Passenger Agent, Donaldson Line; N. Mooney, General Agent Passenger Department, New York Central Lines; J. O. Apps, General Baggage Agent, C.P.R.; H. R. Charton, General Advertising Agent, G.T.R.; W. T. Robson, Advertising Agent, C.P.R.; W. G. Annable, General Passenger Agent, C.P.R. Steamship Lines, and F. M. Southam, of the Southam Press.

Quebec Central Ry.—For the year ended June 30 the directors announce a dividend of 2%, or 10s. per £25 share, this being the first distribution on this issue since the company was formed. The net revenue for the year was $351,900, an increase of $55,100, and after meeting all interest charges, there remains a surplus of $70,800, which, added to $46,300 brought forward, gives a total credit balance of $117,100.. The 7% income bonds are now quoted at 116, and on this basis the yield is 6%, the company has the right, however, to pay off the issue at par at the commencement of 1922. The capital stock stands at 16, which, on the basis of the dividend now declared, represents a return of 12½%. The outlook for the current year is fairly satisfactory, and it is possible that, now a commencement has been made with dividend payments, the company will achieve considerable progress during the next few years.—Canadian Gazette.

J. W. Gerell, formerly Manager Toronto Shipyards, has been appointed Assistant Manager Polsons Iron Works, Toronto.

A Montreal press report of Sept. 28 states that C. Murphy, heretofore General Superintendent Eastern Division C.P.R., Montreal, has been appointed General Superintendent of Transportation C.P.R. Eastern Lines, Montreal.

M. O. Robinson, heretofore C.P.R. Resident Electrician, at Fort William, Ont., was appointed Manager of the Port Arthur-Fort William Electric Ry., by the joint street railway board, Sept. 7. His salary is fixed at $175 a month, and his appointment dates from Oct. 1.

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Railway Rolling Stock Notes.

The Nova Scotia Construction Co. has received one four-wheel locomotive from the Montreal Locomotive Works.

The Fraser River Lumber Co. has ordered 50 flat logging cars from the Canadian Car and Foundry Co., Montreal.

The Dominion Coal Co. has ordered 50 all steel hopper cars from the Canadian Car and Foundry Co., Montreal.

The Intercolonial Ry. has received two consolidation locomotives from the Canadian Locomotive Co., Kingston, Ont.

The Western Canada Power Co. has purchased a 40-ton locomotive for its line from Ruskin to Stave River Falls, B.C.

The Canada Cement Co. has ordered four 50-ton steel hopper cars from the Canadian Car and Foundry Co., Montreal.

The Canada Iron Corporation has ordered 60 steel ore cars, 50 tons capacity, from the Canadian Car and Foundry Co., Montreal.

The Canadian Malting and Brewing Co. has ordered one 30-ton refrigerator car from the Canadian Car and Foundry Co., Montreal.

The International Ry. of New Brunswick has ordered one special passenger car from the Canadian Car and Foundry Co., Montreal.

The Canadian Bridge Co., Walkerville, Ont., has ordered two 40-ton steel flat cars from the Canadian Car and Foundry Co., Montreal.

The Portland Canal Short Line Ry. has received two box cars, 30 tons capacity, from the Canadian Car and Foundry Co., Montreal.

G. W. T. Nicholson, St. Timothee, Que., has received one four-wheel locomotive from the Montreal Locomotive Works.

The C.P.R. has ordered two rotary snow plows from the Montreal Locomotive Works. They will be more powerful than any yet built.

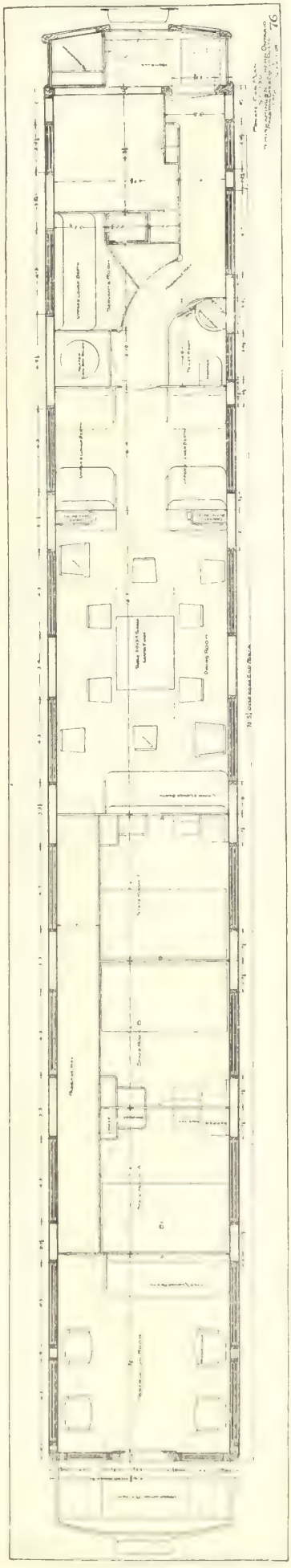
The C.P.R. has ordered 20 steel tank cars, two 40-ton experimental drop bottom cars for grain, and five all steel snow plows, from the Canadian Car and Foundry Co., Montreal.

The British Columbia Electric Ry. has ordered 25 flat logging cars, 40 tons capacity, from the Canadian Car and Foundry Co., Montreal.

The Canadian Northern Ry. recently ordered from the Canadian Car and Foundry Co., Montreal, 10 first class cars (being built at Amherst, N.S.), five baggage cars, 630 box cars, 30 tons capacity (115 of which have been delivered), and four dining cars (one of which has been delivered).

N. Curry, President Canadian Car and Foundry Co., in an interview at Montreal, Sept. 16, said that during the present year the company will turn out 12,000 cars, even if no further orders are booked. Of this number 4,000 cars have already been delivered. The company's three plants, Mr. Curry added, are running to their fullest capacity.

The new parlor cars which the G.T.R. is building at its Point St. Charles shops for use on the International Limited, will be 73 ft., long over end sills, and will be equipped with cast steel body bolsters, extra heavy beams and steel platforms. The trucks will be of six-wheel type, with 38 in. Krupp steel tires and steel bolsters. They will have high speed air brakes and air signals, and be heated with straight steam from the locomotive, electric lighting and electric fans. The parlor will be finished in African mahogany, with inlaid and marquetrie design, with trimmings of statuary bronze; carpets in two toned green,



Temiskaming and Northern Ontario Railway Commissioners' Official Car. Floor Plan.

with chairs upholstered in green plush, and green leather in the smoking room. Each of the cars will have a library, free to the occupants, with the latest books, and the whole will be equipped with the most approved appliances for comfort and convenience.

The new dining cars which the G.T.R. has recently built at its Point St. Charles shops, for the International Limited, are equipped with six-wheel trucks, fitted with 38 in. Krupp steel tires and steel bolsters, steel platforms with standard wide vestibules, high speed air brakes and air signals, heated with straight steam from the locomotive and with cooking ranges. They are lighted by electricity, and the dining rooms are finished in African mahogany, with accommodation for 30 diners in each. The kitchens are equipped with the most improved devices for expeditious service, and special arrangements have been made for a supply of water under air pressure. Following are the chief dimensions:—

Length over end sills	70′ 7″
Length over buffers	78′ 7″
Extreme width	10′ 1⅛″
Extreme height	14′ 6¼″
Total inside length	69′ 10″
Length of dining room	32′ 6″
Width of dining room	8′ 8″
Length of kitchen	15′ 10″
Width of kitchen	6′ 7″

The Intercolonial Ry. is building, at its Moncton shops, N.B., one stores car with steel underframe, made by the Canadian Car and Foundry Co., Montreal, and six cabooses, of which the following are the chief particulars:—

Stores Car.

Length over end sills	41′ 0″
Width over side sills	9′ 1⅝″
Height, top of sills to under side of plates	7′ 9″
Length inside	40′ 2⅜″
Width inside	8′ 6″
Outside of end sill to centre of body bolster	5′ 6″
Centre to centre of cross frame tie timber	9′ 0″
Height, top of rail to centre of drawbar	2′ 10½″
Wheel base of truck	5′ 6″
Door openings	3′ 0″
Distance between truck centres	30′ 0″
Underframes	Steel
Truck bolsters	Simplex
Journal boxes	McCord
Air brakes	Westinghouse

Six Cabooses.

Length over platform sills	35′ 6″
Length over nailing strips on end sills	30′ 0″
Width over nailing strips on side sills	9′ 0″
Height, top of nailing strips to under side of plates	6′ 8″
Length inside	29′ 6⅛″
Width inside	8′ 6⅛″
Height inside, top of floor to under side of carlin	7′ 1¼″
Outside of end sill to centre of body bolster	5′ 0″
Centre to centre of cross frame braces	6′ 4″
Height, top of rail to centre of drawbar	2′ 10½″
Wheel base of truck	5′ 0″
Door opening, side	2′ 10″
Door opening, end	2′ 3″
Distance between truck centres	20′ 0″
Platforms	Standard Coupler Co.
Journal boxes	McCord
Air brakes	Westinghouse

The Temiskaming and Northern Ontario Ry. has added to its rolling stock a private car, named Sir James, which has been built by the Preston Car and Coach Co., Preston, Ont., for the use of the members of the Commission. It is unique, and is said to be the first of its kind, either built or used, in Canada. The underframe is entirely of steel, the centre member being a box girder, composed of two 20 in. channels, extending continuously from buffer beam to buffer beam, boxed top and bottom, with ½ in. by 20 in. steel. The draft gear is encased in the end of the box girder. On the side framing, which is of structural steel cased with wood, is a steel plate, extending continuously from end to end of the car, and from the outside sill to the sash stool. On the top of this is riveted a compression member [illegible] by 6 in. steel extending from end to end of the car body. There are no under

truss rods of any description. The trucks are composed entirely of steel, each having four side bearings. On the top of each journal box there is an equalizing spring soft enough to take care of all the inequalities of the rail, and still not stiff enough to communicate the jolt to the car. It is equipped with Westinghouse air brakes, with 18 ins. cylinder, and is lighted with Pintsch gas and electricity. The electric current is obtained from a Tate bifunctional accumulator storage battery, which is said to be the first of its kind to be used for car lighting. The battery weighs 500 lbs., and it will light continuously, fifty 16 c.p. lamps and operate nine fans for 24 hours. The Safety Car Heating and Lighting Co.'s system of heating is used, with two water tanks, 24 by 120 ins., with hot and cold water throughout the car. The interior is finished in quartered oak, inlaid with white holly and ebony of plain design, all polished. The observation room is situated in the rear, with an open platform. There are three staterooms, dining room, two sleeping sections, heater room, servants' room with upper and lower berths, toilet room and kitchen. The observation room is equipped with a speed indicator and air gauge piped direct from the train line and back of the cylinder, so that observations can be made. The car is similar in most respects to one in use on the Pennsylvania Rd.

Among the Express Companies.

A. C. Thorn, heretofore agent Dominion Ex. Co., at Halifax, N.S., has been appointed city agent at Quebec, vice H. Henderson, resigned.

J. H. Greig, heretofore assistant cashier Dominion Ex. Co., Montreal, has been appointed agent at Halifax, N.S., vice A. C. Thorn transferred to Quebec.

The Canadian Northern Ex. Co. has opened offices at Cromer, Durban, Grays, Hilton, Ladysmith, Pleasant Point and Rounthwaite, Man.; Candian, Carlesburg, Jameson, Kendal and Pelly, Sask.

G. H. H. Nase has been appointed Route Agent Canadian Ex. Co., with charge of routes 55, 56, 57 (Moncton to Sackville inclusive), 58, 59, 65, 90, 92, 93, 94 and 95, with headquarters at St. John, N.B., vice J. H. Parr transferred to Montreal.

We are officially advised that the Canadian Northern Ex. Co., has not yet made any direct appointments in connection with its eastern business. The express service on the Canadian Northern Ontario lines, is under the jurisdiction of A. J. Hills, Superintendent C.N.O.R., Toronto, and on the Quebec lines, it is under the supervision of W. A. Kingsland, Auditor C.N.Q.R., Quebec.

The Dominion Ex. Co., in announcing that, from Sept. 1, it operates over the Dominion Atlantic Ry. in Nova Scotia, and over the Dominion Atlantic Steamship Line St. John to Digby and Yarmouth to Boston, states that waybills will be made for shipments to and from any former Maritime Ex. Co.'s offices at rates obtained by adding to the local rates to Halifax, St. John or Truro, the rates shown in transfer tariffs from such points to destination, graduating once under the aggregate through rate per 100 lbs. For the steamship service between Yarmouth and Boston, until further notice, business originating west of Vanceboro, and any business for Boston requiring all rail service, will be routed as heretofore.

The Nova Scotia Temperance Act of 1910, in sec. 10, provides that no common carrier, express company, or other carrier, shall accept from any person in any part of the province, any package containing intoxicating liquor for carriage, or delivery to any person, in any

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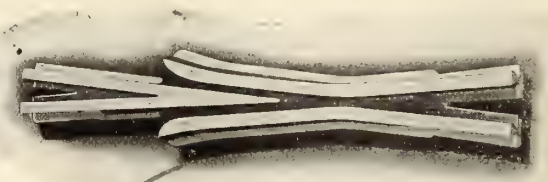

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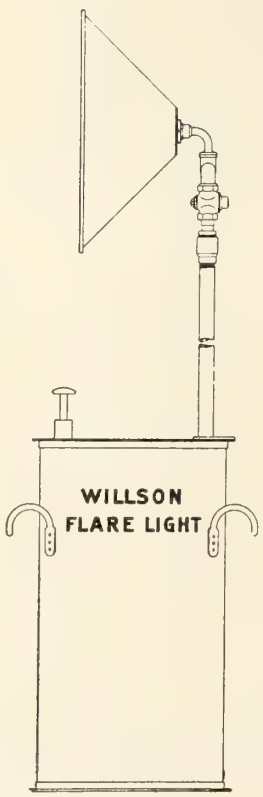

Specially adapted for use in all kinds of construction work.

Its candle power varies from 1,000—8,000 according to the size of apparatus. The cost of 8,000 candle power is less than 6c. per hour.

O'Brien & Fowler, Contractors to the G.T.P., say:—

"During the past two or three years we have used various kinds of lights, but none of them have proved the equal of yours, either in the matter of economy or usefulness. The effectiveness of your light is beyond dispute."

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municipality in which the act is in force, other than to a vendor duly appointed under the provisions of part 1 of the act, or a legally qualified physician, chemist or druggist. Sec. 11 provides that every package of liquor so shipped, or offered for carriage, shall bear in some conspicuous place, a label containing in full the name and address of the person shipping the package and of the person to whom the package is to be delivered, and the character and quantity of the liquor contained in the package. Sec. 32 provides for the enforcement of a penalty of not less than $20 nor more than $50 for each offence, under secs. 10 and 11. The act is in force in every part of Canada in which the Canada Temperance Act is not, excepting Halifax county and city and Richmond county, in which places, the act comes into force on the expiration of the existing licenses.

The Dominion Ex. Co., following the acquirement of the Dominion Atlantic Ry. by the C.P.R., has succeeded the Maritime Ex. Co., which operated over the D.A.R., from Halifax to Yarmouth, 215 miles; Windsor to Truro, 57 miles; Kentville to Kingsport, 13 miles; and the Dominion Atlantic Steamship Line, between St. John, N.B., and Digby, N.S., and Yarmouth, N.B., and Boston, Mass. The number of offices taken over is 50. An office will be opened at Boston, Mass., under the name of the Western Express Co. The territory taken over has been added to the Dominion Ex. Co.'s Atlantic Division, of which V. G. R. Vickers is Superintendent, as well as Superintendent of the Western Ex. Co. F. W. Branscombe, route agent, has been placed in charge of the new territory, and he will be assisted for a time by T. R. McKenzie, route agent. The D. A. R. agents will act as express agents at all stations, except at Truro, N.S., where F. Fennell, Dominion Ex. Co.'s agent, has taken charge; Halifax, N.S., where J. H. Greig has been appointed; St. John, N.B., where J. R. Haycock has been appointed, and Yarmouth, N.B., where an exclusive agency has been established, in charge of A. M. Steves. The Western Ex. Co.'s agency at Boston, Mass., has been placed in charge of J. F. Masters.

Temiskaming and Northern Ontario Railway Commissioners' Official Car.

Telegraph and Cable Matters.

The Canadian Northern Telegraph Co. has opened offices at Cromer, Durban, Grays, Hilton, Ladysmith, Pleasant Point and Rounthwaite, Man.; Candian, Carlesburg, Jameson, Kendal and Pelly, Sask.

At a sitting of the Board of Railway Commissioners held in Winnipeg, Sept. 22, the application of the Winnipeg Board of Trade and of the Winnipeg Grain Exchange to have the tariff of tolls charged by the telegraph companies operating in and out of Winnipeg set aside, was heard.

A. B. Smith, Manager G.T.P. telegraphs, while in Fort William, recently, is reported to have said, that the telegraph lines between Fort William and Winnipeg, and between Lake Superior Jct., and Winnipeg, were completed. The line is also being erected westward, concurrently with the construction of the railway.

The Dominion Government has a staff of engineers engaged in locating a route for a telegraph line along the Skeena River to Stewart on the Portland Canal. It is stated that this connection for Stewart will follow up the Kitsumkalum valley, across the Naas valley to Alice Arm, and from thence to the Portland Canal and Stewart.

The Board of Railway Commissioners has approved Tariff C.R.C. 1, the local tolls, of the Anglo-American Telegraph Co. The rate is 25c. for 10 words and 2c. for each additional word, between the company's offices in Prince Edward Island, and also between P.E.I. and New Brunswick. The rates for press messages are 25c. for 100 words, and ¼c. for every additional word.

We are officially advised that the Dominion Wireless Telegraph Service has been transferred from the Department of Marine to the Department of Naval Service. The officials of the telegraph service, are, C. P. Edwards, Superintendent of Radio-telegraph Service, Ottawa, and E. J. Haughton, District Superintendent of Radio-telegraph Service, Victoria, B.C. The latter has charge of the Pacific coast branch of the service, and reports to the Superintendent.

J. Kent, Manager C.P.R. telegraphs, and B. S. Jenkins, General Superintendent of Telegraphs, C.P.R. Western Lines, were in Vancouver recently, on an inspection trip. It was stated that the delay in the completion of the cable, which will improve the communication between Vancouver and Victoria, was due to manufacturers in the east being unable to ship material, owing to congestion of orders. It was, however, expected that the cable would be ready for operation by Oct. 1.

The Dominion Wireless Telegraph-Telephone Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $40,000 and offices at Windsor, to deal in wireless telegraph and telephone instruments, to erect and operate wireless telegraph and telephone systems, and to conduct a general wireless telegraph and telephone business for hire. The provisional directors are:—J. Clark, A. Beckett, S. Anderson, Windsor; L. F. Boomer, Cleveland, O., and T. E. Clark, Detroit, Mich.

The Pacific Cable Board's report for the year ended Mar. 31, shows that 115,663 messages were dealt with against 103,812 in the previous year, the number of words being 1,356,135 against 1,225,048. One of the increases was in press messages, due to the decrease in rates, as a result of the negotiations of the Imperial Press Conference held in London, Eng., last year. The chief increase, however, was in ordinary messages, amounting to about 10%. The total receipts were £111,723, with a credit balance of £17,956. The traffic receipts show an increase of £403, but owing to transfer delays, £2,211, which should have been credited to 1909-10, has had to be included in the current year's accounts. The report states that difficulties, largely geographical and climatic, with the land lines in Canada, have been spoken of in previous reports, after full consideration, the Board has come to the conclusion that much could be done to minimize these if it had in its own hands the working of the line between Bamfield and Montreal. It has, accordingly, entered into an agreement with the C.P.R. for a lease, exclusively, for five years, of a line between these points, which the company is to maintain in good condition, while the Board provides the working staff and retains such portion of the tolls as have hitherto been paid to the C.P.R. This arrangement, it is claimed will have several advantages, keeping, at all times, a clear line for the Board's messages and allowing the adoption of the Continental system of operating, thus involving less risk of error in transmission than the American system.

Grain Elevator Notes.

The Brown Brothers Elevator Co., has been incorporated under the N.W.T. Companies Ordinance, with a capital of $10,000 and offices at Regina, Sask.

The Dominion Premier is reported to have stated, while on his western tour, that the Government would build an elevator at Prince Rupert, B.C.

The Alberta-Canadian Elevator Co. is reported to have leased a storehouse in New Westminster, B.C., while it is arranging to erect an elevator there.

The contract for the erection of a 200,000 bush. elevator at Sudbury, Ont., costing $135,000, is reported to have been placed with the Barnett and Record Co.

The Suplee Elevator Co., has been granted a license to do business in the province of Quebec, with its chief place of business at Montreal, and R. F. Ogilvie, as its principal agent.

The Saskatchewan Elevator Commission returned to Regina recently, from a

trip to several U.S. western cities, where enquiries into the shipping and general elevator conditions were made.

D. Horn, Grain Inspector at Winnipeg, is reported to have resigned, to accept the managership of King's elevator at Port Arthur, Ont., which was operated jointly by the C.P.R. and the late J. G. King.

The G.T.P. Elevator Co.'s elevator at Fort William, Ont., was operated for the first time, Sept. 9, when the first grain was passed through. This elevator was fully described in our Jan., 1909, issue, and illustrated in our Aug., 1909, issue.

The Manitoba Elevator Commission has purchased three elevators from the Western Elevator Co., the Winnipeg Elevator Co., and the Farmers Elevator Co., all of which are situated at Underhill, with a combined capacity of 105,000 bush. It is stated that only one of these will be open for business this season.

The Dominion Millers' Association, at its annual meeting at Toronto, Sept. 2, passed a resolution that the association should co-operate with the Grain Growers' Association of the Northwest, and with the exporters to make proper representation to the Government towards taking over the terminal elevators at Fort William and Port Arthur.

The W. B. McKay Co., has been incorporated under the New Brunswick Companies Act, with a capital of $49,000 to purchase and carry on the business heretofore conducted at Sussex, N.B., as W. B. McKay & Co., and in connection therewith to erect and operate grain elevators. The provisional directors are, W. B. McKay, C. D. Davis G. B. McKay, C. H. Perry, and M. McKay, Sussex, N.B.

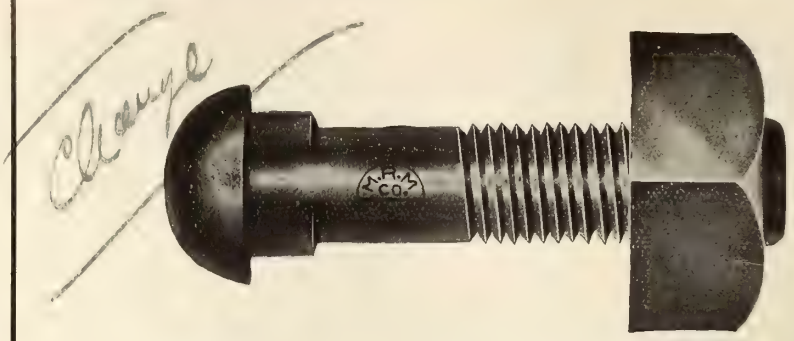
The grain elevator capacity at Montreal, according to the Montreal Harbor Commissioners' report for 1909, includes six elevators, with accommodation for 4,100,000 bush., as follows:—Harbor Commissioners' no. 1, 1,000,000 bush.; Montreal Warehousing Co., A, 500,000 bush., B, 1,000,000 bush., C, 600,000 bush.; C.P.R., A, 500,000 bush., B, 500,000 bush.

The Montreal Harbor Commissioners' report for the year ended Dec. 31, 1909, just issued, shows that 11,554,262 bush. of grain were handled at the elevator during the year, against 8,661,350 bush. in 1908, and 1,078,289 bush. in 1907. From the commencement of the season, the elevator was worked day and night, and on several occasions was unable to deal with the grain offered.

Work on the preparation of the site for the erection of the Montreal Harbor Commissioners' elevator at Montreal, is progressing rapidly. It is stated that about one half of the foundation work has been completed. The bed is of concrete, re-inforced with steel. This work will be continued as long as the weather permits, the wood work being prepared during the winter, so that the whole may be rushed early in the spring. In connection with the elevator, two jetties will be built for the accommodation of two vessels, and the elevator will be connected with the existing grain carrier system.

The Armstrong Towing Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $40,000 and office at Cache Bay, to carry on a towing, rafting, wrecking and general shipping and forwarding business. G. Grant, A. Dods and B. Williams, Toronto, are the provisional directors.

The repairs and improvements at lock 17, Cornwall canal, are about completed. A new weir has been built west of the lock gates to effect a better regulation of the flow of water. This will not be used this season, as some clearing work remains, which cannot be accomplished until the canal is drained off.



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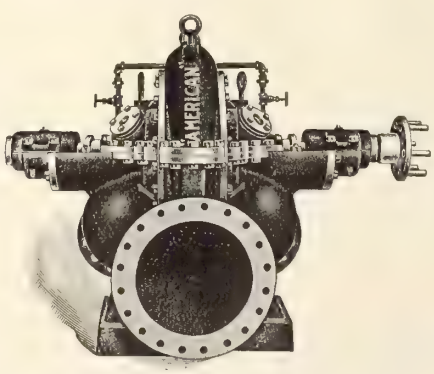

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ASSOCIATION'S OFFICE, 157 Bay St., Toronto.

EXECUTIVE COMMITTEE.—C. E. A. Carr, General Manager Quebec Ry., Light, Heat and Power Co.; P. Dubee, Secretary, Montreal St. Ry.; H. M. Hopper, Secretary-Treasurer, St. John Ry.; J. E. Hutcheson, Superintendent and Purchasing Agent, Ottawa Electric Ry.; C. B. King, Manager, London St. Ry.; W. R. McRae, Superintendent Motor and Truck Department, Toronto Ry.

ASSISTANT SECRETARY, Aubrey Acton Burrows, Secretary and Business Manager, Railway and Marine World.

OFFICIAL ORGAN, THE RAILWAY AND MARINE WORLD.

Street Railway Track.

By Guy Boyer, Superintendent of Construction, Montreal Street Railway.

Track construction, and its maintenance, is an important subject, and the matter has been so fully written up and discussed that it is difficult to add anything new. I do not intend to go into the various details, but will endeavor to make a few brief comments, in regard to track foundation, and its maintenance.

The reconstruction of track in a large system like that of the Montreal St. Ry. is a difficult problem, and it is made more difficult, on certain streets, over which the cars of various routes travel, making a minute and a half headway between cars, the traffic cannot be conveniently diverted to other streets. Taking it for several months back, the average number of passengers carried, during 24 hours, amounts to 331,581.

In regard to the use of concrete for track foundation, it is my contention that there is only one way to make it satisfactory, in a climate where we have such extremes of heat and cold, as in Montreal, that is the concrete is of little use as a foundation for track, if we do not go below the frost line. This, you are all aware no company could afford to do, as the expense would be too great.

A method of construction we have adopted today, is as follows: We adapt ourselves to conditions. Where we open up a piece of track, to renew the rails, and find that the foundation is good, with ties that are sound, and fairly well bedded in concrete, they may have settled in places, we clean off all loose material, lay our rails, bring them to correct new surface, with oak shims placed over the old wood ties, then tamp up the rails with a slightly moistened mixture of cement, sand and fine gravel, or crushed stone, in the proportions of 1 cement, 3 sand and 8 gravel. The heavy traffic is allowed over the rails, which helps the tamping and indicates when it is uniformly well done. After the rails have been tamped, and retamped, until practically no movement can be detected, a layer of concrete is put down to raise between the rails, and the strips outside, to the proper height The layer of concrete forms an even hard surface to support the blocks. Room must be left for at least half an inch of sand to cushion the blocks.

We have found that pitch as a filler for spaces between the blocks has cost us a great deal of money, and it has proved practically worthless. This may be due to poor quality of pitch, extreme heat and cold, and probably to use of salt. Owing to the fact that the pitch has not given satisfaction, we are now using a cement grout as a filler, and have found it will prevent water from getting under the blocks. In Montreal, where we lack drainage underneath the foundation of our tracks, water, frost, and heavy traffic all tend to destruction of track.

The surface drainage of streets is also an important matter. I have observed where the streets are nearly level, and improperly crowned, after a rain storm, the water has laid on the surface of our track, and after some time, has apparently filtered through the foundation and put the track in bad shape. For an example of this, take any road, I don't care where, and notice the track laid on the hills, with quite a steep grade, where the strain on the rails and joints is greater than on a flat street, and I think you will agree with me that the foundation of tracks holds up better, owing to the water draining off rapidly.

The construction we have adopted for streets about to be paved, and for streets already paved, where the original foundation is found defective, is to put in ties, spaced 18 ins. apart, then dig out all soft clay or other poor material, so that at no point will there be less than six inches of well rammed stone or good material underneath the ties. The coarser grades of stone are placed in the bottom and pounded in layers. Finely crushed stone is used on top and the ties tamped and retamped, until brought as near as possible to a uniformly solid bearing. The uniformly, well pounded stone bed, is prepared so that there is a slight depression around the sides and ends of the ties, in order to insure that sufficient cement from the concrete will find its way to their base, sides and ends, to preserve the wood, and at the same time give the concrete a chance to grip the convex sides of the ties. When the traffic has demonstrated that all the ties show practically no movement, the space inside and outside the rails is filled with concrete to the height required for the kind of block used, space being left for a cushion. We feel satisfied that this kind of foundation will allow the rails to spring slightly, which seems to be necessary, and at the same time will form a good foundation for the blocks. Offset drains from the stone foundation under the tracks, should be placed at all depressions in the street to carry off to the sewers any surface water from leaks in the water-mains, or service pipes. This is a matter the city should give attention to.

If slight settlement takes place at the joints or elsewhere, I feel confident that with the ties to shim on, or repacked if found necessary, that repairs can be made better and at a much less cost.

The contention, a few years ago, was that the more rigid the foundation the better the track, but we have found out since that the more rigid the track the more expensive the maintenance, as the life of the rails is reduced to a minimum. For example, take an intersection laid in concrete and an intersection laid in macadam with ties. There can be the same amount of cars passing over each one and the one in macadam will wear several years longer. It stands to reason that the more rigid you have a diamond or any part of an intersection or any piece of track, the quicker it will wear out. Take for example a piece of steel: put it on a piece of wood and hammer it, you do not dent the steel. Put the same piece of steel on an anvil where there is no cushion and you will soon find that the steel bears an impression.

Our great trouble is keeping the track in proper repair, and I want to draw attention to a few causes of the rapid destruction of track. I contend that any car allowed out on service, with one or more flat wheels, instead of bringing in a revenue, is causing a deficit, owing to the damage it does to the track. Trucks out of square are bad. Cars stiff on the friction plates use up extra power and wear out the rails on curves very rapidly. The weight and the speed of cars require our special attention.

Another thing which tends to make bad places in the track is the numerous excavations made adjacent, parallel, and sometimes underneath, for sewers, water and gas pipes, conduits, etc., also open cuts and tunnels made at right angles under the tracks. We have kept a record of cuts made underneath the tracks since July 1, 1907, and up to May 31, 1910, we have recorded 3,315. These cuts average practically 10 ft. damage to our track, making 6 miles of defective track in three years or two miles a year. Trouble is sure to develope, in course of time, at each place where a cut is made, resulting in a nasty sag in the track, causing the pavement to break up. The bad places that arise from the last named source are apt to be put down to faulty track construction. By referring to the record of cuts, the real source of the defects can be accounted for. It seems to me that any street railway company could justly demand compensations from the city, company, or individual, which made an excavation that caused damage to the track foundation.

The Toronto Tube Question.

Messrs. Jacobs and Davies, consulting engineers of New York, were instructed May 25 to report for the information of the Toronto City Council their views as to the necessary arrangements for handling the traffic, having in mind the present system and the city's rights to construct tubes in the central part and surface lines in the outlying districts, and also their views in regard to the likelihood of such an undertaking being self-sustaining, making the estimate of the cost of construction, equipment and maintenance and probable business, and their views as to the most feasible location of such tubes and surface railways.

In their report, dated Aug. 25, a summary of the history of the Toronto Ry., the Toronto and York Radial Ry., and the Toronto Suburban Ry., is given, with details of their lines and operation. It is pointed out that the different lines are of different gauges, as follows:

Toronto Railway .....4 ft. 11 in.
Toronto and York Radial Ry.—
Metropolitan division .....4 ft. 8½ in.
Scarboro and Mimico divisions....4 ft. 10⅞ in.
Toronto Suburban Ry. .....4 ft. 10¾ in.

Referring to the service given by the existing lines, the report says:—

"The traffic situation in Toronto is such that it will be one growing only in the northerly radiations in relation to the business centre; also there can be little question but it will grow fast; and unseemly congestion in the streets may be avoided even with profit financially by the adoption of subways in the not far distant future. Comparatively speaking, there is no unusual congestion of traffic, the only congestion at the present time being chiefly confined to Yonge St. Congestion will of course grow, and it will be admitted that the fewer public railways on the surface of the streets the more presentable the city, and the freer also will be the surface for proper conduct of other classes of traffic, and the better able will the trolley lines be to conduct the business of distribution with comfort to the public. We have carefully studied the present street railway system, and we find that so far as the supply of cars, the routing, and the general conduct of the system are concerned, we see no occasion to suggest any improvement. Slight exception might be taken to the number of routings on Yonge St., and it might be possible to select parallel streets for a few of these routes, though it must be more apparent to you than to us what may be done or possible in this direction. The quality and comfort of many of the cars, particularly of the trailers, admits of improvement. Congestion is a comparative term, and it must be admitted, in comparison with other cities, we have observed a very small proportion of the passengers have to stand, and that only for a small part of the journey. There is no reason, however, why Toronto

should suffer any discomfort in its transit facilities because other cities do, and additional and better cars can most certainly be welcomed. It seems that conditions attaching to the franchise do not permit of an understanding between the city and the railway company whereby passengers may—on a single 5c. fare—obtain transportation within a radius of say from 6 to 8 miles from the City Hall. On the other hand, Toronto, being about 10¼ miles in extreme length by 3¾ miles in width, is a most unusual city in the fact that for its population it extends over a very large area, making it, what it seems to be, an exceedingly open, attractive and healthful city, but for that very reason it makes transit to some extent more expensive to operate because of longer distances to travel.

After reviewing the whole situation and comparing Toronto with United States and European cities, the engineers submit the following solutions of the problem:—

Scheme 1—This is what we consider the most ideal subway system following the lines of the present streets that could be laid out; that is to say, it is comprehensive and would form part of a circular system which the city may require at some future date. This circular system would be a complete subway ring, with its northern part along St. Clair Ave. and its lower eastern portion passing through Broadview, Danforth and Woodbine, while its western portion would find its way from the foot of Yonge St. to Keele terminus via the busiest streets of wards 4, 5 and 6. The northern portions of this circular system would be outside the city limits of 1891, and radial lines feeding and being fed by the circular rapid transit subway would expeditiously convey passengers during the day and perhaps goods and merchandise during the night into the heart of the city. The scheme is divisible into three main portions: A line down Yonge St. from St. Clair Ave. to Wellington St.; a line from Broadview and Danforth to Front and Yonge; a line from Front and Yonge to Dundas and Keele at the north-west corner of the old city limits.

Our estimate for this scheme, considered and constructed as a whole, is $23,470,000, including equipment, car yards, converting station, land, contractors' profits, engineering, and carrying charges during construction; of this amount $16,755,000 is for construction of subways and stations and installation of track, and $903,000 is for carrying charges during construction. If the project is divided for the purpose of construction and operation into three component parts—the arms radiating from near the south of Yonge St.—the cost would be somewhat higher, and the estimate comes to for section (a) $6,100,000, of which $4,180,000 is for construction and track, and $232,000 is for carrying charges; for section (b) $11,350,000, of which $8,187,000 is for construction and track, and $436,000 is for carrying charges; for section (c) $6,235,000, of which $4,189,000 is for construction and track, and $240,000 is for carrying charges. This makes the total cost of scheme 1, considered as three sections, $23,685,000.

The subway system just outlined would be incomplete without an additional system of radial surface lines outside the city limits of 1891. The following routes may be recommended: Lines to the north from St. Clair Ave. on Bathurst St. and Lakeview Ave; lines to the northwest from Keele terminus via St. Clair Ave. and Jane St.; lines to the east from Broadview and Danforth terminus, passing along Danforth with branches to the north via Leslie St. and Woodbine Ave. This would open up a large territory north of Danforth Ave. Consideration of the exact routes of these radial lines can be matured later, the main point being to extend them into territory now unserved.

Scheme 2 consists of a line running up Yonge St. from near the Union Station to

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St. Clair Ave. We have selected three alternative routes for this, and our object in doing so has been to see how low a cost could be reasonably expected for such a line. The three routes are as follows: (a) On Yonge St.; (b) on Teraulay St.; (c) on Victoria St. and Yonge St. The object of (b) and (c) is to pass through as much length as possible in streets that have no car lines on them, thus reducing the cost of construction.

Scheme 2 (a): There are seven stations on this line, and our estimate for the work, as before, including equipment, contractors' profits, engineering, land, and interest during construction, is $6,762,000, of which $4,777,600 is for construction of subways and stations and installation of track, and the amount included for carrying charges is $260,000.

Scheme 2 (b) by Teraulay St. is a line following a route by which, in order to save cost, Yonge St. is avoided as much as possible. There are six stations on this line, and the estimate of the cost, inclusive of equipment, land, contractors' profits, engineering, and interest during construction, is $5,540,000, of which $3,781,000 is for construction of subways and stations and installation of track, and $213,000 is for carrying charges during construction. This scheme aims at tapping the district between the Metropolitan and the Weston lines in Toronto Junction. Surface lines would be suggested north into St. Clair Ave. and north of that again via Forest Hill Road, Vaughan Road, Bathurst St., etc.

Scheme 2 (c): This scheme follows Victoria St., and like the previous one, avoids the expense of passing under the busiest portion of Yonge St. There are seven stations on this line, and the estimate for the work, including equipment, land, contractors' profits, engineering and interest during construction, is $6,825,000, of which $4,819,000 is for construction of subways and stations and installation of track, and $263,000 is for carrrying charges. The extra length over scheme 2 (a) does away with the saving effected by not passing under Yonge St. for its entire length, while the route itself is not so good. Therefore, as between schemes 2 (a) and 2 (c) the former is preferable.

As an addition to either of these routes, we merely suggest the consideration of an eastern branch on the line of Bloor St. This necessitates the building of a double-decked viaduct to connect Bloor with Danforth, and crossing the Rosedale valley road and the Don valley. This is not at all a cheap piece of work, as the viaduct crossing is expensive; however, it links up Bloor and Danforth—which might be a desirable and logical thing to do as a civic improvement—and serves to open up the district north of Danforth. The estimate for this work, not necessarily an adjunct to the simple Yonge St. scheme, is $2,613,000, including contractors' profits and engineering; of this $100,000 is for carrying charges and $1,400,000 is for the viaduct.

Scheme 3—Having outlined certain suggested routes, following the present layout of the city streets, we may make one more estimate. We have been supplied with a map of the city on which are shown two proposed main diagonal streets, going respectively northwest and northeast from near the foot of Yonge St. The estimate for the subway work in this diagonal street scheme is $17,700,000, of which the amount for construction of subway and stations is $11,816,000, and that for carrying charges during construction is $680,000.

The report then deals with various systems of operating the lines, criticising adversely municipal ownership and operation, and favoring the city building the transportation system and letting a company operate it. This method is favored on the grounds that the credit of a municipality is generally better than that of a company, and the latter being better to regulate.

Quebec Ry., Light and Power Co.

The company is operating 56.22 miles of track, of which 17.22 miles are in the city, and 39 miles are suburban lines. Its rolling stock comprises 35 closed cars and 34 open cars operated on the lines in the city, and 75 cars operated on suburban lines. On the old Quebec, Montmorency and Charlevoix Ry., a steam freight service is also given for which there are 90 flat cars, 16 box cars and one stock car. Five locomotives are owned, which are used not only to operate the freight service but to haul passenger trains off other lines carrying pilgrims to the shrine at Ste. Anne de Beaupre. The company owns the hotel at Kent House, which is being enlarged at a cost of $50,000, and provides a number of attractions in the Montmorency Falls park.

Extensions of the company's lines are constantly being demanded, and at present two important new lines are under construction. The first of these is an upper level line to Montmorency park, leaving the present line at Beauport, and ascending gradually until the summit is reached, then running along the edge of the cliff to the park. The second new line is nearly complete, and is an extension of the line westerly from the city to the top of Sillery Hill, about 2.5 miles. The directors and officers made an inspection of this line, Sept. 12. A double track had then been laid to Belvedere Road, and a single track for a considerable distance further west. A passenger service was placed in operation Sept. 18 to Montcalm Park, a mile and a half west of Maple Ave., and it was expected that the balance of the line, about a mile, would be ready for the operation of passenger cars early in Oct.

In order to provide for the increasing business on existing lines, and for the operation of the new lines, C. E. A. Carr, General Manager, recently stated that the company had on order 16 pay-as-you-enter type cars, and was installing additional machinery in its power stations.

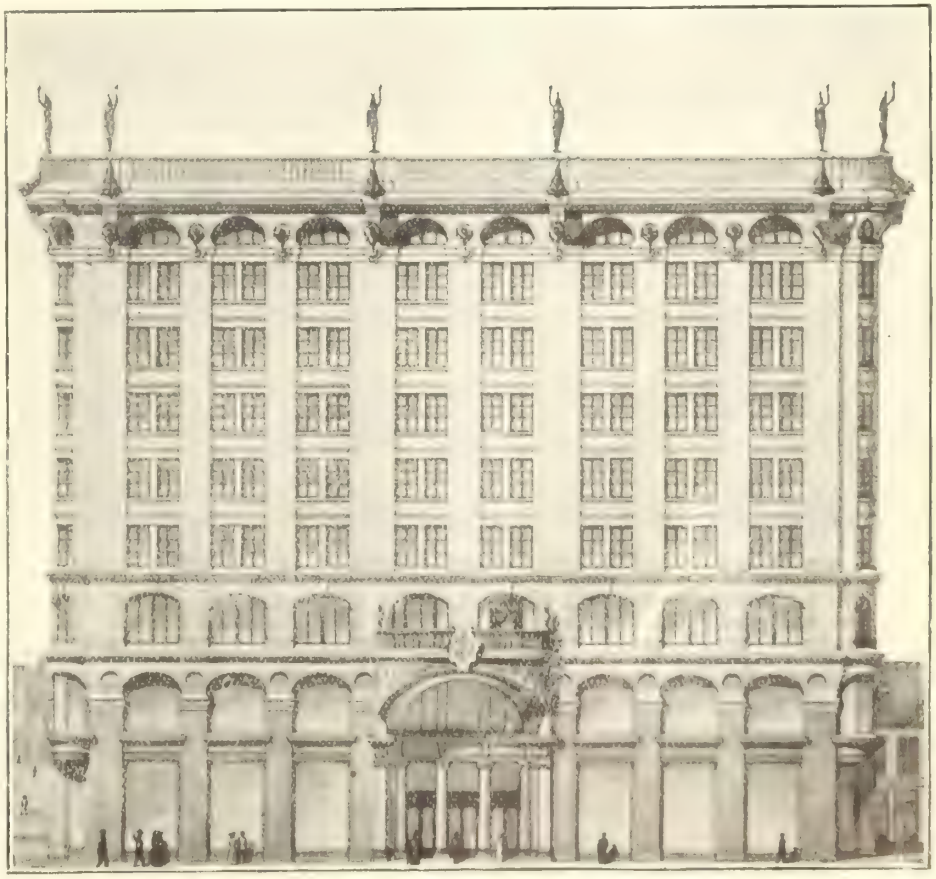
For the purpose of bringing together the entire office and operating staff of the Quebec Ry., Light, Heat & Power Co., and its subsidiary companies including the Quebec Ry. Light & Power Co., an eight storey office building is being erected at the corner of Crown and St. Joseph St. An illustration of this building is given on this page. The building will be of steel with terra-cotta fire proofing for floors and partitions. The first two stories will be faced with granite, and the upper stories, either of granite trim and Scotch brick or terra cotta. The building will have a floor space of about 100,000 square feet. The main portion of the new building will be laid out as offices for the company, and the portions not required for the company's immediate use will be leased. (Sept., pg. 783).

Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—Plans were submitted to the Vancouver board of works, Aug. 23, showing a number of extensions and new lines which the company had in contemplation in the city. Some of these lines will be built at once, particularly the loop line via Cedar Cottage. The plans have been sent to the city council.

J. C. M. Buntzen, a director of the company, stated in Vancouver, Sept. 2, that the proposal to build a new central station on the site of the present building would have to be postponed for some time owing to the heavy construction programme in hand.

The new service between Vancouver and New Westminster, through Burnably municipality has been started. The delay in starting it was caused by the straightening and lowering of the track



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near the Wise road on the interurban line. Under the Vancouver Fraser Valley and Southern Ry.'s charter the company proposes to build another line to connect Vancouver and New Westminster. The original plans for the Vancouver end of the line were disapproved by the city, and new ones were submitted Sept. 7. These are under consideration and a satisfactory agreement is expected to be reached at an early date.

The New Westminster board of works recommends the approval of plans for a wharf for the company at the lower end of Eighth St.

On the line from New Westminster to Chilliwack, grading is reported as progressing satisfactorily. The work across the Sumas prairie was expected to be completed Sept. 15, thus finishing the work. The steel laying gang was following close behind the graders and track was expected to be laid into Chilliwack by Oct. 1. The overhead work is being put up between Abbottsford and Sumas prairie, between which point and Chilliwack it has already been completed. The substation at Chilliwack is expected to be completed by Oct. 1, and the substations at Clayburn and Majuba Hill are also well advanced.

Plans have been prepared for a new car barn at Third St., first east of St. Davids Ave., North Vancouver.

Work on the extension in Point Grey is being progressed with, and it is expected that the Oak St. and Alma Road lines will be completed this year.

A party of engineers has started work on a survey for a route for a line along the Dyke Road towards Port Guichon. F. R. Glover, Assistant General Manager, stated at a dinner given to the Vancouver Board of Trade at Ladner, Aug. 30, that sooner or later the company would have a line through that country. The only obstacle in the way was that the building of a bridge over the Fraser River was a big undertaking for so short a line as this would be. The company's engineers were collecting data preparatory to giving an estimate on the cost of a structure for the Delta line.

We are advised that the company has in contemplation the building of an electric railway in the Saanich district, from Victoria to the northerly point of the peninsula, 22 miles. Preliminary surveys have been made for this line by C. E. Cartwright, C.E. It has not been definitely decided whether the line will be built. (Sept., pg. 781.)

Grand Valley Ry.—The Brantford, Ont., city council has passed a bylaw permitting the Brantford St. Ry., a component part of the G.V.R., to lay a track to the Holmedale district at once, and allowing it to postpone laying the Eagle Place and West Brantford line until next year. The line will go down Church St. to West Mill, and will be used for freight as well as passenger traffic. Tenders are being asked for the work and it is expected to have the line completed by Dec. 15. Some delay is being experienced in the work of track laying, etc., in Brantford owing to the scarcity of labor, and the City Engineer was directed Sept. 3, to endeavor to have the work pushed ahead more expeditiously.

On the Grand Valley section of the line, press reports state that contracts are about to be let for building and equipping a substation at Paris. (Sept., pg. 781).

Hamilton, Waterloo and Guelph Ry.—J. Patterson, who is promoting this proposed electric railway left Hamilton, Ont., for London, Eng., Sept. 15, without having made any announcement as to the probable building of the line. He was reported to have completed financial arrangements for this purpose when he returned from England in Aug. (Sept., pg. 781).

Kamloops to Okanagan Lake.—With a view of developing some extensive gypsum deposits, H. Pearce proposes to obtain power to build an electric railway from Kamloops to Grand Prairie, Vernon and on to Okanagan Lake. The projected line would connect with the C.P.R. and the Canadian Northern Pacific Ry.

London, Aylmer and Port Burwell Electric Ry.—Press reports state that J. H. Teall, Tillsonburg, Ont., has completed arrangements for financing the building of this projected electric railway from Port Burwell, via Aylmer to London, Ont. A site for a terminal has been secured on the creek at Port Burwell, and it is reported that the Elgin county council has had plans prepared for building a steel bridge to carry an electric line, across the creek so as to give access to the lake front. The people of Port Burwell, the reports state are looking forward to the starting of construction in the spring.

London to Sarnia.—A London, Ont., dispatch of Sept. 21 says: "The proposed London to Sarnia electric railroad, for which ex-Ald. Stewart holds the charter, will be taken over by an English syndicate. It was stated to-day upon first class authority that a syndicate has sent representatives to this country, who have quietly looked over the proposition and been most favorably impressed with it. Several prominent London men will go upon the board of directors."

The Moncton Tramway Electricity and Gas Co. has an agreement with the Moncton, N.B., city council by which it may take over the electric and gas plants owned by the city, and operate them for a period of years on a percentage of earnings basis. It has also a franchise from the city for operating a street railway for a period of 40 years from Mar. 26, 1910, the routes to be subject to the approval of the council. The first line to be built will probably be on Main St., from the Intercolonial Ry. station to King St., along King St. to St. George St., then to the Intercolonial Ry. shops and back to the station.

Dr. Henderson, President of the M. T.E. and G. Co., is also President of the Maritime Oil Products Co., which owns petroleum and gas wells on the Stoney Creek district of Albert county, about 10 miles south of Moncton, and proposes to pipe gas to the city for fuel and light purposes.

The officers and directors of the M.T.E. and G. Co. are:—President, Dr. J. A. Henderson, London, Eng.; Vice President, F. W. Sumner; other directors:—Hon. C. W. Robinson, T. Williams, G. R. James, H. M. Wood, Sackville, N. B.; General Manager, O. P. Poggs; Secretary and Treasurer, W. F. Wheeler. Unless otherwise stated, all the officers and directors reside in Moncton. (July, pg. 585.)

Montreal and Southern Counties Ry.—In connection with the extension of the line from St. Lambert, we are advised that what is described as the Chambly extension is about a mile of track in St. Lambert, which will have to be laid to connect the present track with the Central Vermont Ry. branch, which has been leased. This extension is expected to be completed next spring. The work of electrifying the C.N.R. branch from St. Lambert to Richelieu is being proceeded with, and it is expected to have it completed by June, 1911. The C.V.R. line extends on from Richelieu to Farnham, on to Granby, and has its terminus at Waterloo, and there is a branch line extending from near Marieville, known as the St. Cesaire branch. It is intended to electrify the line to Granby, and the St. Cesaire branch, but, we are advised, that it may not be done for some time yet.

We are further advised that it is not intended to go on with the building of the Bouchierville or Laprairie sections at present. (Sept., pg. 781).

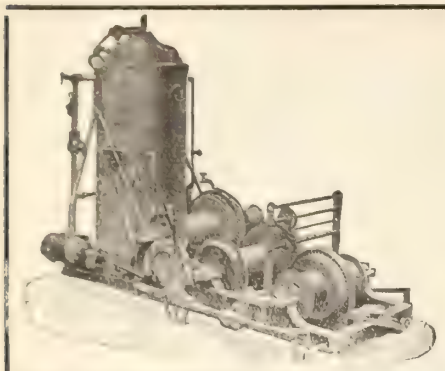
Montreal and Toronto Underground Lines and Terminals.—A. P. Gillies is quoted as stating that the capital for the building of an underground system in Montreal has been underwritten. All that was required, in order to go ahead with the work, was a franchise, and steps, he added, would be taken at an early day to bring the matter before the city council and the board of control. (Sept., pg. 727; and Montreal Central Terminal Ry., July, pg. 549).

Montreal Street Ry.—Work has been started on the new construction and repair shop at Youville, Montreal. The main building will have an area of 115,000 square feet, and there will also be several other smaller buildings. All of these will be connected with tracks, and the yard will also contain sidings for unloading material, and for holding cars awaiting repair. The stores department will be a separate erection 198 by 55 ft. All the buildings will be of brick and Montreal limestone. (Sept., pg. 781).

Moose Jaw Electric Ry.—The City Clerk was instructed to write to the company, Sept. 8, calling attention to the slow progress of construction, and urging greater speed if the company is to fulfil its agreement.

A prospectus which has recently been issued sets out that the company has been incorporated under the British Columbia Companies Act with offices at Victoria, B.C., and registered under the Foreign Companies Ordinance of Saskatchewan, with offices at Moose Jaw, Sask. The authorized capital is $400,000, and its present object is set out as the construction and operation of an electric railway system in Moose Jaw. The officers and directors are:—President, A. A. Dion; Vice President, N. J. Ker; Secretary-Treasurer, D. R. Street; Solicitor, E. J. Daly; other directors:—D. O'Connor, Jr., P. B. Melton, E. M. Saunders and J. T. Cashman; Chief Engineer, J. B. McRae. With the exception of Messrs. Saunders and Cashman, who reside in Moose Jaw, all the officers and directors live in Ottawa. The franchise acquired by the company is for twenty years, at the end of which term the city council must either buy the property and plant at its real value, with the consent of the ratepayers, or continue the franchise for another twenty years. For five years the company will be exempt from all taxes or charges by the city; for the remaining 15 years, the company will pay taxes on half the assessed value only on real estate, plant and equipment. The city is to receive during the second five years of the franchise $250 a mile of unpaved streets occupied by the tracks, and $500 a mile of paved streets, and for the remaining 10 years of the franchise double these rates. Three miles of track is expected to be in operation by Jan. 19, 1911, and an additional three miles by Dec. 31, 1911, but these dates may be extended. The cost of these six miles of line is estimated at $200,000. (Sept., pg. 781).

Nanaimo, B.C.—An agreement has been arrived at with the Dominion Stock and Bond Co., granting a franchise for an electric railway in Nanaimo, B.C. The city council is preparing a bylaw to confirm the agreement and will submit it to the ratepayers at an early date. The agreement provides for the building of a line in Nanaimo, and extending to Brechin, Wellington and Ladysmith, and such other points as it may seem advisable from time to time. It is proposed to build about 20 miles of line, the city to guarantee the company's 4½% bonds for $300,000. The company is to set aside 10% of its annual net profits, out of which the bonds are to be repaid, and upon this having been accomplished, the same percentage of net profits is to be paid into the city treasury. (Aug., pg. 683.)



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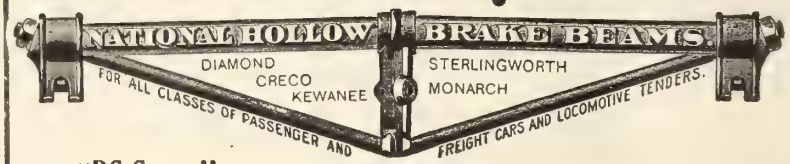

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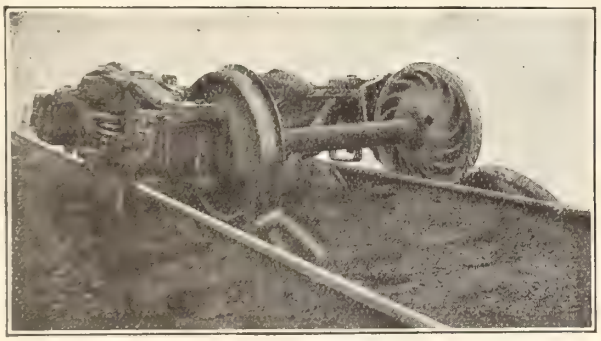

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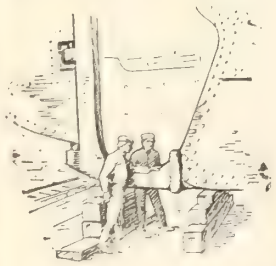

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Niagara, St. Catharines and Toronto Ry.—The line from Welland to Port Colborne, Ont., is now practically completed and it is expected to have it opened for traffic early in Oct. In regard to future extensions press reports state that the extension from Port Colborne to Fort Erie will be gone on with next year, and that plans are under consideration for a line from St. Catharines to Niagara-on-the-Lake and Queenston. In this connection there are reports current that arrangements are being made by which the Canadian division of the International Ry., which includes the Niagara Falls Park and River Ry., will be taken over and operated in connection with the N. St. C. and T. Ry., Jan. 1, 1911. The I. Ry. began the issue of new tickets on the Canadian division Sept. 1, on which notification is given that they will be void after the new year, and this is taken to imply that there will be some change in the operation of the line then. (July, pg. 585).

Niagara Falls, Welland and Dunnville Electric Rd.—This projected electric railway is to run from Niagara Falls, west along Lundy's Lane to Allanburg, thence south to Port Robinson, and on to Welland, continuing south to Daneville, thence westerly to Dunnville, a total distance of 35 miles; with a branch line from near Allanburg westerly through Fonthill and Fenwick, thence south six miles to Marshville, where it rejoins the main line. A report as to the route, probable cost of construction, estimated traffic, is being prepared by Roberts and Abbott, engineers, Cleveland, Ohio. The officers and directors are:—President, F. R. Lalor, M.P., Dunnville; Vice President, G. Arnold, Ridgeville; Secretary, F. E. Misener, Marshville; Treasurer, G. H. Burgar, Welland; other directors:—H. A. Rose, Welland; J. C. Gardner, C.E., Niagara Falls. (May, pg. 399).

Nipissing Central Ry.—The ratepayers of New Liskeard, Ont., on Sept. 3, voted in favor of a bylaw granting a franchise for the building of an electric railway on the streets of the town. The line is to enter the town from Haileybury, where it at present has its terminus, and is to be built by Nov., 1911. (Sept., pg. 781).

North Midland Ry.—The promoters of this company, which has power to build lines from London to Stratford, Ont., and various places in Huron county, are submitting plans to the various municipalities through which the line will run, for the purpose of securing franchises, and a guarantee of bonds. It is estimated that a bond issue of $800,000 will be necessary to finance construction, and it is proposed to ask London to guarantee $200,000 of this, and to ask the municipalities to guarantee the balance in proportion to the mileage of line built in each. The company proposes to use hydro-electric power to be purchased from the municipalities. (Mar., pg. 233).

Ontario and West Shore Electric Ry.—Two special meetings of the Goderich, Ont., town council, have been held to decide on the streets which shall be utilized by the company for its lines, but no decision has been reached. Another meeting has been called and it is expected to have the matter settled at an early date so as to enable the track to be laid and the first section of the line completed by the end of the year. The company has not yet done anything in the way of building a power house. (Sept., pg. 787).

Ottawa Electric Ry.—The permit granted for the erection of a brick transformer station in Ottawa was for the Ottawa Electric Co., and not for the Ottawa Electric Ry., as stated in our last issue. (Sept., pg. 781).

Peoples Ry.—Work is being gone on with at various points on the line, and recent reports state that over five miles of grading has been completed between Bloomingdale and Berlin, Ont., and that a steam shovel and 45 teams are at work grading between Petersburg and New Hamburg. (Sept., pg. 781).

Port Arthur and Fort William Electric Ry.—The ratepayers of Port Arthur, Ont., voted Sept. 8, in favor of the by-law to raise $12,000 by debentures for the purpose of building a new car barn. (Sept., pg. 783.)

Sherbrooke Ry. and Power Co.—The laying of the new rails on the street railway was begun Sept. 5, and it is expected to have the work completed by the winter. (Sept., pg. 783.)

Stratford Ry.—The dirrectors of this at present unincorporated company, with some of the members of the city council of Stratford, Ont., went over the route of the proposed electric railway between Stratford and St. Marys, Aug. 27, and suggestions were made for altering the projected route at various points with a view of making it more convenient for future extensions. Stratford city has already passed a bylaw granting a franchise for lines in the city. (Sept., pg. 783).

Toronto and York Radial Ry.—Plans have been filed with the Ontario Railway and Municipal Board for a deviation of the line at Mimico creek, where there are some very sharp curves, and a small river to cross. It has been necessary to purchase additional land for right of way, and a sufficient area has been acquired to provide for laying a long siding or crossing point at this deviation, which takes in the proposed new bridge over the creek. The foundation work for the new bridge is being proceeded with, and grading for the deviation has been started. The company has not made any definite plans for building a second track. (July, pg. 585).

Toronto Eastern Ry.—Press reports, Sept. 17, stated that engineers had nearly completed surveys for the first section of this projected railway, and that the first section to be built would be from Toronto to Newcastle, Ont. The route will be on a private right of way just north of the Kingston road, nearly all the way. The reports further state that a considerable part of the right of way has been secured, and that contracts for grading, etc., will be let at an early date. Negotiations are reported to be in progress for the entrance into Toronto. (Aug., pg. 685).

Toronto Ry.—By an arrangement between the company and the city council a start has been made on the construction of two out of the six new lines ordered to be built by the Ontario Railway and Municipal Board. A start was made on the Harbord St. line at Ossington Ave., Sept. 16, and on the Wilton Ave. line at Sherbrooke St., Sept. 19. The city grades the portion of the street on which the track is to be laid, and concretes and paves it, after the company has laid the tracks. (Aug., pg. 685).

Welland, Ont.—A press report says that a franchise has been granted by Crowland tp., to C. J. Laughlin, Toronto, to build an electric railway from Welland to Welland Jct., Ont. (Aug., pg. 685).

Winnipeg Electric St. Ry.—Work was started Aug. 20, putting in the diamond on Main St., at the corner of Euclid Ave., for the belt line to run down Euclid to Sutherland Ave., and across the Louise bridge. The standards for carrying the trolley wire along Portage Ave. west to the city limits are being erected, and it is expected that the double track line on this section of the company's line will be ready for traffic early in Oct. (Aug., pg. 685).

The British Columbia Electric Ry., which formerly paid a bonus, at the end of each year, to its employes, has granted an increase in wages in lieu, to date from July 1, the commencement of the financial year.

Electric Ry., Finance, Meetings, Etc.

British Columbia Electric Ry.—Gross earnings for July $283,535; working expenses $173,850; net operating earnings $109,685; renewal funds $23,820; net earnings $85,865; approximate income from investments $22,000; net income $107,865, against $220,665 gross earnings; $123,063 working expenses; $97,602 net operating earnings; $16,084 renewal funds; $81,518 net earnings; $16,500 approximate income from investments; $98,018 net income for July, 1909. The working expenses from July 1, include an increase in wages to employes, granted in lieu of the bonus formerly paid at the end of the year, which was not included in these returns.

Berlin and Bridgeport Electric St. Ry.—Following are the officers and directors for the current year:—President, W. H. Breithaupt; Vice President, J. S. Anthes; Secretary, A. Millar; other directors, L. J. Breithaupt, G. M. Shirk.

Halifax Electric Tramway.—Railway receipts for Aug., $22,781.86, against $21,370.12 for Aug., 1909.

Hull Electric Co.—The annual meeting was held Sept. 7. Following are the officers and directors for the current year: President, A. R. Creelman, K.C.; Vice President, W. R. Baker; other directors, D. McNicoll, I. G. Ogden, E. W. Beatty, J. Oborne and E. Hanson.

London St. Ry.—Gross earnings for Aug., $23,165.50; expenses $16,231.42; net earnings $6,934.08; deductions $2,441.75; net income $4,492.33, against $22,465.38 gross earnings; $14,498.61 expenses; $7,966.77 net earnings; $2,441.75 deductions; $5,525.02 net income for Aug., 1909. Aggregate gross earnings for eight months ended Aug. 31, $164,679.09; expenses $119,386.18; net earnings $45,292.91; deductions $19,140.40; net income $26,152.51, against $158,444.27 aggregate gross earnings; $111,675,33 expenses; $46,768.94 net earnings; $19,256.08 deductions; $27,512.86 net income for same period 1909.

Montreal St. Ry.—Passenger earnings for Aug., $382,817.76; miscellaneous earnings $16,010.81; total earnings $398,828.57; operating expenses $216,314.19; net earnings $182,514.38; city percentage on earnings $50,854.46; interest on bonds and loans $14,482.71; rent leased lines $552.90; taxes $4,000; total charges $69,890.07; surplus $112,624.31; expenses per cent. of earnings 54.24, against $344,513.84 passenger earnings; $10,715.88 miscellaneous earnings; $355,229.72 total earnings; $180,582.60 operating expenses; $174,647.12 net earnings; $44,083.70 city percentage on earnings; $14,444.55 interest on bonds and lonas; $498.67 rent leased lines; $3,000 taxes; $62,026.92 total charges; $112,620.20 surplus; 50.84 expenses per cent. of earnings, for Aug., 1909. Aggregate total earnings for 11 months ended Aug. 31, $3,889,475.05; operating expenses $2,237,830.24; net earnings $1,651,644.81; total charges $516,743.81; surplus $1,134,901; expenses per cent. of earnings 57.54, against $3,492,776.55 aggregate total earnings; $2,046,598.01 operating expenses; $1,446,178.54 net earnings; $450,601.63 total charges; $995,576.91 surplus; 58.60 expenses per cent. of earnings for same period 1908-09.

Port Arthur and Fort William Electric Ry.—The report of the operations of the line for the year ended June 30, shows there are 19 miles of track being operated, 10 in Port Arthur, and 8 in Fort William. Gross earnings were $130,664.32; operating expenses, $74,373.44; net earnings, $56,290.88. Statistics:—car mileage 491,760; fare passengers carried, 2,832,426; passes and transfer passengers, 28,000, making total passengers carried, 2,852,426; average fare per da.' passenger, 4.1985 cents; average fare all pas-

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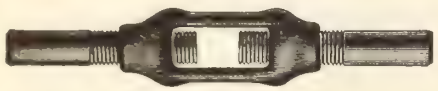

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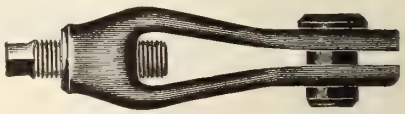

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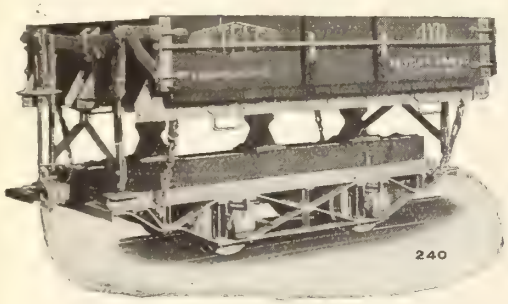

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sengers, 4.1690 cents; earnings per car mile, 26.3037 cents; operating expenses per car mile, 15.1237 cents. Capitalization of line:—Port Arthur, $339,087; Fort William, $307,000; total, $646,087.13. Total expenditure on construction and equipment, $644,700.

Quebec Ry., Light and Power Co.—Following are the officers and directors for the current year:—President, W. G. Ross; Vice President. Hon. E. B. Garneau; other directors:—R. Forget, N. Belleau, J. N. Greenshields, Hon. R. Mackay, Hon. C. E. Dubord, Hon. L. P. Pelletier, L. C. Webster; General Manager, C. E. A. Carr; Secretary, C. J. Piggot; Treasurer, W. J. Lynch. The new directors are:—Hon. E. B. Garneau, Hon. L. P. Pelletier, Hon. C. E. Dubord and L. C. Webster, who take the place of F. W. Ross, Frank Ross, W. Price and L. C. Marcoux. The meeting of shareholders, held in Quebec, Sept. 13, is reported to have been a formal one.

St. Thomas Street Ry.—Reports presented to the street railway committee of St. Thomas, Ont., show that for the year ended June 30, eight cars were being operated, the average daily mileage being 687, against seven cars covering 1,064 miles a day in the year ended June 30, 1909. During the past financial year the service was changed from a 15 minute to a 20 minute one. The pay roll for the first week in Sept. 3, was reported to be $249.57, against $187.32 for the corresponding week in 1909.

Toronto Ry.—The Toronto board of control passed the following resolution, Sept. 9:—"Whereas it is desirable for the city to make an effort now to acquire by purchase the Toronto Ry. and to secure legislation to that end it is recommended that the board of control be authorized to confer with the President and directors of the company with this end in view and to report to council the result of such conference, and further, that if a basis of purchase agreeable to council be arrived at legislation be applied for to carry out such purchase." A couple of days previously it passed a resolution directing the City Solicitor to prepare a bill for the expropriation of the Toronto Ry., and to apply to the Ontario Legislature to have it passed. The Legislature has three times refused to pass such a measure.

Toronto Ry.—Gross earnings for July, $367,211.14; expenses $186,183.96; net earnings $181,027.18, against $329,803.94 gross earnings; $168,200.88 expenses; $161,603.06 net earnings for July, 1909. Aggregate gross earnings for seven months ended July 31, $2,386,423.94; expenses $1,237,497.49; net earnings $1,148,926.45, against $2,144,087.13 aggregate gross earnings; $1,098,841.11 expenses; $1,045,246.02 net earnings for same period 1909.

Winnipeg Electric Ry.—Gross earnings for July, $252,014; working expenses $119,754; net earnings $132,260, against $214,087 gross earnings; $100,950 working expenses; $113,137 net earnings for July, 1909. Aggregate gross earnings for seven months ended July 31, $1,784,210; net earnings $887,140, against $1,424,991 aggregate gross earnings; $715,452 net earnings for same period 1909.

Application has been made to the Dominion Department of Labor, by the maintenance of way employes of the C. P.R., the Canadian Northern Ry., and the G.T. Pacific Ry., for boards of conciliation. The employes have in each case named W. T. J. Lee, of Toronto as their representative, and F. H. McGuigan will represent the C.P.R. The other two companies have not named their representatives.

Electric Railway Notes.

J. H. Gunn, son of Jas. Gunn, Superintendent Toronto Ry., died there, Sept. 15, aged 18.

The B.C. Electric Ry. has ordered 25 flat logging cars, 40 tons capacity, from the Canadian Car and Foundry Co., Montreal.

The Winnipeg Electric Ry. has ordered eight steel underframes for cars, from the Canadian Car and Foundry Co., Montreal.

The Montreal and Southern Counties Ry., has received one heavy double broom electric sweeper from the Ottawa Car Co., Ottawa.

The Moose Jaw Electric Ry. has received six pay-as-you-enter cars, 31 ft. long, mounted on single trucks. from the Ottawa Car Co., Ottawa.

The Quebec Ry., Light and Power Co. has received four pay-as-you-enter cars, 29½ ft. long, and two interurban cars, 60 ft. long, from the Ottawa Car Co., Ottawa.

J. R. Blackett, formerly Chief Auditor Dominion Coal Co., Glace Bay, N.S., has been appointed Comptroller Halifax Electric Tramway Co., a newly created position.

The Grand Valley Ry., Brantford, Ont., is reported to be in the market for eight single-truck city cars, two double-truck city cars and a single-truck snow sweeper.

The four pay-as-you-enter cars which the Quebec Ry., Light and Power Co. has received from the Ottawa Car Co., as mentioned in our last issue are 29½ ft. overall, and 18 ft. long without platforms.

The Montreal board of control decided Sept. 2, to ask the city council to repeal the present bylaw prescribing the kind of fender to be used by the electric railway lines in the city, and to decide on a new pattern.

A list of shareholders of the Quebec Ry., Light, Heat and Power Co., shows that 12,682 shares are held in France, 3,006 in England, 1,798 in the United states and 20 in Spain. The stock is distributed among 529 shareholders.

D. McDonald, Manager of the Montreal Street Ry., was present at the European Tramways Congress at Brussels, Belgium, Sept. 7-11, where he exhibited a pay-as-you-enter car, of which he is one of the patentees.

M. O. Robinson, heretofore Resident Electrical Engineer C.P.R., Fort William, Ont., has been appointed Manager Port Arthur and Fort William Electric Ry., vice N. C. Pilcher, whose appointment as Manager Sherbrooke Ry. and Power Co., was announced in our last issue.

The Electric Railway Construction Co., has been incorporated under the British Columbia Companies Act, with a capital of $600,000, to carry on a general contracting business, and to promote companies for the operation of railways, including tramways and street railways.

H. W. Protzeller, Assistant Superintendent Twin City Rapid Transit Co., St. Paul, Minn., has been appointed General Manager International Transit Co., operating in Sault Ste. Marie, Ont., and Sault Ste. Marie, Mich., and which is controlled by the Lake Superior Corporation. T. J. Kennedy, heretofore Manager, and who was also Superintendent Algoma Central and Hudson Bay and Manitoulin and North Shore Rys., will devote his time to those railways, on which considerable extensions are in progress and projected.

W. J. Lynch, Treasurer Quebec Ry., Light, Heat and Power Co., was presented with an address and a cabinet of cutlery, at a dinner given in his honor Sept. 13, by the officers and officials of the company in connection with his wedding, which took place in Quebec, Sept. 16, the bride being Miss Pacaud.

At a recent meeting of the North Toronto council, a letter was read from the Toronto and York Radial Ry., in response to a previous one from the council, that the company was not prepared to make any concessions in return for establishing a Sunday service, but that it would be willing to meet the ratepayers' wishes, so far as the service was concerned, if they would join with the company in endeavoring to secure the necessary permission.

The Toronto board of control has awarded the contract for the construction of a bridge to carry the highway, with the Toronto Ry., over the Don River and the railway tracks, at Queen St. East, to the F. H. McGuigan Construction Co., for $193,000. The bridge was ordered by the Board of Railway Commissioners, the cost to be borne in the following proportions, city of Toronto, 15%; Toronto Ry., 15%; C.P.R., 35%; G.T.R., 10%, and Canadian Northern Ry., 25%.

The various electric companies having overhead wires in Montreal, including the Montreal Street Ry., the Montreal Park and Island Ry., the Montreal Terminal Ry., and the Public Service Corporation (formerly the Suburban Tramway Co.), have notified the city council that they are prepared to put their overhead wires in the civic conduit, which the corporation has been authorized by the Quebec Legislature to build, and will choose one member of the Board, in accordance with the terms of the act.

An injunction was obtained Sept. 14, restraining the contractors for the new power dam of the Sherbrooke Ry. and Power Co., from building a flume across certain properties. The judgment directs the suspension of the work until the main issue has been disposed of by the courts. The company was expecting to have the dam completed, so as to be able to turn on power by Nov. 1.

The Winnipeg city council's legal officers are preparing to bring an action to have the Winnipeg Electric Ry.'s franchise forfeited on account of alleged breach of contract in respect of the construction of new lines. The council has passed resolutions calling for the building of certain new lines, which the company has failed to build, and the City Solicitor has advised the council that this is sufficient grounds upon which to ask the courts to cancel the franchise.

St. Leonards, N.B.,-Van Buren, Me., Bridge.—The bridge which is about to be built across the St. John's River, to connect St. Leonard, N.B., and Van Buren, Me., under the charge of a commission appointed by the Dominion Government and the State of Maine, will be a highway one, but designed to carry electric cars, also. The Commissioners are: S. J. Chapleau, District Engineer, Department of Public Works, Ottawa, and P. D. Sargent, State Commissioner of Highways, Augusta, Me. The bridge will be 752 ft. long between back walls, and will consist of three spans of 143 ft. each, and one span of 322 ft.; carried on abutments, at the shore ends, and the three piers in the river. These piers and abutments are to be concrete. The bridge is designed for the following live load:—a 24-ton street car on two axles 7 ft. apart, and a 10-ton wagon on two axles 10 ft. apart, and 6 ft. gauge, or 100 lbs. per square ft. of roadway and sidewalk. The substructures is to be completed by Dec. 1, and superstructure by Apr'l 1, 1911. The amount voted by the Dominion Parliament and the Maine Legislature towards the erection of the bridge was $28,125 each.

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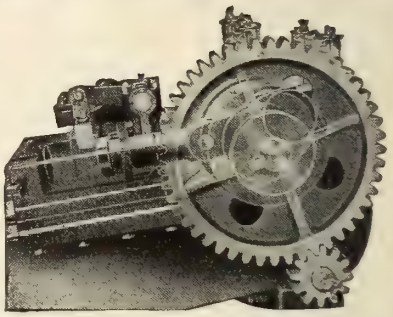

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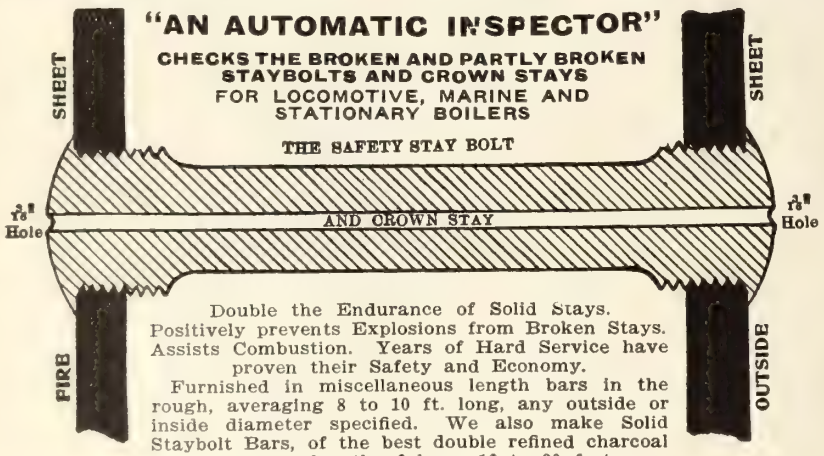

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Lighthouse and Buoy Steamer Estevan.

The specifications for the new twin-screw lighthouse tender and buoy steamboat, to be named the Estevan, for the Canadian Government, provide for the building of a vessel having the following principal dimensions: Length between perpendiculars, 200 ft.; moulded breadth, 38 ft.; depth, moulded to main deck, 17 ft. 6 in.; depth to lower deck, 10 ft.; depth main deck to bridge deck, 7 ft. 11½ in.; load draft, mean, 11 ft. 6 in. She is to have a deadweight carrying capacity of 375 tons; a coal capacity of 260 tons, and to have a speed of 12 knots an hour on a six hours trial.

The hull is to be of steel to be equal to class 100 A1 at Lloyds', with double bottom from peak to peak; fitted for water ballast, and divided into seven watertight bulkheads. The scantlings specified are those considered suitable for the work of the buoy service, and for navigation in icefields 12 inches thick. The vessel is to have a straight stem and elliptical stern, provided with two steel masts with p. p. topmasts. The propelling machinery is to consist of two sets of inverted, vertical, direct-acting, triple-expansion, surface-condensing engines, each set having three cylinders working on separate cranks placed at angles of 120 degrees with each other in the sequence of high, low and intermediate when the engines are going ahead. The engines are to be capable of developing the indicated horse power necessary to drive the vessel at 12 knots an hour on a trial of six hours duration when running at about 130 revolutions a minute with 180 lbs. steam pressure in the boilers. Steam will be supplied by two cylindrical, single ended boilers fitted for forced draught. The propellers are to be three-bladed, of the built-up type, are not to overlap and are to work outwards in going ahead.

The vessel will have four decks, lower, main, bridge, and boat. The main part of the lower deck will be given over to the boilers, engines and coal bunkers, aft of which will be an engineers' workshop, dynamo room and steward's storehouses, while forward will be provided the b'sn's store, and quarters for firemen and seamen. On the main deck aft, will be provided the quarters for the engineers, second and third officers, cooks, stewards, and the special employes of the lighthouse and buoy section of the Marine Department, together with mess rooms; while forward of the open part of the deck will be the bath and washhouses, winches, etc. On the bridge deck will be quarters for the captain and the chief officer, and two two-bed staterooms for departmental officers upon inspection duty. Over this is the boat deck. The vessel throughout is to be suitably equipped and furnished, and provided with electric light, including a 25,000 candle power search light. The following boats are to be supplied: Two surf boats, 26 ft. long, 8 ft. beam, and 2 ft. 5 in. deep; one captain's dinghy, 20 ft. long, 6 ft. beam, and 2 ft. deep; and one steam launch 30 ft. long, 7 ft. beam and 3 ft. 6 in. deep. This launch is to be provided with engines capable of driving her eight knots an hour, steam being supplied by a patent water tube boiler, provided with a patent paraffin burner, capable of raising steam from cold water in eight minutes, and tested under hydraulic pressure to 1,000 lbs. to the square inch. The vessel is also to be provided with a steamboat hoisting winch; a five-barrelled 20-ton steam winch; two 2-ton double-barrelled steam winches, and a wireless telegraph equipment, the motor generator consisting of a 110 volt. 60 cycle single phase generator connected at full load.

Proposed Dry Dock Construction.

The Dominion Dry Dock Co., Ltd., the incorporation of which took place recently, with a capital of $1,000,000, has completed its organization, and proposes to construct dry docks at Levis and St. John, N.B., and may also assist in increasing the capacity of the existing dry dock at Halifax, N.S. The dry dock, which will probably be built at Levis, will be larger than is required to obtain a Government subsidy on a first class dock, as provided in the recent subsidy act. The dimensions proposed, are as follows:—

Length from outer caisson stop to head	1,000 ft.
Width on floor	102 ft.
Width at coping	134 ft.
Width at entrance	100 ft.
Depth of water on entrance sill at high water	36 ft.

It will be fully equipped with the necessary machinery, repairing plant and shops, for its efficient operation, and for repairing vessels of the largest type, or now under construction. The estimated cost of the proposed work is $4,000,000.

In connection with the proposed works at St. John, N.B., three sites are at present under consideration. The location of a site mainly depends on whether the Government will vote the necessary money, and start work on the opening up of Courtenay Bay, in order to make provision for the proposed Grand Trunk Pacific Ry. docks and terminals. The dimensions of the dry dock have not been settled on, as yet, but it is anticipated that the Government may require them to be the same as the one at Levis. The question of shipbuilding is also under consideration, and the carrying out of any plans in this direction, will depend entirely upon the business which may be anticipated from the erection of such works as will be undertaken. It is stated that, at present, it would be impossible to compete with British shipbuilders, in view of the higher cost of labor and material, and it would be necessary to be certain of a continuous supply of orders. Plans for the proposed dry dock at Levis will shortly be submitted to the Government, and if approved, work will be commenced almost immediately, the contractors being MacArthur, Perks and Co., Ottawa. The incorporators of the Dominion Dry Dock Co., include Sir Thos. G. Shaughnessy, President C.P.R.; Hugh A. Allan, Allan Line; G. D. Davie, Quebec; W. M. Dobell, Quebec; W. E. Foster, St. John; Lord Pirrie, Chairman Harland and Wolff, Ltd., Belfast, Ireland; Sir Robert W. Perks, Chairman MacArthur, Perks and Co.; and A. M. Grenfell, London, Eng.

The first cargo of the 1910 wheat crop was shipped from Fort William, on the C.P.R. s.s. Assiniboia, Aug. 29, to Owen Sound, for J. Richardson and Sons, Ltd., Kingston.

Notices to Mariners.

The Department of Marine has issued the following:—

82. Aug. 17.—221. British Columbia, Burrard Inlet, First Narrows, Prospect point, change in character of light. 222. British Columbia, Burrard Inlet, First Narrows, west entrance, change in position of gas lighted beacon, fog bell established.

83. Aug. 19.—223. Prince Edward Island, north coast, change in position of Cove head range lights. 224. New Brunswick, east coast, Kouchibouguac bay, Sapin point light station, light mast replaced by tower. 225. Newfoundland, west coast, St. John's bay, rock found southward of.

84. Aug. 22.—226. British Columbia, Vancouver island, west coast, Barkley Sound, Banfield creek, life saving station established. 227. Alaska, Revillagigedo channel, Spire island reef, light established. 228. Alaska, Tongass Narrows, East Clump, light established. 229. Alaska, Tongass narrows, Channel island, light established.

85. Aug. 23.—230. Quebec, River St. Lawrence below Montreal, Boucherville channel, off Ile Charron, buoys established.

86. Aug. 25.—231. Quebec, Ottawa river, Lake of Two Mountains, Graham, color of daymarks. 232.—Ontario, Lake Erie, Pelee passage, change in fog alarm at lighthouse.

87. Aug. 31.—233. British Columbia, Vancouver Island, west coast, Clayoquot sound, Hecate passage, uncharted rock. 234. British Columbia, Strait of Georgia, Galiano island, Porlier pass, bearing of range lights. 235. British Columbia, Fraser river, New Westminster, railway swing bridge, signal drum established. 236. British Columbia, Chatham sound, Malacca passage, reefs eastward of Bamfield islands, beacon established.

88. Aug. 31.—237. Nova Scotia, south coast, Liscomb shoal, bell buoy established. 238. Newfoundland, east coast, Catalina, Green island, change in characteristic of fog alarm. 239. Newfoundland, east coast, Fogo island, Burnt point, change in characteristic of fog alarm.

89. Sept. 3.—240. Ontario, Lake Erie, Rondeau harbor, construction of breakwater extension to west pier, caution. 241. Ontario, Georgian bay, Parry Sound approach, Wabuno channel, Sister rock, light established on beacon. 242. Ontario, Lake Superior, chart, Copper island to Lamb island issued.

90. Sept. 3.—243. Prince Edward Island, North coast, Cascumpecque harbor, range lighthouses moved from Sandy island to Alberton. 244. New Brunswick, Gulf of St. Lawrence, South Tracadie gully, changes in light station.

91. Sept. 6.—245. New Brunswick, south coast, Bay of Fundy, St. Martins, lighthouse erected on the outer end of the east breakwater pier.

92. Sept. 9.—246. British Columbia, Vancouver Island, Scott islands, Triangle island, lighthouse established.

93. Sept. 14.—247. British Columbia, Vancouver Island, southeast coast, Victoria harbor, uncharted rock. 248. British Columbia, Burrard Inlet. First narrows, west entrance, sounding of fog bell at beacon. 249. British Columbia, Vancouver Island, east coast, Horswell channel, change in character of buoy.

94. Sept. 15.—250. Ontario, St. Joseph channel, shoal water in channel at Bamford island, caution. 251. Lake Winnipeg, north end, entrance to Nelson river, Warren landing, change in position of back light of upper range. 252. United States of America, Lake Superior, Isle Royale, Rock of Ages light station, permanent light established.

95. Sept. 16.—253. New Brunswick, Bay of Fundy, Deer island, off North West harbor, Pomped ledge, beacon erected. 254. Quebec, Gulf of St. Lawrence, Moisie river, range lights again in operation.

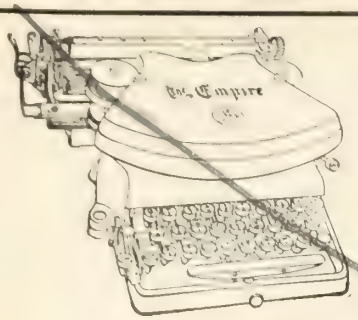
Atlantic and Pacific Ocean Marine.

The Allan Line has opened new offices at 14 Cockspur St., London, S.W., Eng., for west end passenger business.

Pickford and Black, Halifax, N.S., are reported to have chartered the s.s. Luriston, in London, Eng., to replace the s.s. Dahomey on the Halifax-West Indies route.

Press reports from London, Eng., state that the Danish East Asiatic Co., is considering the establishment of a steamship service between British Columbia and South America.

The C.P.R. Empress of Britain, in arriving at Liverpool, Eng., Sept. 2, is reported to have broken all records for the



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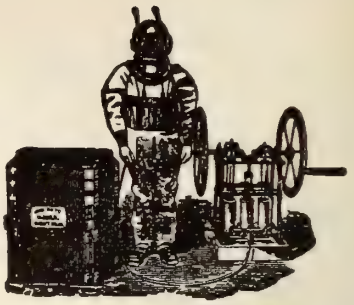

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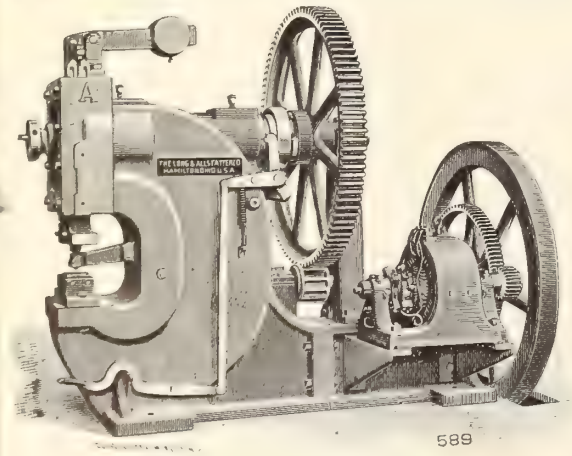

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Capt. R. Barrett, R.N.R., formerly commodore of the Allan Line, died recently at Liverpool, Eng., aged 84. He entered the Allan service in 1870, and commanded a number of the company's earlier vesels, retiring some years since.

Newfoundland press reports state that the Donaldson Line s.s. Tritonia is being altered to fit her for the wood pulp trade between Newfoundland and Manchester, Eng., and also to enable her to cope with ice in an all the year round service.

Capt. Kendall, of the C.P.R. s.s Montrose, is reported to have been awarded £250, by the British Government, in connection with the capture, on board, of H. H. Crippen, charged with murder in London, and Miss Le Neve, now charged as an accessory after the fact.

The Canadian Northern Steamships Ltd., has decided to use Halifax, N.S., as its winter port, the first vessel on the winter service to arrive there being the Royal Edward, scheduled to leave Bristol, Eng., Nov. 22, and leaving on the return trip Dec. 7.

The s.s. Ben Cruachan, which grounded near Louisburg, about three months ago, has been repaired at Halifax, N.S. The bottom was badly damaged, it taking 125 steel plates, each 19 by 3 ft. to put her in sea going condition. She was in dry dock 56 days, the repairs being reported as costing $80,000.

The Osaka Yosen Kaisha has decided to include Victoria, B.C., as a port of call for its trans-Pacific service. the first arrival there scheduled being the Tacoma Maru, on Oct. 6. The company has four vessels in service, and will add two more, the Mexico Maru and the Canada Maru, early next year.

The Newfoundland Premier was in Quebec recently on his return from The Hague, and is reported to have said that his object in visiting there, was to meet representatives of certain Canadian shipping companies with a view to arranging some additional steamship facilities between Newfoundland and Great Britain.

The New Zealand Shipping Co. is reported to have sold its interest in the Canadian-Australian Steamship Line, to the Huddart and Parker Line, owners of the s.s. Zealandia, which company, in conjunction with the Union Steamship Co., will carry out the existing mail contract for the Canadian-Australia service until July 31, 1911.

The complete breaking up of the wrecked s.s Heimdal at Sable Island has been abandoned owing to the lateness of the season. The machinery, etc., has all been removed. Wreckers are at work on the s.s. Hestia. which was wrecked at Grand Manan last year. It is hoped that the machinery and cargo will be salved, after which, the hull will be broken up.

Recent press reports stated that the Canadian Northern Steamships, Ltd., would shortly commence a regular weekly service between Canada and Europe, and in this connection would take over the operation of its s.s. Volturno, which is now being run, by arrangement, by the North West Transportation Co. We are advised that at present there is nothing in the statements, and that no such decision has yet been arrived at.

A New York press dispatch states that the White Star-Dominion Line's steamships Laurentic and Megantic, will, this winter, make several trips to Halifax, from Liverpool and Portland. The first trip of the Laurentic, it is stated, will be made in Dec., from Liverpool, while the Megantic will be placed in the service for three trips. It is also stated that the company will arrange that the steamers can call on their eastbound trips.

The silly season is still on. Montreal press reports state that a scheme has been mooted in Europe, with a view to interest capital, for the establishment of a steamship service, between Halifax and Europe, the vessels required to be constructed on the "roller" principle, according to plans prepared by G. H. Knapp, the inventor of a roller boat, which was built in Toronto, and which has caused considerable amusement and trouble in Toronto waters for several years.

At a recent conference of the representatives of the regular Trans-Pacific lines, at San Francisco. a tentative agreement was arrived at for the regulation of the steerage passenger rates to and from the Orient. Under the old agreement the rates on the C.P.R. Empresses was $51, and on the C.P.R. s.s. Monteagle, $43.50, while under the new arrangement the latter rate has been raised to $47.50. C. E. E. Ussher, Assistant Passenger Traffic Manager, Winnipeg, and C. B. Foster, Assistant General Passenger Agent, Vancouver, represented the C.P.R.

Sir H. Montagu Allan, who presided at a luncheon in London, Eng., Sept. 1, to celebrate the opening of new offices at 14 Cockspur St., is reported to have said, in connection with the Atlantic service, that designs for new vessels, for the Allan Line, were being made, and the company hoped shortly to call for tenders for the construction of larger and faster steamers than any at present running between Great Britain and Canada. We are advised that the company is working on plans for three vessels, each about 22,000 tons, and 675 feet long, for a speed of 22 knots an hour.

The bill, which will come before the British Parliament shortly, making it compulsory, that vessels carrying 50 or more persons, including the crew, shall be equipped with a wireless telegraph installation, is to be opposed. Various chambers of commerce and several shipowners in Great Britain, have expressed themselves as strenuously opposed to such an act, claiming that it would injuriously affect the freight trade. increase freight rates and give a monopoly to wireless telegraph companies, while it is also stated that there are no shore stations on the East Indian and Australian routes.

LIST OF STEAM VESSELS REGISTERED IN CANADA DURING AUGUST, 1910.

Name	No.	Where and When Built.	Engines, etc.	Length	Breadth	Depth	Gross Tons	Reg. Tons	Port of Registry	Owners
A. Ferguson..	130,262	Simcoe, Ont., 1909	Paddle 2 n. h. p.	42.0	11.0	3.7	35	22	Ottawa	J. R. Booth, Ottawa
Chico	126,479	Mahone Bay, N.S., 1906....	Screw 5 "	23.8	5.4	3.0	2	1	Halifax.....	C. L. Newman, Halifax
Cisco	121,960	Collingwood, Ont., 1910....	" 13 "	72.0	15.2	6.3	42	25	Port Stanley, Ont.	N. S. Cornell and H. Taylor, Port Stanley, Ont.
Columbia	126,899	New Westminster, B.C., 1910	" 16 "	86.6	16.4	7.1	106	64	Vancouver, B.C.	Columbia Coast Mission, Vancouver, B.C.
Frank N. McCrea..	126,122	Kingston, Ont., 1908	" 3½ "	17.8	11.0	5.0	19	10	Kingston, Ont.....	F. N. McCrea, Sherbrooke, Que.
Inlander	126,613	Victoria, B.C., 1910	Paddle 13 "	135.5	28.5	5.2	521	340	Prince Rupert, B.C.	Prince Rupert Skeena Transp't'n Co., Prince Rupert, B.C.
Lord Beresford ..	126,716	Paisley, Scotland, 1909	Screw 45 "	75.2	18.6	8.9	112	18	St. John, N.B.....	J. E. Moore, St. John, N.B.
M. E. Wherry	126,568	Little Bras d'Or, N.S., 1907	.....	35.0	11.2	5.4	14	..	Sydney, N.S.	D. Landry, Little Bras d'Or, N.S.
Mary Sullivan	130,331	Douglastown, N.B., 1910 ...	Screw 8 n. h. p.	53.0	11.6	5.0	29	10	Chatham, N.B.	W. M. Sullivan, Red Bank, N.B.
Mattawapiki.	130,261	Callendar, Ont., 1910	" 1 "	42.0	8.8	3.8	12	8	Ottawa	Montreal River Transportation Co., Ottawa
Rotundus	130,251	Shelburne, N.S., 1910	" 19 "	92.0	20.6	6.8	123	66	Windsor, N.S.	Steamship Rotundus Co., Summerville, N.S.
Westerner....	126,909	Vancouver, B.C., 1910	" 1 "	32.0	8.1	4.9	8	6	Vancouver, B.C. ..	M. Gosse, Vancouver, B.C.

LIST OF SAILING VESSELS AND BARGES REGISTERED IN CANADA DURING AUGUST, 1910.

Name	No.	Where and When Built	Rig	Length	Breadth	Depth	Reg. Tons	Port of Registry	Owners
A. J. Sterling.....	126,594	Port Greville, N.S., 1910	Schr.	100.1	28.7	9.0	148	Parrsboro, N.S.	W. Sterling, M.O., Port Greville, N.S.
Annie Hendry....	130,241	Liverpool, N.S., 1910.....	"	125.1	29.3	11.0	219	Liverpool, N.S.	Hendry, Ltd., Liverpool, N.S.
Chrissie C. Thomey	127,672	Burgeo, Nfld., 1918.....	"	102.0	26.9	10.0	123	Ottawa	Minister of Marine, Ottawa.
Donald D.	126,941	Phipsburg, Me., 1876.....	Barge	184.3	37.2	23.8	1181	Victoria, B.C....	A. McDermott, Victoria, B.C.
E. B. No. 1.....	126,837	U. S.	Dredge	67.0	26.5	"	"	Toronto	V. T. Bartram, Toronto
Eva M.D.....	126,480	Shelbourne, N.S., 1910	Schr.	63.0	18.0	7.4	39	Halifax, N.S. ..	E. V., J. L. and J. P. Dempsey, Herring Cove, N.S.
Eva S.	126,345	Clarke's Harbor, N.S., 1610	Sloop	34.5	11.0	5.8	10	Barrington, N.S	G. R. Swim, Clarke's Harbor, N.S.
F. G. French.....	126,715	Bath, Me., 1887, ...	Schr.	98.2	28.1	8.8	152	St. John, N.B. ..	A. Holmes, Port Wade, N.S.
King Daniel.....	126,595	Five Islands, N.S., 1910....	"	50.2	16.6	5.5	29	Parrsboro, N.S.	D. Fullmore, Five Islands, N.S.
La Bergeronne...	126,850	Grandes Bergeronnes, Q., 1909	Sloop	65.1	21.7	5.9	49	Quebec, Que. ..	E. Tremblay, Grandes Bergeronnes, Que.
Madona May.....	126,569	Long Island, N.S., 1910	Schr.	88.8	11.9	5.5	16	Sydney, N.S. ..	J. Bonnar, Glace Bay, N.S.
Mary W. Catherine	126,295	Port Felix, N.S., 1910	"	36.6	11.0	5.9	13	Canso, N.S.....	W. Pelrine, M.O., Port Felix, N.S.
P.M.....	126,921	L'Islet, Que, 1909	Sloop	43.7	15.9	4.8	17	Quebec, Que.	P. Moreau, L'Islet, Que.
T. W. J. Whittier	126,567	Ingonish, N. S., 1907.....	Schr.	80.0	12.4	9.4	15	Sydney, N.S. ..	W. J. and P. Whitty, South Bay, N.S.
Virginie S.....	122,190	New Harbor, N.S., 1910 ..	"	41.0	12.9	7.1	16	Arichat, N.S. ...	E. V. Landry, M.O., Petit de Grat, N.S.
X.M.	126,849	Lotbiniere, Que., 1909.....	"	70.9	21.8	6.3	48	Quebec, Que. ..	J. F. Moreau, Escoumains, Que.

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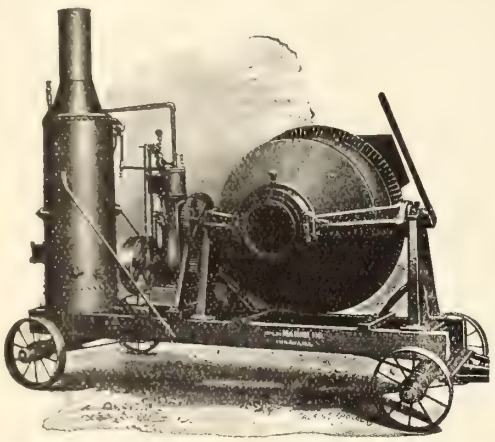

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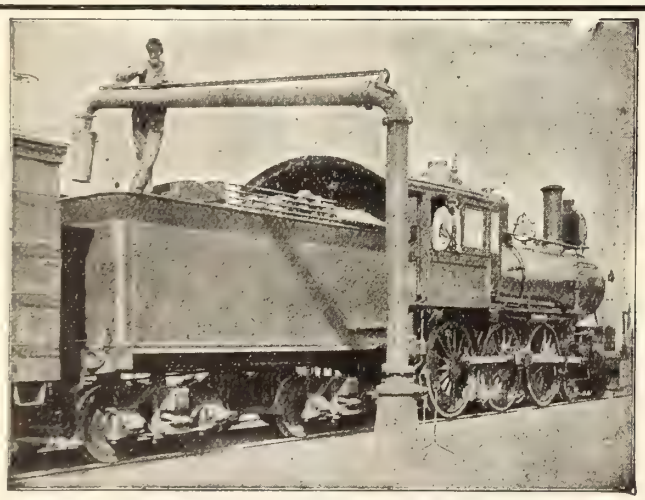

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Capt. L. A. Demers, Wreck Commissioner, held an enquiry Sept. 1, into the cause of the grounding of the s.s. Craigendoran at Anticosti Island, at the end of August. It was claimed, on behalf of the captain of the vessel, that the sunken wreck of the s.s. Idaho, which has been lying in the neighborhood for a number of years may have been the cause of the accident. The charts, place the derelict some distance from the course which was being taken by the Craigendoran, but it is suggested that it may have shifted its position, as the charts are somewhat old. The Wreck Commissioner, after hearing all the evidence, said he would deliver judgment at a later date.

Maritime Provinces and Newfoundland.

Capt. A. McLeod has been appointed captain of the Charlottetown Steam Navigation Co.'s s.s. Northumberland, succeeding Capt. A. McLean, deceased.

W. C. Harvey, heretofore chief engineer of the Reid Newfoundland Co.'s s.s. Bruce has been appointed Travelling Marine Engineer for the company, with headquarters at St. John's.

From advices received in St. John's, Nfld., the decision in the enquiry into the cause of the collision between Harvey and Co.'s s.s. Regulus and the s.s. Karema, which has been held in New York, is against the Regulus. It is stated that she will be sold by public auction.

The Dartmouth, N.S., Ferry Commissioners, who recently considered tenders for the construction of a ferry steamer of steel and wood, have rejected all tenders made, and will call for new ones. The tenders ranged from $20,500 to $100,450.

The Gypsum Packet Co. of Windsor, N.S., is reported to have purchased the three masted ship Glooscap, which is being converted into a barge at New York. She was built at Spencer's Island, N.S., in 1891, her dimensions being:—Length, 238.1 ft.; breadth, 42.9 ft.: depth, 23.9 ft.; tonnage, 1,721 register.

The ferry service between Sydney and North Sydney, was commenced Sept. 4, by the steamboat Wampanoag. She was built in the U.S., and is a screw driven vessel, with engine of 13 n.h.p., and is of the following dimensions:—length 57.3 ft., breadth 12 ft., depth 8.4 ft., tonnage, 38 gross, 22 register. She is owned by J. Doran, Levis, Que.

Capt. A. C. McLean, of the Charlottetown Steam Navigation Co.'s s.s. Northumberland, died at Charlottetown, P.E.I., recently, aged 71. He was born at Richibucto, N.B., and followed the sea since he was 11 years of age. He, at various times, acted as pilot between St. John and Digby, on the St. Lawrence route, to the Magdalen Islands, and other places.

The Newfoundland fisheries dispute between Great Britain and the U.S., which was referred to The Hague for arbitration, has been decided in favor of Great Britain on the two most important points, viz.: the right to regulate the time and method of fishing. and the exclusion of U.S. fishers from bays, under the headland doctrine, by which the three mile limit is to be measured from an imaginary line drawn across the mouth of the bay, and not following the windings of the bay's coast line. Points granted in favor of the U.S. include that U.S. fishermen cannot be compelled to report to custom houses; that they cannot be taxed with light, harbor and other dues; that U.S. vessels may employ Newfoundland fishermen, and that its vessels may purchase supplies and have other commercial privileges on treaty coasts, and may fish in bays on treaty coasts, except Labrador.

Province of Quebec Marine.

C. J. Smith, General Manager Richelieu and Ontario Navigation Co., sailed from Montreal, Sept. 9, for Great Britain, to arrange for building a steamboat for the company's Saguenay line. The dimensions of the proposed vessel are:—length overall, 284 ft. 4 ins.; length over stem and stern posts, 274 ft. 8 in.; breadth of beam on frame, 40 ft.; breadth of beam extreme, 57 ft. 10 ins.; depth of hull, molded, 16 ft. 5½ ins.; boiler to work at 175 lbs. pressure.

A warrant has been issued in the Montreal Admiralty Court for the seizure of the steamboat Lorancia, on behalf of H. Sicotte of Valleyfield, Que., who claims to own 64 shares in the vessel on a bill of sale. The shares claimed constituted a first mortgage, and it is stated that the first mortgagee declines to hand over the boat. She is a screw driven boat, with engine of 27 n.h.p., and was built at Valleyfield in 1909, her dimensions being, length, 112 ft., breadth 22.2 ft., depth 7.7 ft.; tonnage, 346 gross, 205 register.

Ontario and the Great Lakes.

The Department of Public Works will receive tenders Oct. 4, for the reconstruction of the wharf at Lakeport.

The Department of Public Works received tenders, Sept. 21, for the construction of a pier at Brockville.

The Department of Public Works will receive tenders, Oct. 4, for the construction of a breakwater at Goderich.

The work of deepening the Welland river at Chippewa, to 12 ft., is in progress, by the Russell Contracting Co., Toronto.

The Montreal Transportation Co.'s steamboat Rosemount was docked at Kingston Sept. 16, for repairs, having started a number of plates by grounding on a shoal near Alexandria Bay.

W. Freeland, who for many years was well known on the Toronto water front, and who owned and operated the Freeland dock, recently purchased by the Niagara Navigation Co., died at Toronto, Sept. 9, aged 80.

The Richelieu and Ontario Navigation Co.'s steamboat Kingston, was towed into Kingston Sept. 15, after having drifted for about 10 hours, with a broken shaft. She was subsequently towed to Toronto.

The captains of the Niagara Navigation Co.'s steamboats Cayuga, Chippewa, Chicora and Corona, were fined $650, in the aggregate, at St. Catharines, Sept. 1, for breaches of the Liquor License Act on board their vessels.

The canal committee of the Dundas council received tenders, recently, for the dredging of the Desjardins canal, in accordance with the Jennings award, in-

LAKE GRAIN SHIPMENTS, 1909 CROP.

The following statement, prepared by F. E. Gibbs, Grain Inspector, Fort William, Ont., shows the bushels of grain shipped from the different elevators at Fort William and Port Arthur, of the crop of 1909, Sept. 1, 1909, to Aug. 31, 1910, inclusive, with ports of destination. The last two figures in each column after the period represent lbs.

	Wheat		Oats		Barley		Flax	
	Canadian Vessels	Foreign Vessels	Canadian Vessels	Foreign Vessels	Canadian Vessels	Foreign Vessels	Canadian Vessels	Foreign Vessels
CANADIAN PORTS								
Collingwood	355,792.40		99,880.30		98,238.15			
Depot Harbor	3,355,566.10		386,848.29					
Goderich	5,100,574.40		2,493,724.05		185,626.26		251,421.26	
Kingston	7,583,887.40		4,029,396.16		187,879.37		92,648.00	
Montreal	6,483,509.00		3,378,565.19		464,180.32		253,792.20	
Midland	542,098.40		1,033,820.10		33,674.18			
Meaford	919,593.40		198,686.16		81,884.18			
Owen Sound	2,045,890.40		3,214,608.10		93,049.12			
Prescott	2,077.30		70,000.00					
Port Colborne	2,409,602.20		555,520.16		44,691.82			
Point Edward	1,842,432.00		941,161.11		149,923.08		75,230.20	
Port Stanley	101,000.00		65,252.00					
Tiffin	10,951,004.40		2,449,593.06		197,896.38			
Thorold	195,000.00							
Walkerville	264,410.30		206,210.02					
	42,152,530.10		19,123,268.00		1,837,044.44		673,092.10	
FOREIGN PORTS								
Buffalo	2,210,423.40	16,756,739.20	158,976.15	818,709.10	270,519.44	138,123.36	1,089,087.31	1,382,135.41
Chicago		321,167.30						
Duluth		9,472.20						
Erie		110,000.00				255,275.46		85,926.04
Port Huron	561,658.10	964,843.20				84,472.42		
Canadian Vessels	44,924,612.00		19,282,244.15		2,107,564.40		1,762,179.41	
Foreign Vessels		18,162,222.30		818,709.10		477,872.28		1,468,061.45
1909 Crop	63,086,834.30		20,100,953.25		2,585,437.20		3,230,241.30	
1908 Crop	49,379,726.50		12,301,020.05		1,957,989.05		1,593,410.45	

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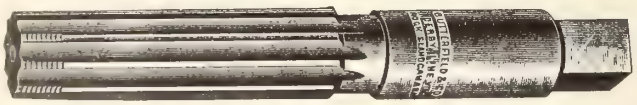

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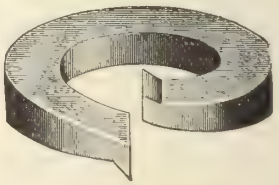

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volving the removal of about 27,500 cubic yards of material. The work is to be completed by Dec. 1.

At the recent annual meeting of the Lake Shippers Clearance Association, at Winnipeg, it was announced that the first year had been a most successful one, the handling of grain had been simplified and expedited to a great extent, and there was a surplus of $5,875.

The Marine Department's fog horn at Pelee Passage, Lake Erie, has been changed from a steam siren to a compressed air diaphone, the compressor being driven by an oil engine. The blasts and intervals remain unchanged.

The Richelieu and Ontario Navigation Co. has been suffering considerable loss recently, owing to the theft of ships' stores. A number of employes on the steamboat Toronto were arrested recently at Toronto, on charges of theft, and some restaurant keepers have also been charged with receiving.

The C.P.R. s.s. Alberta will, it is reported, be lengthened by about 42 ft. during the winter. It is said that the change, involving an expenditure of nearly $60,000, will be commenced immediately after the last sailing of the season, and be completed in time for the re-opening of navigation.

The Lesslie Contracting Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $10,000 and office at Kingston, to carry on a general wrecking and salvage business, and in connection therewith to own and operate steam and other vessels. The provisional directors are, H. E. Richardson, J. F. and E. V. Lesslie, Kingston.

The annual meeting of the Kingston Shipbuilding Co., was held at Kingston, Sept. 9. Following are the officers and directors for the current year:—President, S. Dyment, Barrie; Vice President, H. A. Calvin, Kingston; Secretary-Treasurer, W. J. Fair, Kingston; directors: H. B. Smith, Owen Sound; A. Macdougall, Duluth, Minn.; J. McKelvey, Kingston; J. M. Smith, Collingwood.

The U.S. Lake Survey reports the stages of the Great Lakes for Aug. in feet above tidewater, as follows:—Superior 601.96; Michigan and Huron 580.35; Erie 572.09; Ontario 246.05. Compared with the average Aug. levels for the past 10 years, Superior was 0.99 ft. below; Michigan and Huron 0.85 ft. below; Erie 0.62 ft. below, and Ontario 0.54 ft. below.

The report of the International Waterways Commission on the question of the construction of a dam on the St. Lawrence at Long Sault Rapids, is stated in Montreal to be held up indefinitely. The press report states that there is to be a new commission, permanent in its character, and implementing the provisions of the Waterways Treaty between Canada and the U.S., to which the question will be handed for discussion and decision.

The Toronto Harbor Commissioners met the Minister of Public Works in Toronto recently, and urged that the Government undertake the work of dredging a channel in the Toronto harbor, to enable vessels with 20 ft. draught to come up to the docks which the city is about to build at Ashbridge's bay, at a cost of about $130,000. In reply, it was suggested that the request be made by the civic authorities in the regular way, when it would receive the best consideration.

The Montreal Transportation Co.'s steamboat Bothnia is reported to have been sold to Capt. Loonan of Collingwood, for operation between Georgian Bay and Tonawanda, N.Y., in the lumber trade. The price paid is stated to have been $10,000. The Bothnia was built at Garden Island in 1895, and was formerly named Jack. She is a screw driven vessel with engine of 200 n.h.p., her dimensions are:—length 178 ft., breadth 37.8 ft., depth 12.3 ft.; tonnage, 833 gross, 478 register.

The Pittsburg Steamship Co.'s steamboat John B. Trevor, which was wrecked at Isle Royale last fall, and which was recently purchased and salved by F. S. Wiley, Port Arthur, is to be rebuilt during the winter and placed on the Canadian register. She was built at Cleveland, Ohio, in 1895, her dimensions being:—Length, 308 ft.; breadth, 38 ft.; tonnage, 1,713 gross, 1,318 register, and she is equipped with triple expansion engines with cylinders 18¾, 32 and 54 ins. diar. by 42 ins. stroke, supplied with steam by two Scotch boilers 12 by 13 ft.

Hall and Eligh, Ltd., the incorporation of which we announced in our July issue, has been formed to take over the business of Hall and Eligh and the steamboat Roberval, which operates between Chicoutimi, Que., and the Great Lakes, in a general forwarding business. The Roberval is a screw driven vessel with engine of 27 n.h.p., built at Toronto in 1907. Her dimensions are:—length 128 ft., breadth 24 ft., depth 9 ft.; tonnage, 344 gross, 157 register. The provisional directors are, J. H. and W. J. Hall, P. and E. W. Eligh, Ottawa, and E. A. Hall, L'Orignal, Ont.

The Marquette and Bessemer Dock and Navigation Co.'s car ferry Marquette and Bessemer no. 2, which is being built to replace the one lost in Lake Erie last fall, was launched at Cleveland, O., Sept. 3. Her dimensions are, length 350 ft., breadth 56 ft., depth 19½ ft., with capacity for 30 loaded cars. She will be equipped with two triple expansion engines, with cylinders 19, 35 and 52 ins. diar., by 40 ins. stroke, supplied with steam by four Scotch boilers 13¾ ft. diar. by 12 ft. long. The cost is quoted as $400,000, and she is expected to be ready for service between Conneaut and Port Dover, by the end of October.

The vessel which the Inland Lines Ltd., has under construction at Collingwood, is stated to be the largest Canadian built freighter. She will have a capacity of 10,000 tons, or 400,000 bush. of wheat, and be about 525 ft. long. It is intended to utilize her in the ore, coal and grain trades on the upper lakes. It is anticipated that she will be launched in December, and be ready for the re-opening of navigation. The company also has another vessel under construction, for use in the combined passenger and freight trade on the lower lakes. She will have accommodation for about 200 passengers.

The ratepayers of Owen Sound have passed a bylaw granting a bonus of $50,000, empowering the corporation to take $50,000 of stock and to provide the money by the issue of debentures, for the construction and operation of a dry dock, ship building and ship repairing plant, and structural steel works, at a minimum expenditure of $800,000. In the agreement for such construction, entered into with E. Box, C.E., of Tynemouth, Eng., the corporation agrees not to enter into negotiations with any other party for the construction of such works within six months from May 18, provided the plans are submitted to the Department of Public Works within that time, and the work commenced within 12 months. The bonus is payable on completion of the work, and it is understood that application will also be made for a Government bonus under the act granting aid for the construction of dry docks. E. Box, is at present in England, arranging for the organizing of the company and the financing of the work.

The Ontario and Quebec Navigation Co., Ltd., has been incorporated under the Dominion Companies Act with a capital of $1,000,000, and office at Picton, Ont., to carry on a forwarding, passenger and transportation business, and to own and operate steam and other vessels and other transportation facilities. The provisional directors are, B. R., J. de C., and R. G. K. Hepburn, A. Leslie, Picton; J. F. Chapman, Deseronto, and H. Dempsey, Trenton. The company, which has been re-incorporated, owns the steamboats Aberdeen, Alexandria, Lloyd S. Porter, and Water Lily, and is reported to have absorbed the Quinte Navigation Co., Picton, which owns the steamboats Aletha, Brockville and Varuna. Press reports from Picton, state that A. W. Hepburn has sailed for Great Britain to superintend the construction of a steel vessel, to be built on the Clyde, at a cost of about $140,000, which, it is said, will reach Canada in time for the re-opening of navigation, and be placed on the Toronto, Charlotte, Montreal and Quebec route. The new vessel, will it is said have capacity for 250 passengers and about 450 tons of freight.

SAULT STE. MARIE CANALS TRAFFIC.

The following commerce passed through the Sault Ste. Marie Canals in August :

ARTICLES.			CANADIAN CANAL	U. S. CANAL	TOTAL
Copper	Eastbound	Net tons	653	18,392	19,045
Grain	"	Bushels	603,006	818,635	1,421,641
Building stone	"	Net tons	....	5,113	5,113
Flour	"	Barrels	257,461	574,790	832,251
Iron ore	"	Net tons	4,619,300	2,339,297	6,958,597
Pig iron	"	"	.....	5,546	5,546
Lumber	"	M. ft. B.M.	3,647	85,390	89,037
Silver ore	"	Net tons	.....	.....	.....
Wheat	"	Bushels	2,974,884	1,991,284	4,966,168
General merchandise	"	Net tons	6,734	12,539	19,273
Passengers	"	Number	3,931	5,999	9,930
Coal, hard	Westbound	Net tons	61,800	183,389	245,189
Coal, soft	"	"	189,678	1,382,680	1,872,358
Flour	"	Barrels	.....	.....	.....
Grain	"	Bushels	.....	.....	.....
Manufactured iron	"	Net tons	8,465	24,301	32,766
Iron ore	"	"	.....	.....	.....
Salt	"	Barrels	5,026	67,637	72,663
General merchandise	"	Net tons	77,871	85,720	163,591
Passengers	"	Number	5,659	5,502	11,161
Vessel passages		Number	1,045	2,116	3,161
Registered tonnage		Net	3,251,851	4,433,837	7,685,688
Freight	Eastbound	Net tons	4,759,443	2,660,345	7,419,788
"	Westbound	"	638,532	1,686,236	2,324,768
Total freight		"	5,397,975	4,346,581	9,744,556

Manitoba, Saskatchewan and Alberta.

H. P. Naylor and Co., Ltd., has been incorporated under the Manitoba Companies Act, with a capital of $20,000 and office at Winnipeg, to carry on lumbering, and other business, and in connection therewith to own and operate steam and other vessels, for the transportation of passengers and freight.

The Government survey of the Saskatchewan River, is progressing satisfactorily, though some difficulty has been experienced, owing to men leaving the work. The engineer in charge is reported to have said recently, that everything is now running smoothly, and he hoped to complete the survey before the ice comes.

Coast Lumber Yards, Ltd., has been incorporated under the Manitoba Companies Act, with a capital of $250,000 and office at Winnipeg, to carry on a general land and lumber business, and in connection therewith to own and operate steam and other vessels, wharves, docks, elevators, etc., and to conduct the business of an elevator and general transportation company.

The Governor General-in-Council has approved regulations for the operation of the St. Andrew's lock, on the Red River, providing that the Dominion Department of Public Works shall have control of the operation, that the lock shall be open for navigation each day and night, except from midnight on Saturdays to midnight on Sundays, during the navigation season, except at any particular time or season an order in council be made to the contrary. All vessels when passing through the locks or approach channels, do so at the risk of their owners, and the Department is absolved from any responsibility for delay due to accident, etc., and no vessel shall be permitted to pass the lock, unless an agreement is signed by the person in charge, binding him to observe the rules and regulations in force, subject to penalties, as provided. Before passing the lock those in charge of a vessel shall receive a "let pass" at the lock statistical office, where they must supply on a form prepared for the purpose, the registered tonnage of the vessel, nature and quantity of cargo as set out in the bill of lading, and destination, and in the cases of rafts, the number of pieces, feet b.m., etc. The District Engineer, or Superintendent, has power to stop any vessel or raft for examination, and the permission to pass must be shown when required by such officer. No vessel drawing more than 9 ft. shall be allowed to use the lock, and no animal traction shall be used. Government vessels shall have priority over all other vessels, vessels in passenger traffic, running on schedule time, and excursion steamers and market boats, coming next, followed by freight vessels, even though carrying passengers to a limited extent, private boats, etc. Other provisions of a general nature are made, and penalties arranged for infraction of the rules.

B.C. and Pacific Coast Marine.

The Barnet Lighterage Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $10,000, to carry on the business of ship builders and vessel owners, etc.

It is reported that the Balcom Steamship Co. has chartered a steamship, at present running between Liverpool, Eng., and Spanish ports, for service between Vancouver and Stewart.

The receipts of the North Vancouver city ferries for Aug., were $9,151.65, an increase of nearly 50% over Aug., 1909. Owing to the successful operation of the ferries, the city has reduced the fares, now selling 30 tickets for $1.

The British s.s. Bramley claims to be the first vessel to unload cargo at Powell River, a new B.C. port, opposite Comox. The captain is reported to have said that there is an excellent harbor, and that in a few years it will be a busy place.

The Canadian Arctic Whaling Co., has been incorporated under the B.C. Companies Act, to own and operate steam and other vessels, to engage in whaling, fishing and various other enterprises.

THE GRAND TRUNK RAILWAY COMPANY OF CANADA.

NOTICE is hereby given that the ordinary half-yearly general meeting of the Grand Trunk Railway Company of Canada will be held at the City Terminus Hotel, Cannon Street, London, E.C., on Monday, the 24th day of October, 1910, at twelve o'clock noon precisely, for the purpose of receiving a report from the directors, and for the transaction of other business of the company.

Notice is also given that the transfer books of the company in London and Montreal will be closed from Friday, the 23rd September, to the day of meeting, both days inclusive.

By order,

ALFRED W. SMITHERS, Chairman,
H. H. NORMAN, Secretary.

Dashwood House, 9 New Broad Street,
London, E.C., 10th September, 1910.

AMALGAMATION NOTICE

Pursuant to Section 361 of the Railway Act, and to the Order of the Board of Railway Commissioners for Canada, No. 11,511, dated September 1st, 1910, notice is hereby given that on the eighteenth day of October, 1910, at ten o'clock in the forenoon, or so soon thereafter as the application can be heard, an application will be made to the said Board, at its office in Ottawa, by the Canadian Northern Railway Company and the Edmonton and Slave Lake Railway Company, for a recommendation to the Governor-General in Council for the sanction of an agreement amalgamating the said companies.

Dated at Toronto this 6th day of September, 1910.

GERARD RUEL,
Solicitor for the said Companies.

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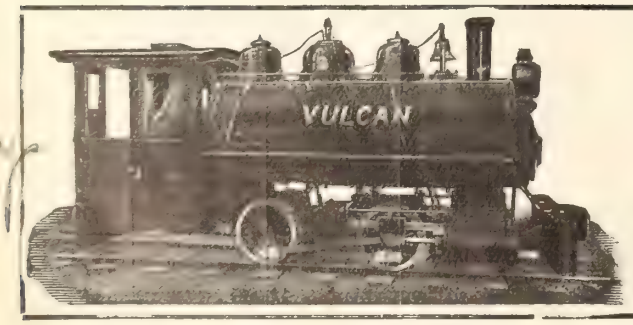

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The company's offices are to be in Vancouver, and its capital is fixed at $500,000.

While on the Pacific coast, the Dominion Premier is reported to have said that, following a conference with Capt. Nicholson, Manager G.T.P. Steamship Co., the Government would install 15 lights on the northern route, and provide the necessary equipment for the safe and speedy navigation of the waters there.

E. J. Chamberlin, Vice President and General Manager G.T.P.R., is reported to have said, while in Vancouver, recently, in referring to the G.T.P.R. charter of the steamboat Rupert City, that it was felt that a vessel for the exclusive purpose of transporting construction material was needed, and the Rupert City would be used for that purpose until Dec. 15, when the charter expired. The charter might be renewed for another year, but the question of purchase had not been considered.

The London advertising agents of the Canadian Northern Steamships, Ltd., recently sent an item to the press to the effect that the company had decided to enter the Pacific coast trade, and that it was arranging for two passenger vessels of the most modern type for its proposed B.C. Coast Service, which, it was stated, would be inaugurated next May. We have been unable to obtain any confirmation of this, and we are disposed to regard such a statement, as, at least, premature. A prominent Toronto official of the company says that the information quoted is incorrect.

The Balcom Steamship Co., which has recently entered the northern B.C. trade between Victoria and Stewart, is operating three steamboats in the service, and is conducting negotiations for the establishment of a weekly passenger and freight service between Victoria and northern B.C. ports. It is reported that next season the company will have an additional steamship of about 1,200 tons register, having a speed of 14 knots an hour, with accommodation for 200 passengers, brought out from England.

In response to a delegation, comprising members of the Nelson and Revelstoke Boards of Trade, Associated British Columbia Chambers of Commerce, and representatives from the States of Oregon and Washington, regarding the proposed opening of a waterway from the Rockies to the Pacific, part of which passes through Canada, the Premier, said recently, that he considered it the Government's duty to look into the matter, and he would ask the Minister of Public Works to have a survey made from Lake Windermere to the boundary, and determine what was required, and the cost.

The Purchasing Agents' Guide

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Canadian Westinghouse Co. Hamilton, Ont.

Ales
E. L. Drewry .....Winnipeg.

Alloys
American Vanadium Co....Pittsburg, Pa.

Angle Bars
Hamilton Steel & Iron Co..Hamilton, Ont.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.

Anti Rail Creepers
The Holden Co., Ltd.....Montreal.

Automobiles
Preston Car & Coach Co...Preston, Ont.

Axes
James Smart Mfg. Co.....Brockville, Ont.

Axles
Canadian Car & Foundry Co....Montreal
Hamilton S. & I. Co., Ltd., Hamilton, Ont.
James Hutton & Co. .....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Jas. W. Pyke & Co.....Montreal.

Babbit Metal
Tallman Brass & Metal Co., Hamilton, Ont.

Beacons
International Marine Signal Co....Ottawa.

Bearings, Side
Canadian Car & Foundry Co....Montreal.
Chicago Railway Equipment Co..Chicago.

Blankets and Bedding
The Hudson's Bay Co. .....

Boilers
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Boilers, Portable
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Boilers, Stationary and Marine
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
I. Matheson & Co.....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Boiler Staybolt Iron or Steel Bars
Falls Hollow Staybolt Co..Cuyahoga Falls.

Boilers, Steam
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Boilers, Water Tube
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Bolsters
Canadian Car & Foundry Co....Montreal.
Canadian Ry. Equipment Co., Welland, Ont.

Bolts, Bridge
Montreal Rolling Mills Co.....Montreal.
Pittsburg Forge & Iron Co., Pittsburg, Pa.

Bolts, Track
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.

Borers, Car Wheel
John Bertram & Sons Co....Dundas, Ont.

Braces, Cross Arm
Montreal Rolling Mills Co.....Montreal.

Brake Beams
Canadian Car & Foundry Co....Montreal.
Chicago Railway Equipment Co..Chicago.

Brake Shoes
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd..Montreal.
The Holden Co., Ltd.....Montreal.

Brake Shoes, Locomotive Driver
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd..Montreal.
Railway Materials Co. .....New York.

Brass and Copper Cloth
The B. Greening Wire Co..Hamilton, Ont.

Brasses, Car
T. McAvity & Sons .....St. John, N.B.

Bridge Numbers
Acton Burrows, Limited .....Toronto.

Bridges
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.

Bronze
American Vanadium Co....Pittsburg, Pa.

Buckets, Coal, Ore and Concrete
M. Beatty & Sons, Ltd....Welland, Ont.
Brown Hoisting Machinery Co., Cleveland.
Williams & Wilson, Ltd .....Montreal.

Buildings, Steel
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.

Bumping Posts
Dominion Equip't & Supply Co..Winnipeg.
The Holden Co., Ltd.....Montreal.
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Mussens, Ltd. .....Montreal.

Car Movers
F. H. Hopkins & Co.....Montreal.
Mussens, Ltd. .....Montreal.

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R. M. Burns & Co.....Chicago, Ill.
Crossen Car Mfg. Co.....Cobourg, Ont.
Canadian Car & Foundry Co....Montreal.
J. T. Gardner .....Chicago, Ill.
Hart-Otis Car Co., Ltd.....Montreal.
Hicks Locomotive and Car Works, Chicago.
The Males Co., ... Cincinnati, O.
Ottawa Car Co., Ltd.....Ottawa.
Pay-As-You-Enter Car Co....New York.
Preston Car and Coach Co., Ltd..Preston.
Russel Wheel & Fdry Co...Detroit, Mich.
Silliker Car Co., Ltd.....Halifax, N.S.

Cars, Logging
Peteler Car Co. .....Minneapolis, Minn.
Russel Wheel & Fdry Co...Detroit, Mich.

Castings
Edgar Allen & Co., Ltd. ..... Montreal.
American Vanadium Co....Pittsburg, Pa.
Canadian Car & Foundry Co....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
John Inglis Co., Ltd. .....Toronto.
Lumen Bearing Co.....West Toronto, Ont.
I. Matheson & Co.....New Glasgow, N.S.
Russel Wheel & Fdry Co...Detroit, Mich.
Standard Steel Works Co..Philadelphia, Pa.

Castings, Brass
Canadian Bronze Co. .....Montreal.
Canada Iron Corporation, Ltd...Montreal.
Kerr Engine Co. .....Walkerville, Ont.
Lumen Bearing Co.....West Toronto, Ont.
I. Matheson & Co.....New Glasgow, N.S.
Tallman Brass & Metal Co., Ltd.Hamilton.

Castings, Car
Edgar Allen & Co., Ltd. ..... Montreal.
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd...Montreal.
Russel Wheel & Fdry.. Co..Detroit, Mich.

Castings, Iron
Allis-Chalmers-Bullock Ltd. ....Montreal.
Canada Iron Corporation, Ltd...Montreal.
Kerr Engine Co. .....Walkerville, Ont.
Russel Wheel & Fdry.. Co..Detroit, Mich.

Castings, Iron and Steel
Edgar Allen & Co., Ltd. ..... Montreal.
Am. Brake Shoe & F'dry Co., Mahwah, N.J.

Castings, Malleable
Galt Malleable Iron Co.....Galt, Ont.
Taylor & Arnold .....Montreal.

Castings, Manganese Steel
Edgar Allen & Co., Ltd. ..... Montreal.
Lumen Bearing Co.....West Toronto, Ont.
Montreal Steel Works, Ltd.....Montreal.

Castings, Steel
Edgar Allen & Co., Ltd. ..... Montreal.
American Vanadium Co....Pittsburg, Pa.
Canada Iron Corporation, Ltd..Montreal.
W. Kennedy & Sons, Ltd., Owen So'd, Ont.
Montreal Steel Works .....Montreal.

Chains
B. J. Coghlin & Co.....Montreal.

Chisels for Pneumatic Chipping Hammers
Edgar Allen & Co., Ltd. ..... Montreal.
Cleveland Punch & Shear Wks., Cleveland.

Closets, Car
Duner Co. .....Chicago, Ill.

Coal
Nova Scotia S. & C. Co., New Glasgow, N.S.

Compressors, Air
Allis-Chalmers-Bullock Ltd. ....Montreal.
The American Well Works...Aurora, Ill.
Canadian Rand Co. .....Montreal.
The Holden Co., Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
Vandeleur & Nichols .....Toronto.

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Mussens, Limited .....Montreal.

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Russel Wheel & Fdry.. Co..Detroit, Mich.
Williams & Wilson, Ltd ..... Montreal.

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Williams & Wilson, Ltd .....Montreal.

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Ontario Wind Engine & Pump Co. Toronto.
Vandeleur & Nichols .....Toronto.

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Dominion Equip't & Supply Co., Winnipeg.
John Inglis Co., Ltd. .....Toronto.
I. Matheson & Co.....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto.
Russell Wheel & Fdry. Co..Detroit, Mich.
Williams & Wilson, Ltd .....Montreal.

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John Inglis Co., Ltd. .....Toronto.

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John Inglis Co., Ltd. .....Toronto.
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Japans
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Canadian Locomotive Co..Kingston, Ont.

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Baldwin Locomotive Works...Philadelphia.
Canadian Locomotive Co..Kingston, Ont.
Montreal Locomotive Works...Montreal.

Locomotives, Steam
Baldwin Locomotive Works...Philadelphia.
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Canadian Fairbanks Co., Ltd...Montreal.
Canadian Locomotive Co. ..Kingston, Ont.
Dominion Equip't & Supply Co.. Winnipeg.
J. T. Gardner .....Chicago, Ill.
Hicks Locomotive & Car Works.Chicago.
The Males Co., ... Cincinnati, O.
Montreal Locomotive Works.....Montreal.
Vulcan Iron Works .....Wilkesbarre, Pa.

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Crossen Car Mfg. Co.....Cobourg, Ont.
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McCord & Co. .....Chicago, Ill.
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The American Well Works...Aurora, Ill.
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Machines, Rivetting
Long & Allstatter Co. .... Hamilton, Ohio.
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John Bertram & Sons Co. ..Dundas, Ont.
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Vandeleur & Nichols .....Toronto.
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Taylor & Arnold .....Montreal.
Nickel
The Orford Copper Co. .....New York.
Nickel for Nickel Steel
The Orford Copper Co. .....New York.
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Acton Burrows, Limited .....Toronto.
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Positive Lock Washer Co. ..Newark, N.J.
Nuts, Clevis
Cleveland City Forge & Iron Co.Cleveland.
Nuts, Square and Hexagon
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt & Forging Co.....Toronto.
Oakum
The Hudson's Bay Co.....
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Can. Office & Sch'l Furn. Co....Preston.
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Acton Burrows, Limited .....Toronto.
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Galena Signal Oil Co..Franklin & Toronto.
Packing
The N. L. Piper Ry. Supply Co...Toronto.
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R. F. Johnston Paint Co, Cincinnati, Ohio.
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F. H. Hopkins & Co. .....Montreal.
Mussens, Limited .....Montreal.
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The N. L. Piper Ry. Supply Co..Toronto.
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Gartshore-Thompson Pipe Co...Hamilton.
Pipe, Gas, Cast Iron
Gartshore-Thompson Pipe Co...Hamilton.
Pipe, Sewer, Cast Iron
Gartshore-Thompson Pipe Co...Hamilton.
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Butterfield & Co. ....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.
Pipe, Water (Cast Iron)
Gartshore-Thompson Pipe Co...Hamilton.
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John Bertram & Sons Co. ..Dundas, Ont.
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Standard Coupler Co. ....New York City.
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Mussens, Limited .....Montreal.
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Standard Explosives, Limited ..Montreal.
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Guilford S. Wood.....Chicago, Ill.
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Southam Press .....Toronto.
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W. Kennedy & Sons, Ltd., Owen So'd, Ont.
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Canadian Fairbanks Co., Ltd...Montreal.
S. F. Bowser & Co., Ltd.....Toronto.
Ontario Wind Engine & Pump Co..Toronto.
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The American Well Works....Aurora, Ill.
Pumps, Irrigating
The American Well Works....Aurora, Ill.
Pumps, Reclamation
The American Well Works....Aurora, Ill.
Pumps, Sprinkler Systems
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Pumps, Underwriters' Fire
The American Well Works....Aurora, Ill.
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Cleveland Punch & Shear Wks., Cleveland.
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Jas. W. Pyke & Co. .....Montreal.
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The Rail Joint Co. of Canada...Montreal.
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A. B. Jardine & Co. .....Hespeler, Ont.
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Ropes, Derrick
Dominion Wire Rope Co. .....Montreal.
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Rules, Switch
The B. Greening Wire Co..Hamilton, Ont.
F. H. Hopkins & Co. .....Montreal.
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Butterfield & Co. ....Rock Island, Que.
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James Smart Mfg. Co....Brockville, Ont.
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Saxby & Farmer, Limited .....Montreal.
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International Marine Signal Co...Ottawa.
Signs
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Standard Steel Wks. Co..Philadelphia, Pa.
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Falls Hollow Staybolt Co..Cuyahoga Falls.
Staybolt Iron
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Taylor & Arnold .....Montreal.
Staybolt Iron or Steel Bars, Hollow
Falls Hollow Staybolt Co..Cuyahoga Falls.
Staybolts, Flexible
Flannery Bolt Co. .....Pittsburg, Pa.
Staybolts, Locomotive
Falls Hollow Staybolt Co..Cuyahoga Falls.
Flannery Bolt Co. .....Pittsburg, Pa.
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Mussens, Limited .....Montreal.
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Edgar Allen & Co., Ltd. ..... Montreal.
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Taylor & Arnold .....Montreal.
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Montreal Steel Works .....Montreal.
Steel for Saws
Montreal Steel Works .....Montreal.
Steel for Springs
James Hutton & Co. .....Montreal.
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Nova Scotia S. & C. Co., New Glasgow, N.S.
Steel Speedicut High Speed
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Montreal Steel Works .....Montreal.
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Taps
Butterfield & Co. ....Rock Island, Que.
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The Holden Co., Ltd.....Montreal.
Tools, Cast Steel Track
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Tramway Equipment
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Williams & Wilson, Ltd .....Montreal.
Trolley Wheels
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Trucks
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Trucks, Electric Car
Baldwin Locomotive Works...Philadelphia.
Montreal Steel Works .....Montreal
Trusses, Roof.
Canadian Bridge Co. ...Walkerville, Ont.
Dominion Bridge Co. .....Montreal.
Tubes, Boiler.
Jas. W. Pyke & Co. ..... Montreal.
Turbines, Steam.
Allis-Chalmers-Bullock Ltd. ....Montreal.
Turnbuckles.
Cleveland City Forge & Iron Co..Cleveland.
Montreal Steel Works. .....Montreal.
Turntables.
Canadian Bridge Co. ....Walkerville, Ont.
Dominion Bridge Co. .....Montreal.
Typewriters.
Williams Mfg. Co. .....Montreal.
Valves
Consolidated Car Heating Co., Albany, N.Y.
Williams & Wilson, Ltd .....Montreal.
Valves, Brass Gate
Kerr Engine Co. .....Walkerville, Ont.
Valves, Brass Globe.
Kerr Engine Co. .....Walkerville, Ont.
Valves, Iron and Brass.
Canadian Fairbanks Co. Ltd. ...Montreal.
Valves, Iron Gate.
Kerr Engine Co. .....Walkerville, Ont.
Valves, Locomotive Pop.
T. McAvity & Sons .....St. John, N. B.
Taylor & Arnold .....Montreal.
Vanadium Steels.
American Vanadium Co. ....Pittsburg, Pa.
Varnishes.
Berry Bros. .....Walkerville, Ont
The Dougal Varnish Co., Ltd...Montreal.
R. F. Johnston Paint Co, Cincinnati, Ohio.
Ventilators.
Paul Dickinson, Inc. .....Chicago, Ill.
Vessels.
Polson Iron Works .....Toronto.
Washers.
Montreal Rolling Mills Co. .....Montreal.
Waste.
B. J. Coghlin & Co. ..... Montreal.
N. L. Piper Railway Supply Co..Toronto.
Water Softeners.
Babcock & Wilcox, Ltd. .....Montreal.
Dearborn Drug & Chemical Co., Chicago.
Water Towers
John Inglis Co., Ltd. .....Toronto.
Welding.
Goldschmidt Thermit Co. .....Toronto.
Wheelbarrows
F. H. Hopkins & Co. .....Montreal.
Meaford Wheelba'ow Co., Ltd., Meaf'd, Ont.
Wheels, Car.
Canada Iron Corporation, Ltd..Montreal.
Canadian Car & Foundry Co. ....Montreal.
Peteler Car Co. .....Minneapolis, Minn.
Jas. W. Pyke & Co. .....Montreal.
Silliker Car Co., Ltd. .....Halifax, N.S.
Standard Steel Works Co.Philadelphia, Pa.
Wheels, Locomotive.
Canada Iron Corporation, Ltd..Montreal.
Wheels, Rolled, solid forged.
Standard Steel Works Co.Philadelphia, Pa.
Wheels, Steel Tired
Standard Steel Works Co.Philadelphia, Pa.
Windmills.
Ontario Wind Engine & Pump Co..Toronto.
Wire and Wire Rope
Dominion Wire Rope Co. .....Montreal.
The B. Greening Wire Co...Hamilton, Ont.
Mussens Limited. .....Montreal.
The Wire & Cable Co .....Montreal.
Wire Cloth.
The B. Greening Wire Co...Hamilton, Ont.
Wire, Copper.
E. F. Phillips Elec. Works, Ltd...Montreal
The Wire & Cable Co .....Montreal
Wire, Electric.
Chapman & Walker, Ltd.....Toronto
E. F. Phillips Elec. Works, Ltd...Montreal
The Wire & Cable Co .....Montreal
Wire, Insulated, Copper.
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The Wire & Cable Co .....Montreal
Wire, Telegraph and Telephone.
Chapman & Walker, Ltd.....Toronto.
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The Wire & Cable Co .....Montreal.
Wire, Transmission and Trolley.
Chapman & Walker, Ltd. .....Toronto
The Wire & Cable Co. .....Montreal
Wire.
American Vanadium Co. ..Pittsburg, Pa
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Yachts.
Polson Iron Works, Ltd.....Toronto

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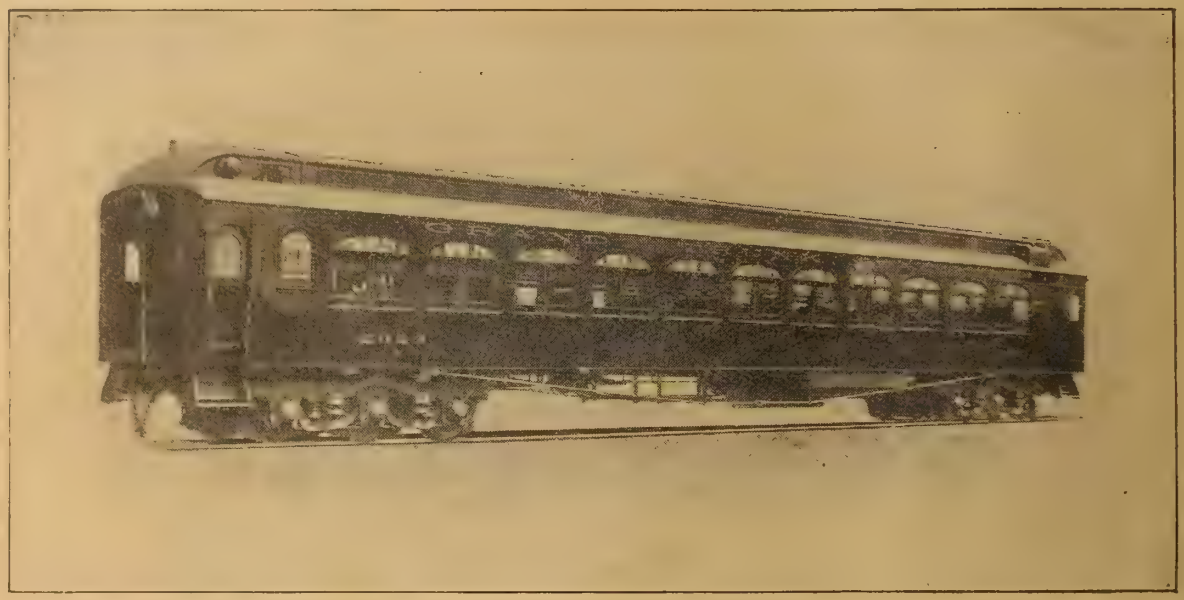

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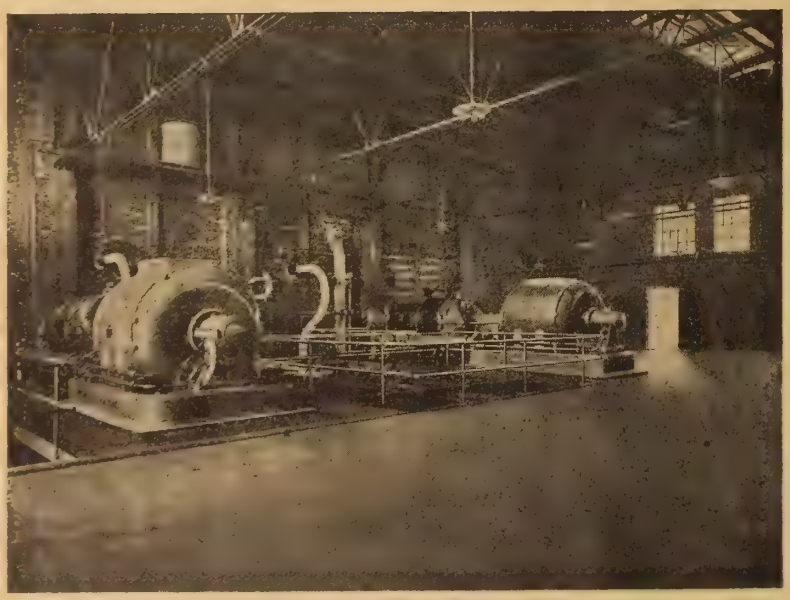

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Old Series, No. 235. New Series, No 153.

TORONTO, CANADA, NOVEMBER, 1910.

For Subscription Rates, see page 941.

Some Thoughts on Training Apprentices.

By P. McLaren, Machinery Expert, Grand Trunk Railway.

Amongst the many questions that give the present day superintendents and master mechanics food for earnest thought and consideration, one which holds a very prominent place, is the technical education and training of apprentices. Having taken considerable interest in this matter, I have ventured to give you some of the impressions received from my study of the subject, both from personal observation and otherwise. The first thing that strikes the student of this subject is that nearly every technical school and machine shop in the country has a different system of education. In fact, there seems to be about as many different conceptions or what a machinist or an engineer ought to know as there are teachers trying to instil that knowledge. Therefore, although not a teacher, I suppose I am in order in giving my humble opinion.

I read somewhere once that the training of a machinist could be placed under three headings. First, cutting metals with intelligence; second, putting together the work cut; and third, the laying out and inventing means of doing it. Now, although the first was the only division mentioned as requiring intelligence, I presume that it will be granted that there are degrees of it wanted in the two latter. But the thing which impressed this paragraph more especially upon my mind was the peculiarly broad divisions which were made of the whole education of a machinist.

As I take it, the machinist in his simple form is one who can manipulate the various classes of machines used in the average shop, with sufficient intelligence and understanding to make him a paying investment to his employer. Now, to do this, and do it well, it is not indispensable that he should have any training either in mathematics or drawing. I call to mind just now one of the best workmen I ever knew, one who could not sign his own name, yet in every way he was a thoroughly capable machinist. What he might have been had he had the present-day education I am curious to know. And that is the reason we who take an interest in this matter are so anxious to see some good form of technical education more generally adopted than stands at present.

It has been a great pleasure to me to see how many large corporations on this continent are going so seriously into the matter of education. I must say, however, that I think that several of the conditions under which this education is given by some of these companies are rather against my ideas of what should be. To begin with, I think that compulsory education right through is a mistake, and in many instances a waste of the company's money and the teacher's time and temper, as quite a proportion of the lads in a shop are not gifted with the ability or ambition to make satisfactory students, although they may make good workmen, and are quite content to be machinists and nothing more, which is very satisfactory in its way. As you know, "if we are all skippers, there will be nobody to row the boat ashore." But I would insist upon attendance at classes for the first year apprentice. Then if it is found that the lad has not the necessary mental equipment but is making fair shop progress, I would allow him to drop out of the classes and stick to his work. "You can bring a horse to water, but you cannot make him drink," and it is just as hard to make an apprentice stick to his mathematics and drawing if he has no heart in it. In the case of the lad who is not making good in the shops either, the best thing to do is to drop him, and to advise his parent or guardian to try him at something else.

W. A. James,
Division Engineer of Construction, Canadian Pacific Ry. Western Lines.

Again, I think that all classes should be held in the daytime, for I consider that when a lad has done ten hours solid work in the shops during the day he is not fit either mentally or physically to give his attention to the work at night, unless he is particularly anxious to improve himself. All those present of my generation remember that the way we imbibed our technical knowledge was through the medium of the evening classes, to all of which we went, not only voluntarily, but gladly paying for the same, and therefore we look with somewhat envious eyes on the opportunities which the present-day apprentice has of obtaining a first-class technical education. This is why I say that it is only the lad who is anxious to improve himself who gives his whole attention to the night class. But how much better attention he could give if he were not already bodily and mentally tired, those who have been through the mill know.

It used to be the pride and the pleasure of a mechanic to be able to handle any machine in the shop. With the coming of the specialist, however, this is not so much the case. He should have a fair knowledge of the working of all the various classes of machines, and for this reason in many shops the apprentice is first placed in the machine shop, and if he prove apt at machine work, is kept at it for a time considerably out of all proportion to the time he has to serve, and becomes a good deal of a machine himself. In my opinion, a lad should be sent first of all into the erecting shop for a few months, where, working with a journeyman or an older apprentice, he gets a general idea of where the various parts of the machine or engine go and how they are put together. Thus, when he starts his training in the machine shop, he brings more intelligence to bear on the job which he is machining.

Having arrived in the machine shop, it is of the utmost importance that his career should be closely followed and charted, so that he should, as we said before, get a general knowlege of the various classes of machines. I use the word "general" advisedly, as it is not to be expected that the average lad will become expert on any one machine in the time he can be kept there if he is to get a fair passage through the shop, although, in these days of contract prices and standard times, he is required to give pretty close attention to the work in hand if he is to earn any bonus. Here is where the necessity for charting and following up comes in, as two reasons combine to keep the bright youth stationary in the shop. One is, if he becomes proficient in any one class of work, he finds himself at the end of each month with a good bonus, which he is loth to give up for a problematical one on another or untried machine. In the second place, the foreman who is harassed with the necessity of keeping the other departments going with finished

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work, finds that he is getting such good results from this particular machine that he just hates to let such a good producer go. But it must be done if this lad is to have his fair chance of training and another to have his chance. Therefore, the necessity of a chart showing the progress of the lad through the department, the time he was at each class of work, and his percentage of marks for progress made during the time he worked on each class or division of machines on which he was employed. These charts, I would say, by the way, should follow the lad from his first start until he becomes a journeyman, when a certified copy of same should be handed to him.

After passing through the machine shop, I would then send the lad to the fitting bench, there to be thoroughly instructed and practised in the arts of chipping and filing, for I consider nothing else is of so much importance to a mechanic as to be able to use his hammer, chisel and file well—an accomplishment which, in these days of air hammers and accurate milling machines, I am afraid is very apt to become obsolete in our large workshops. Of course you must not imagine that I am not aware of the value and profit to the shop in the use of the above-mentioned tools. At present, however, I am talking of the making of the mechanic and not of the making of money. We all assume that when the mechanic is made he represents a good investment, which he surely does, if not to the company which trained him, at least to the country at large.

We must always keep in mind that it is the man of hands and head that we want as a mechanic. The head without the hands is of little value, and while the pneumatic tools and accurate machines are what we want, and must have, to run the shop, still I have seen more time wasted waiting to get a hammer, or the hose, or perhaps to hunt up a special chisel, than would have done the work two or three times over by hand. The same applies to taking a job back to the machine shop to have it eased a bit, while a man who can use a file well would have it finished and up into place in the time that was consumed in carrying it out and back. It is a bit like the Mexican who will spend half an hour to catch a pony to ride half a mile.

During his progress through the fitting shop the lad gets a good insight into the motion work, air brakes, tool-room practice; and a particularly useful school is a spell with the millwrights, after which he may be handed over to the erecting shop foreman as a good, useful member of his staff to complete his time. With regard to patternmakers' apprentices, I would have them serve at least one year in the foundry.

So much for the mechanical part of the training. Let us now look at the theoretical side, where there is room for a great diversity of opinion. With the G.T.R. Co., the first thing a would-be apprentice is required to do is to show that he is physically and mentally equipped, the former being decided by the company's medical officer, while the latter is attended to by an examination held in the master mechanic's office. This examination is usually conducted by the chief clerk, and consists of reading and writing, also a few examples from the first three rules in arithmetic. Having satisfactorily passed these tests, he is eligible for a probationary term of one month in the shops, after which he is indentured as an apprentice. In this indenture he agrees "to attend such classes for instruction in mechanical drawing and practical mechanics as the company may arrange for." These classes have been very successful indeed, and the development of the boys, from year to year, is most satisfactory. The company has been most happy in its choice of instructors, the results obtained being ample evidence of this. The classes extend from Oct. to April inclusive, two per week of two hours each—one in mechanical drawing, the other in practical mechanics. Both are carried out under lines and from books prepared by the company's Chief Draughtsman at Montreal. For the drawing classes, the boys are provided with drawing board and T and set squares. The class of work is very carefully graded according to the year of the apprentice, and the same with the practical mechanics. The first year boys, commencing at addition, proceed by easy stages as far as square root, the second year, in addition, taking levers, pullies, uniform motion, and centrifugal force. Third and fourth year students take extra work to the extent of a thorough grounding in work and horsepower, whilst the fifth, or last year apprentices' studies include properties of metals and a general lot of problems on useful subjects. You will thus see that when a lad has taken in the whole course properly he has got a first-class groundwork, supposing he wishes to qualify himself for the higher positions. At the termination of each year of the lad's time, he goes up for an examination in mechanical drawing and the theory of shop tools and practice. After passing this, he receives his advance in pay. In this examination, the first, second, and third year boys draw from small blue prints, making their drawings either to a full or half size scale as may be required, while the fourth and fifth years are required to sketch from the part of an engine which is brought in from the shop for the purpose, and then lay it down to scale with all the necessary dimensions on. In every instance the drawing is inked in and fully finished. The marks for this examination are divided into three equal divisions: drawing, theory, and practical or shop work. The two former are awarded by the examiner, and the latter by the foreman under whom the lad is working at the time. By these means a fair average of the boy's ability and industry is arrived at.

The system is working very well, and the company is very liberal in its prizes to the most proficient in each year at each centre where the classes are held. At the close of the term, when the examinations are all finished, the boys gaining the highest percentage of marks in each centre are brought together at one point and compete for the company's system prizes of $25 for each subject. By this means a good, healthy rivalry is set up between not only the boys individually as classmates, but also between them and their teachers as representing one centre against the system at large. This gives an added interest to the examinations.

There is still a side of the apprentice question which is not to my idea sufficiently taken care of. His work hours are well looked after and his play hours partially. I expect to be considered Utopian in my ideas, but I am sure that we have always a larger percentage than we give credit for of seriously minded and smart lads who would, if they had the opportunity, make very extensive use in their spare time of what I might term an experimental workshop or laboratory, fitted with several small machines, forge, etc., in which they could try out their many ideas. Which of us has not had the idea at one time or another that he would be another Stephenson if he only had the opportunity to work out his ideas? But it is only given to very few lads to possess even a lathe of his own, and, assuming he has one, he is groping along in the dark, and just for want of a little guidance here or there finds himself at a standstill, and eventually throws the thing up in disgust and drops off into idle habits. Now, if this experimental workshop were placed at the disposal of such for one or one and a half hours two or three nights a week, under the care of a capable instructor—who would also require to be a man of tact and patience—I am sure we would foster the taste for the work to a high extent. I would provide the boy with the raw material at cost price, and have him make his design first, and submit what he proposed to make to the instructor, who, on examining it, would be able to point out the weak spots to the lad or help him over any difficulties in his design. This would teach the lad how to use his brains in designing work and make him much more useful in the shops in the way of reading and understanding any drawings he might be called upon to work from. The opportunity to do drawing alone would be of no use unless he could manufacture the model and see it going for himself, because he would not be quite satisfied that what was told him was right until he had encountered the practical difficulties in the making. Besides this he would be able to gratify his desire to make things in a legitimate way, instead of, as we all have seen, dodging the foreman whilst doing a bit of private work, which he has to smuggle out of the gate under his coat, and feel mean and lose his self-respect in so doing.

The foregoing paper was written for presentation before the Canadian Railway Club.

Duluth, South Shore and Atlantic Ry.

The report for the year ended June 30, shows the following results, as compared with those of the previous year:

Railway operations:	1910.	1909.
Operating revenue	$3,302,147.03	$2,719,337.86
Operating expenses	2,269,247.84	1,979,518.07
Net oper. rev'e	$1,032,899.19	$ 739,819.79
Outside operations:		
Revenue	$ 69,942.62	$ 66,248.97
Expenses	61,351.79	58,382.76
Net revenue	$ 8,590.83	$ 7,866.21
Total net revenue	$1,041,490.02	$ 747,686.00
Taxes accrued	225,917.63	203,599.70
Operating income	$ 815,572.39	$ 544,086.30
Other income	61,322.44	146,208.67
Gross income	$ 876,894.83	$ 690,294.97
Int. on bonds	$ 876,219.17	$ 862,805.00
Other deductions	352,390.62	28,936.81
Total deductions	$1,228,609.79	$ 891,741.81
Net loss	$ 351,714.96	$ 201,446.84

The general balance sheet shows assets of $49,270,144.66, and liabilities of $52,880,840.84. The charges to additions and betterments during the year were $381,401.12, including additions to rolling stock, which covered three locomotives, 400 box cars, 310 ore cars, five charcoal cars, two cabooses, one boarding car, and air brake equipment. The rolling stock owned by the company includes 85 locomotives, 65 passenger cars, 3,092 freight cars, and 93 miscellaneous cars. The company, which is controlled by the C.P.R., owns 517.44 miles of main line, 67.54 miles of branch lines, and has trackage rights over 20.83 miles of other companies' lines.

There were 3,695,469 tons of freight carried during the year, with an average of $3,546.91 per mile of road, and $1.9659 per train mile, and 719,169 passengers were carried, with an average of $1,850.65 per mile of road, and $1,225.18 per train mile.

The first locomotive taken by the C.P.R. to Winnipeg—the Countess of Dufferin—now restored to its original condition, has been placed on a pedestal in the William Whyte park, opposite the C.P.R. station on Higgins Ave., Winnipeg. An illustration, and some notes as to the history of the locomotive have already appeared in our columns. A tablet is to be affixed to the pedestal and it is suggested that the names of the crew of the first train be recorded on it. They are Geo. Lindoff, engineer; Harry Redpath, fireman; Jas. Doig, conductor; Jas. Trotten, assistant conductor; Robt. Kirkruff and Wm. Thorton, brakemen. The latter is the only one [illegible] in Winnipeg.

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Improvements in Locomotive Boilers.

By H. H. Vaughan, Assistant to the Vice President Canadian Pacific Ry.

(CONTINUED FROM OCTOBER ISSUE.)

B.—Boilers with water tubes.—Steam superheaters and valve gear for superheated steam.—Feed water heaters.

WATER TUBES.—None of the replies received indicate that any water tube boilers are in use.

STEAM SUPERHEATERS.—The replies received from the various administrations with respect to the use of superheated steam are extremely meagre and with one exception those roads which have equipped engines with superheating appliances have done so as an experiment only. The C.P.R. has, however, adopted it extensively and has at present about 475 engines using superheated steam. In 1901 this road applied a Schmidt smoke-box superheater to an 18 by 24 in. cylinder, 4-6-0, freight engine with 62 in. wheels, and the results obtained from this experiment being satisfactory, two years later. two 4-6-0 compound freight engines were equipped with superheaters of the Schmidt smoke tube type. These engines also showed a substantial economy over similar engines without superheaters, and in 1904, 41 simple 2-8-0 freight engines were constructed, 20 of which were equipped with Schmidt smoke tube type of superheater and 21 with the Cole superheater of the Field tube type. The Cole superheaters did not prove satisfactory and were removed after about a year's service, but the engines with the Schmidt smoke tube superheaters were entirely successful and during their first six months service showed a saving of 18% in fuel compared to compound 2-8-0 engines of a similar though slightly smaller type which had been constructed two years previously. This economy was not entirely due to the use of superheated steam, as the compounds were not in as good condition as the newer engines. but it was regarded as showing that the superheated steam engines were more efficient, and that they could with economy be used in place of compound engines which had proved expensive to maintain.

Following these engines the C.P.R. constructed fifty 4-6-0 simple freight engines, 10 of which were equipped with the Schmidt smoke tube, 30 with the Cole return bend smoke tube and 10 with Vaughan-Horsey smoke tube superheater, which is a design developed on that road. Since that time, with the exception of 25 engines equipped with the Cole return bend superheater, all new freight and passenger engines constructed have been equipped with the Vaughan-Horsey smoke tube superheater and 55 engines with the Cole return bend design have also been converted to that type. In addition this superheater has been applied to twelve 4-6-0 simple passenger engines and one 4-4-2 passenger engine. A list of the engines now equipped is as follows:

Number.	Type.	Cylinders.	Driving wheels.	Boiler pressure.	Weight on drivers.	Total Weight	Type of superheater.
1	4-6-0	18 × 24	62. inches.	180	95,425	119,225	Schmidt Smoke Box.
1	4-6-0	22 and 35 × 26	63 "	200	128,000	169,000	" Tube.
1	4-6-0	22 and 35 × 30	63 "	200	147,075	192,150	" " "
10	4-6-0	21 × 28	63 "	200	141,000	190,000	" " "
105	4-6-0	21 × 28	63 "	200	141,000	190,000	Vaughan-Horsey.
115	4-6-0	22½ × 28	63 "	180	141,000	190,000	" "
12	4-6-0	20 × 26	69 "	200	129,450	166,000	" "
1	4-4-2	20 × 26	84 "	200	97,310	170,250	" "
17	4-6-2	21 × 28	75 "	200	139,000	242,000	" "
83	4-6-2	21 × 28	69 "	200	139,300	214,300	" "
20	2-8-0	21 × 28	57 "	200	168,150	192,350	Schmidt Smoke Tubes.
110	2-8-0	22½ × 28	57 "	180	171,900	195,500	Vaughan Horsey.

The results obtained have been on the whole exceedingly satisfactory. Figures derived from extensive service on all sections of the road, and based on the total quantity of fuel delivered to the engines have shown an economy in fuel of from 10 to 15% in passenger service.

A noticeable difference between simple engines using superheated steam and two cylinder compound engines using saturated steam is also found in the greater flexibility of the simple engine. Under conditions favorable to the compound engine when it is working on a level road or otherwise uniformly worked at slow or moderate speeds, its efficiency is equal or but slightly below that of the superheater engine, but when on a undulating road or when worked at high speeds the economy of the superheater engine is decidely superior. No opportunity exists on the C.P.R. of comparing simple superheater steam engines with four cylinder compound engines in passenger service. but as compared with simple saturated steam engines, in addition to the economy above mentioned, superheated steam engines of identical design develop at least 10% greater sustained power and also run more freely and faster.

The figures for economy given above are not for the purpose of showing the best results that have been obtained, but rather a conservative estimate of the average saving that has been effected on a large number of engines working under average conditions, and on which no effort was made to obtain good results from engines using superheated steam rather than from other engines and it is fairly representative of the saving that may be expected.

Experiments to determine the amount of superheat obtained show that with the Schmidt superheater on a 2-8-0 freight engine, having a boiler pressure of 200 lbs. per square inch corresponding to a temperature of 388 deg. Fahr., the temperature of the steam in the steam chest averaged from 440 deg. Fahr., to 480 deg. Fahr., according to the way in which the engine was worked, the higher temperature occurring when the engine was worked to a greater capacity.

Tests of the Vaughan-Horsey superheater in passenger service with the same boiler pressure showed an average temperature in the steam chest of 540 deg. Fahr., averaging from 520 deg. Fahr., to 560 deg. Fahr., according to the way in which the engine was worked

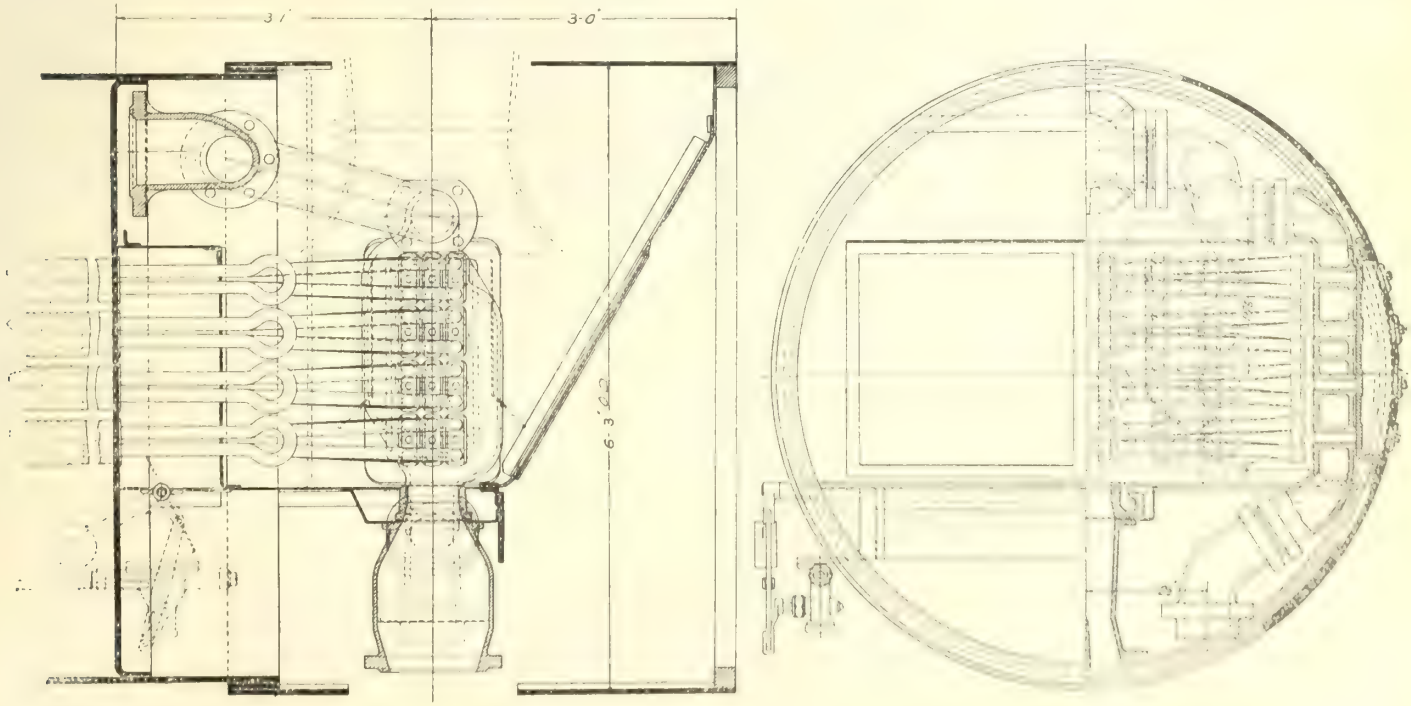

Fig. 40

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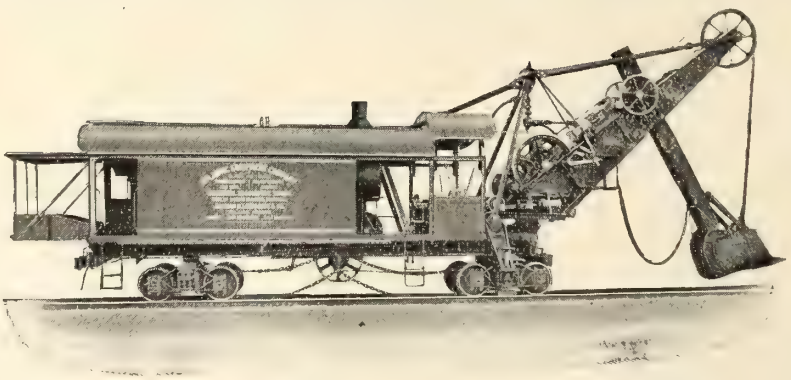

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and in some instances a temperature of 580 deg. Fahr., was slightly exceeded. The Vaughan-Horsey superheater in freight service showed a temperature in the steam chest of 500 deg. Fahr., averaging from 480 deg. Fahr., to 520 deg. Fahr., according to the working of the engine. Experiments that have been made appeared to show that with this style of superheater a rather higher degree of superheat is obtained with a corresponding number of superheater tubes than with the Schmidt superheater, probably due to the form and arrrangement of the headers, but it has been found that no increase in the temperature of the superheated steam is obtained when four superheater pipes are included in one element, or in other words, when the steam is caused to travel through four superheater pipes in its passage from the superheated steam header to the saturated steam header. With the Schmidt superheater, this increase takes place and the superheat obtained is practically the same as with the Vaughan-Horsey arrangement.

Fourteen administrations in the U.S. have experimented with engines using superheated steam, the number of engines reported being 70 in all. The majority of these are equipped with the Vauclain superheater which is somewhat similar to the Schmidt smokebox superheater, with the exception that the large flue used in the latter design by which a high temperature is obtained in the superheater is not used. Information is not available as to the actual result obtained by this superheater, but the tests reported would indicate that the temperature of the steam in the steam chest is from 25 deg. to 40 deg. Fahr.; above that corresponding to the pressure of the steam in the boiler. This test also showed a saving in coal consumption of 11% as compared to a corresponding simple engine. Results reported by other administrations using superheaters of the Schmidt or Cole return bend type are universally favorable to a more extensive use of this device.

Accurate figures are not obtainable but the saving reported in fuel varies from 10 to 28% as compared to corresponding simple engines. Neglecting the extreme figures given it would appear that the experience on these roads very well confirms the average results reported for the C.P.R.

An extensive series of tests was conducted at Purdue University by Prof. Goss for the Carnegie Institute, Washington, D.C., the results of which were presented by him in a paper read before the American Railway Master Mechanics Association in 1909. The economy in fuel obtained with a temperature of the superheated steam of about 150 deg. Fahr., above that corresponding to saturated steam at the boiler pressure averaged from 10 to 15%, and deductions were drawn to show that with a boiler pressure of 180 lbs. per square inch and steam superheated 200 deg. a saving of 19% should be anticipated. This report was criticised at the convention as possibly under-estimating the saving that could be obtained. In the first place, on account of the boiler of the engine on the testing plant being comparatively small, the application of a smoke tube type of superheater reduced the amount of evaporating surface to a greater extent than is the case when the same apparatus is applied to a larger boiler. In the second place the comparisons at high pressures were made against the saturated steam engine under testing plant conditions in which steam leaks of every description were as far as possible eliminated thus obtaining better results on the high pressure saturated steam engine than would be possible in actual service. The results obtained on the testing plant, were also compared upon the basis of equal rates of evaporation,

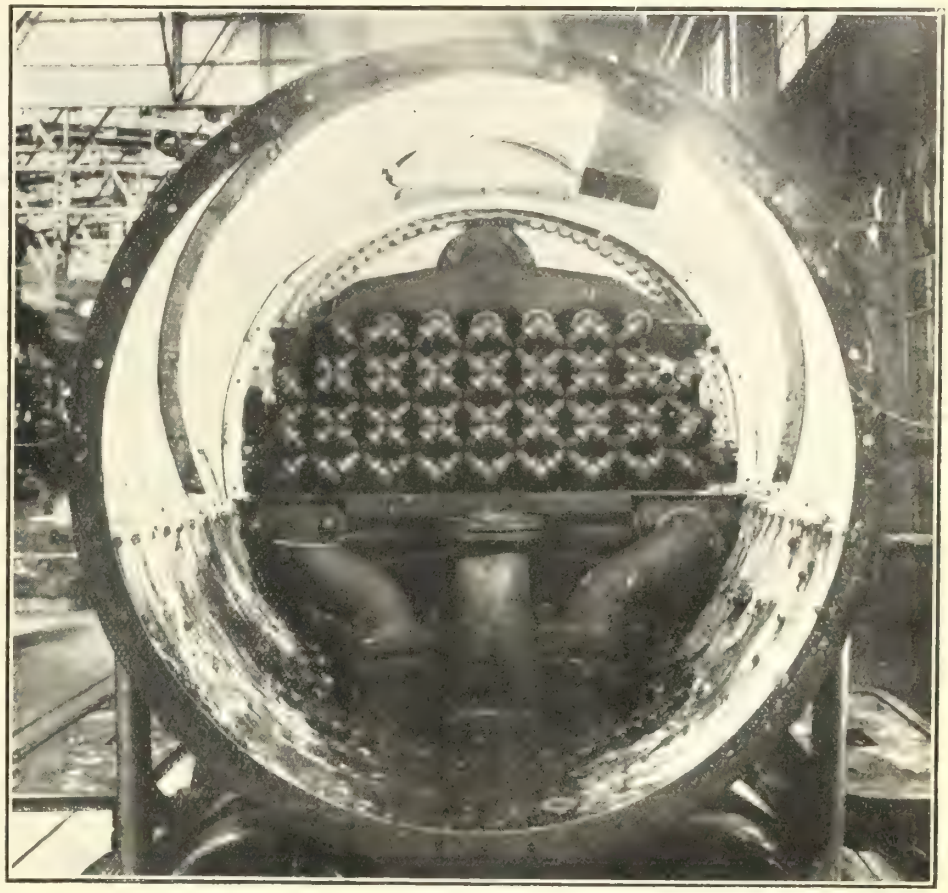

Fig. 41.

while under service conditions, in which an engine using superheated steam is worked in comparison with one using saturated, the comparisons are actually referred to equal amounts of power developed. This leads to two possible explanations of the greater economy reported in road service than that obtained in a testing plant. The first is that whereas with the smoke tube type of superheater, in which steam of a greater thermal value is delivered to the engine, and a portion of the products of combustion are ejected at the front end of the boiler at a higher temperature than would be the case in an engine using saturated steam, it would be expected that the economy in water consumption would be greater than that in fuel, it is universally reported that actual experience shows the reverse. This would at first appear contradictory but consideration will show that as the efficiency of the boiler varies with the rate at which it is worked, any saving in the steam consumption will lead not only to a corresponding saving in fuel consumption, but to a greater saving, in proportion to the decrease in the rate of combustion. Thus, assuming a decrease in the steam consumption when an engine is exerting a given amount of power of 20% and neglecting the difference in the evaporative efficiency of a boiler delivering superheated steam from one delivering saturated steam, a decrease of 20% in the steam evaporated will lead to a decrease in the coal consumed of from 25 to 30%, on account of the lower rate of combustion and the more efficient transfer of the heat from the products of combustion to the water in the boiler. This increase in efficiency is evidently more than sufficient to balance the decreased efficiency of the superheated steam boiler as compared to the ordinary boiler, and the anomaly of the greater saving in coal than in water is thus explained. In the second place any cause leading to a reduction in the demand on the fireman enables him to fire more carefully and by doing so obtain better results than when his energies are over-taxed. On a test plant this condition does not exist as the firing is uniformly performed with the greatest care in order to obtain comparative results, but in road service the reduced consumption of steam of a superheater engine may lead to a greater economy than anticipated owing to more economical firing.

The general experience in Canada and the U.S. therefore with regard to the use of superheated steam may be summarized by the statement that a substantial economy in coal has been effected, that on account of conditions this economy is not as great in freight service as in passenger service, and in the latter a considerable benefit is obtained from the increase in the capacity of the engine. As against this advantage there are two possible disadvantages, viz., an increase either in the cost of maintenance or in the number of failures or breakdowns on engines when hauling trains.

With reference to the cost of maintenance no figures are available except on the C.P.R. and on this road comparisons are made difficult, by the fact that for some years previous to the introduction of the simple engine using superheated steam, the engines constructed had been of the two cylinder compound type which have proved exceedingly expensive to maintain. It is therefore impossible to present accurate figures comparing an ordinary simple engine with those of a corresponding type using superheated steam, but it may be stated, that a careful study of the cost of repairs on this road shows that the cost of maintenance of superheaters is little, if any greater than that which would be expected from an ordinary engine. The addition of any de-

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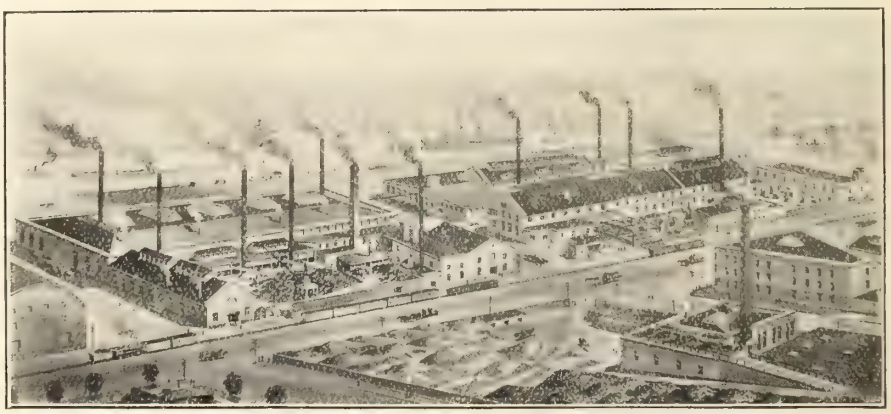

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vice of this nature must necessarily entail some increased cost of maintenance. This additional cost would be offset to a certain extent, or possibly entirely by the elimination of the damage occasionally caused by the presence of water in the cylinders, and the engines have, on the whole, proven exceedingly economical in maintenance, and it is not felt that in this respect the addition of a superheater is likely to prove at all serious.

The increase in engine failures on account of the application of a superheater was at first very small. As the number of engines in service increased, it became more serious, which led to steps being taken to remedy such trouble as developed, and during the last year or more, difficulties have been almost entirely overcome. Most of the troubles occurred through leaking at the connection of the superheater pipes to the headers. This developed on both the Schmidt and the Vaughan-Horsey types, but especially with the latter. With the Schmidt superheater, leaks would occasionally develop between the flanges into which the superheater pipes are expanded and the face of the header; if neglected, and experience showed that these leaks might easily be neglected as they did not appear to at first affect the steaming quality of the engine, the face of the header became eroded and the work of remaking the joints would be rendered difficult and expensive. This difficulty was entirely overcome by the fastening of each flange to the header by four studs in place of the clips used in the original design, and with this alteration the trouble from leakage at this point has practically disappeared. In the Vaughan-Horsey superheater, considerable trouble has occurred through the nuts getting slack, which connect the superheater pipes to the header fittings. This was found to be largely due to their not being of a sufficiently good fit, and has been overcome by better workmanship, a heavier design of nut, and the application of a simple type of lock nut which prevents any movement taking place.

Both designs of superheater are liable to one other and very annoying trouble, the occasional burning out of the return bends which connect the superheater pipes to the fire-box end. This is caused entirely by not properly maintaining the dampers which prevent the heated gases passing through the superheater tubes when steam is not being used by the engine and the superheater pipes are empty. The difficulty does not develop immediately, and if the dampers are not kept in proper operating condition, some time may elapse before any effect is shown. When the failure of a return bend occurs the superheater pipes or return bends are found to have been badly damaged by exposure to high temperature for a considerable length of time. The remedy for this class of failure is of course the proper maintenance of the dampers, and this in turn is largely affected by their proper design, so that it is important that they be arranged so as to work properly, and the possibility of their binding or becoming stuck in an open or shut position must as far as possible be avoided.

Reference has been made to various designs of superheater. The Schmidt smoke box and smoke tube superheaters used in the U.S. and Canada are of practically the same design as those which have been extensively used in Europe. The Cole superheaters are not now used, but have been superseded by a design of smoke tube superheater which has recently been developed by the American Locomotive Co., and is illustrated in figs. 40 and 41. The superheated and saturated steam headers are arranged on either side of the smoke-box and the

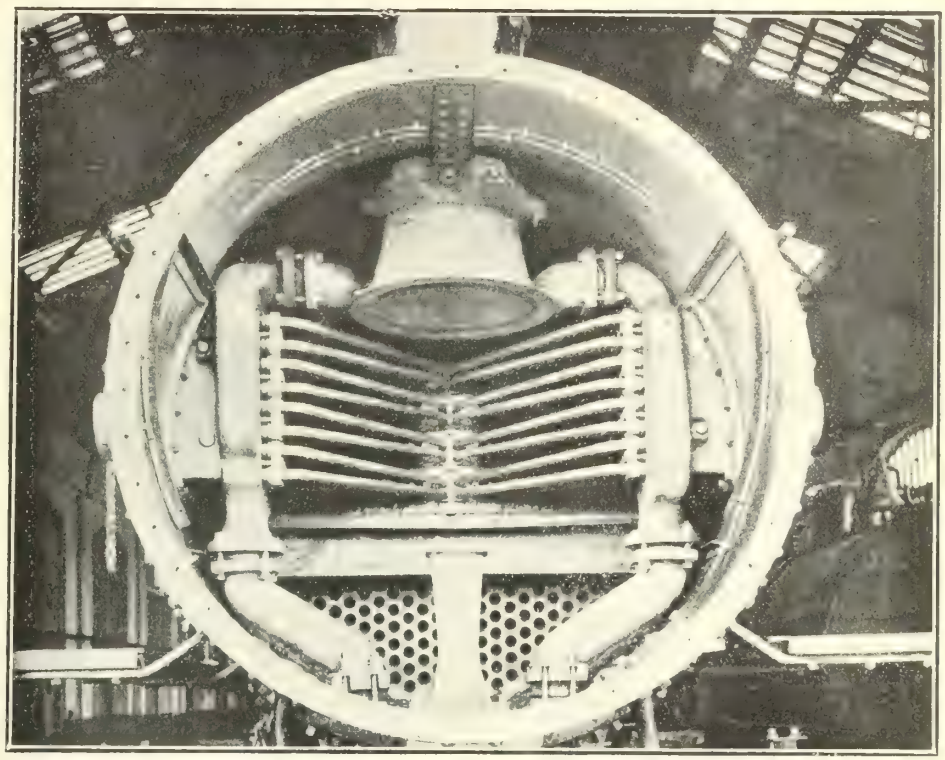

Fig. 42.

superheater pipes are bent to these headers, the connections being made by ground rings having a flat face on one side and a spherical face on the other, similar to those used for making steam pipe joints in American practice. The superheater pipes pass through a diaphragm plate in the front of the tube sheet, and small malleable iron fittings are used to fill up the spaces around the tubes and support the popes where they pass through the diaphragm plate. The arrangement of this superheater is clearly shown in the drawing, and does not call for any explanation. It has been applied, or is being applied, to 25 engines on 10 different railways and should apparently prove entirely successful, as it combines the requirements of flexibility in the superheater pipes to allow of expansion, together with ease of accessibility to the joints and superheater pipes.

The Vaughan-Horsey superheater which has been referred to, is illustrated in figs. 42 and 43. In this superheater, the headers are placed directly in front of the tube sheet, and each header is provided with a number of sub-headers. The sub-headers attached to the saturated and superheated steam headers respectively being disposed alternately in vertical rows. To each sub-header superheater pipes are connected, passing through the superheater tubes on each side of the sub-header, while the connections between the superheater pipes and the sub-headers are made by union nuts and fittings, shown in detail in fig. 44. It will be seen that these two designs of superheaters, the American Locomotive Co.'s and the Vaughan-Horsey, are in many respects similar to the Schmidt smoke tube superheater, but vary from it in the design and arrangement of the headers and superheating pipe connections.

In American practice, no advantage is gained by exposing the ends of the large superheater tubes at the smoke-box end, for the purpose of cleaning, as tubes are invariably cleaned from the fire-box end, and the chief objects desired have been found to be ease of accessibility to the joints between the superheater pipes and the headers for the purpose of inspection and tightening of joints, and the possibility of removing one element or pair of superheater pipes without disturbing any others.

With the later design of Schmidt smoke tube superheater, this can easily be effected, but with the earlier designs the removal of one element of superheater pipes from one of the top rows of superheater tubes, necessitated the removal of two or three sets of joints, and possibly loosening and disturbing others. With the short time available for repairs on engines in America, on account of the large amount of mileage they are expected to make, any device causing delays at terminals for repairs is strongly objected to. With the Vaughan-Horsey type of superheater, any pair of superheater tubes may be easily removed without disturbing others, and this advantage is also found to an almost equal extent in the American Locomotive Co.'s superheater. In both cases also, if superheater pipes are defective they can be removed and blank joints applied to the headers in their place, and the pipes replaced at the first convenient opportunity.

With the exception of the original engine referred to as having been equipped with the Schmidt smoke-box superheater all engines equipped with superheaters in the U.S. and Canada have used the ordinary type of piston packing, piston rod packing, piston valve and piston valve packing rings, commonly used in the U.S. for saturated steam. The practice varies slightly on different roads but fig. 45 shows the design of these various details used on the C.P.R., which may be accepted as fairly representative. The only detail in which any difficulty is experienced is with the packing rings in the piston. These are found to wear considerably more quickly in engines using superheated steam than in those using ordinary saturated steam, the average life in the former case being about two months against eight to ten months in the latter. It is not due to any absence of lubrication as the cylinders and pistons when examined appear to be thoroughly well lubricated and it is affected considerably by the

Results Are What Count

A Combined Skidding and Loading Machine that will clear up the largest area at a setting and can be moved and set up ready for business in the shortest possible time will get the best results

The latest Russel Machine has some distinct improvements that save time and trouble, consequently money. Note the new method of suspending the skidding sheaves. They are hung from a vertically hinged jib or triangle the outer end of which is guyed by two lines, one on each side, which are power tightened and can be set while skidding lines are going out. The guy lines lead back so they do not interfere with either skidding or loading.

The uppermost leg of the jib has a spring connection to the tower, reducing shocks. All strains due to skidding are absorbed by the guy lines. The swinging boom is operated by wire ropes passing through sheaves suspended from a steel frame projecting from the tower and leading to two drums on loading engine, controlled by one lever. Machine is raised or lowered by hydraulic or patented geared jacks.

Built for 2 or 4 lines with stiff or swinging boom. Constructed entirely of steel, except loading boom.

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RUSSEL WHEEL & FOUNDRY CO.

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quality of the material used in the rings. If the latter are of hard, close-grained cast iron considerably better service is obtained, but the wear becomes exceedingly rapid if the quality of the iron is soft, and this is noticeable to a greater extent than in engines using saturated steam.

It has been found that the best lubrication is obtained by the use of an ordinary type of sight feed lubricator in which the oil is carried into the cylinder and steam chest by a small jet of steam A number of lubricators of the forced feed or pump type have been used, but have not on the whole given good satisfaction. The rate at which they feed the oil does not correspond to the requirements, as it is in proportion to the number of revolutions of the engine, in place of a uniform rate per minute, whereas the greatest amount of lubrication is required per minute when the engine is working slowly up heavy grades at a small number of revolutions. The sight feed lubricator is quickly and easily adjusted to give an increased amount of oil per minute, but under these conditions pump feed lubricators work exceedingly slowly and require constant adjustment to deliver proper amount of oil. On account also of the loss of pressure in the steam passing through the superheater, there is always a sufficient difference in the pressure between the boiler and the steam chest to ensure a regular amount of oil being fed to the cylinders with the sight feed lubricator, so that it has given more satisfactory results on superheater engines than on those using saturated steam, in which the steam chest pressure is frequently very closely equal to that of the boiler.

The packing for piston rods and valve stems shown in these illustrations is to a certain extent special in form. The type of packing previously used, in which a plastic ring of metal was pressed into a cone shaped collar fitting over the rod, proved at first unsatisfactory when using superheated steam on account of the melting point of the plastic metal used not being sufficiently high. Subsequent experiments have, however, shown that when the latter contains approximately 40% of lead, 50% of copper, and 1% tin, this form of packing gives satisfactory results. In general, no special difficulty has been experienced with forms of packing successful on saturated steam engines, except the occasional necessity of using a metal having a higher melting point.

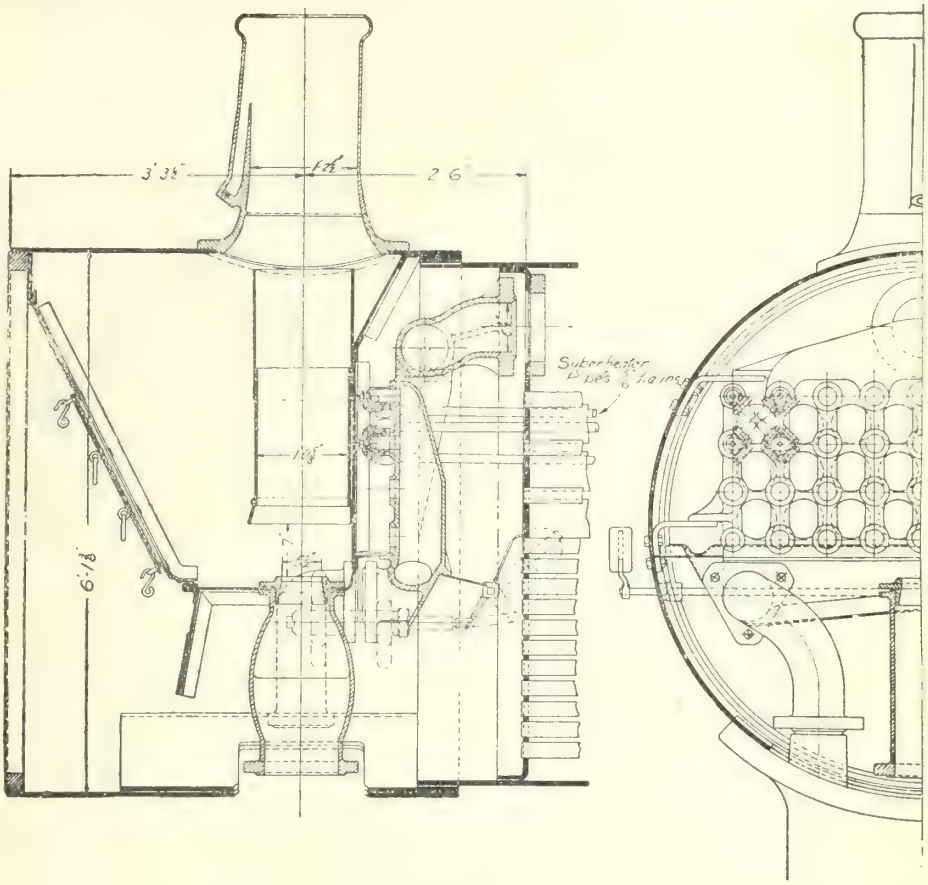


Fig. 43.

FEED WATER HEATERS have only been used to a slight extent, in an experimental way. No information has been furnished by any of the administrations replying with reference to the results obtained, and your reporter is therefore unable to present any information with reference to them. The saving in fuel consumption is, as is well known, 10% for every 10 deg. Fahr. increase in temperature of the water passing through the heater, and some economy has been obtained on certain roads by passing the exhaust from the air pump into the tender. This practice has proved satisfactory, with the exception that the enginemen are obliged to watch the temperature of the water in the tender closely in order to prevent its becoming too hot to be lifted by the injectors. Roads using this practice frequently use the non-lifting type of injector which will work when the water is at a temperature of 130 deg. Fahr.

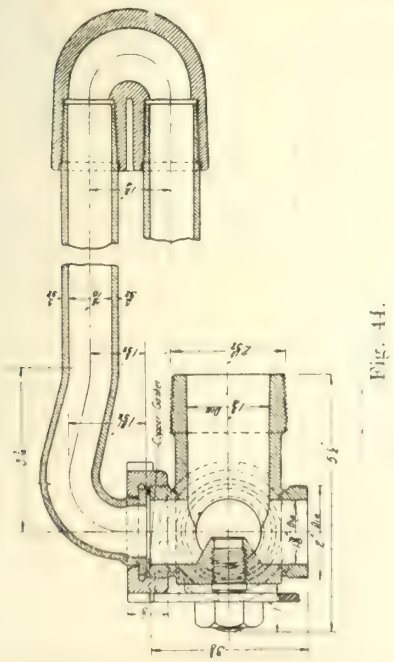


Fig. 44.

Lake Superior Corporation.

The report of the Lake Superior Corporation for the year ended June 30, states that the result of the year's operations of all the subsidiary companies shows a surplus, subject to depreciation and other charges, of $1,194,735.22, which has been applied as follows: Losses on assets realized and bad and doubtful debts written off, $159,031.49; written off in respect of discount on securities sold, $160,000; reserved for renewals, doubtful debts, etc., $90,232.54; to be paid to the trustee of the mortgage and deed of trust securing the note issue of the Lake Superior Iron and Steel Co., as a sinking fund for the payment of notes at maturity, in accordance with the provisions of the deed of trust, $220,752.27; paid by the subsidiary companies to the Lake Superior Corporation as interest and dividends, $564,718.92. The directors have given special attention to the accounts of the subsidiary companies with a view of clearing up all outstanding accounts, many of which extend over a period of several years, and should have been attended to before. They have also similarly given attention to the investigation of the assets of the subsidiary companies, and the auditors say: "Large sums have been written off for losses found to exist in inventories of material, etc. . . . . Taken as a whole, we think there has been an earnest endeavor to clear up a large number of matters which should have been cleared up years ago." In consideration of the present position of the company's affairs, and the future prospects, the directors have felt justified

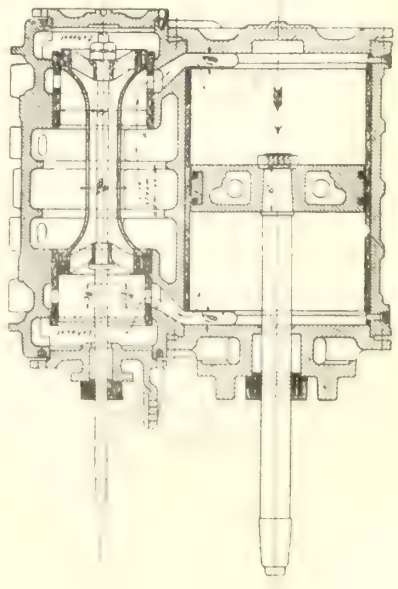
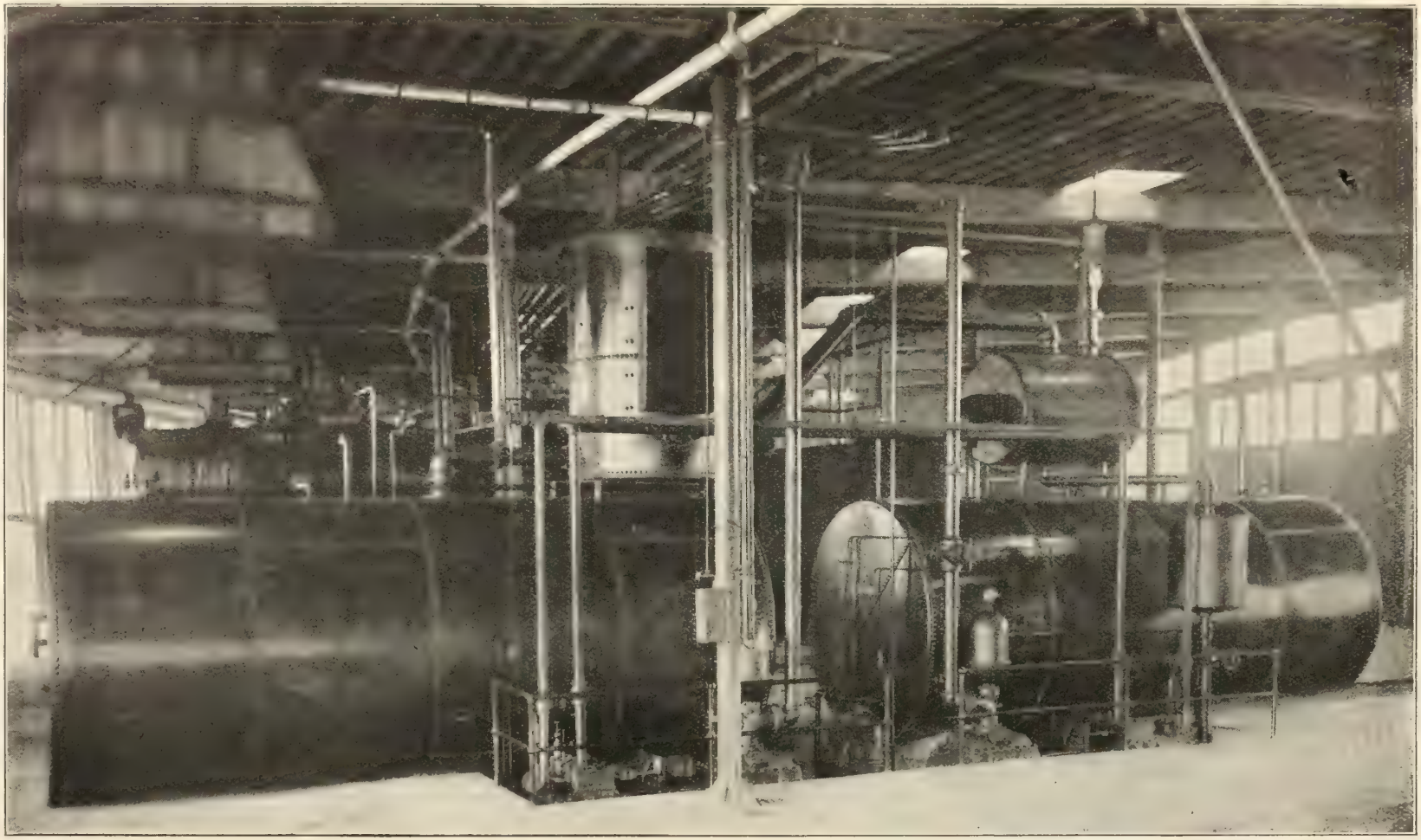


Fig. 45.

NATIONAL



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NATIONAL BOILER WASHING SYSTEM

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This system saves 900 hours boiler washing labor, 537,600 lbs. of coal, 1,024,000 gallons water and 2,048 engine hours per month. Engine hours saved equals three engines per day, filling water averages 190°. This system saves and utilizes the heat units blown out of locomotive boilers and reduces trouble of leaking flues, cracked side sheets and broken staybolts. Washing water automatically maintained 140°. Estimates and blueprints furnished upon request.

The National Boiler Washing Company, Limited, Montreal

in paying interest on the income bonds at the rate of 2½% out of the surplus earnings of the corporation. The output of steel rails was 201,615 tons against 158,465 in the year ended June 30, 1909.

Referring particularly to the corporation's transportation interests, the directors say:

"THE ALGOMA CENTRAL AND HUDSON BAY RY'S earnings for the year have increased, and show an excess over the previous year. The operation of this railway has been conducted under similar conditions to those prevailing during the preceding year. On the assurances tendered to the Dominion and Ontario Governments, the railway legislation affecting this company was, last session, put on a satisfactory footing, to the extent that its land grants and subsidies were renewed, and the company is now proceeding with the construction of its road to a junction with the C.P.R. The complete project, and the entire financial proposals involved in the building of the railway were laid before the stockholders of the corporation, and the scheme was unanimously approved by them, in its entirety, at a meeting held May 6. Towards the end of the financial year the company brought into service a new steamship, especially built for the purpose of carrying steel rails, and the operation of this vessel should add to the company's earnings.

"MANITOULIN AND NORTH SHORE RY.—The operations of this railway for the year have resulted in a material increase. The extension of the road to Crean Hill was duly completed on the schedule date, and on July 20 last the company commenced carrying ore from that point. The entire construction of this line to Manitoulin Island is, at the moment, receiving consideration, and in accordance with our understanding with the Ontario Government, construction is being proceeded with from Little Current towards the C.P.R.

"THE INTERNATIONAL TRANSIT CO. AND THE TRANS-ST. MARY'S TRACTION CO. own and operate the street railways on the Canadian and the U.S. sides, respectively, of the St. Mary's River, and the International Transit Co. owns and operates the ferry across the river. During the year the directors have been able to place the finances of both companies on a satisfactory footing, and the outlook, in consequence, is hopeful. The result of the year's operations shows increased earnings for all branches of operation."

At the annual meeting held in Camden, N.J., Oct. 5, the report was adopted and the retiring directors re-elected. Following are the officers and directors for the current year: President, T. J. Drummond, Montreal; Vice Presidents, J. T. Lea, Philadelphia, Pa.; J. F. Taylor, Toronto; W. K. Whigham, London, Eng.; Secretary-Treasurer, T. Gibson, Toronto; other directors, H. M. Price, Quebec; H. Coppell, J. S. Dale, J. T. Terry, New York; F. McOwen, Philadelphia, Pa.; L N. Lovell, Plainfield, N.J.

Intercolonial Ry. Operations.—We are advised, in respect to the proposed changes in the operation of the eastern division, by which a portion of the existing line would be cut out, and the traffic operated over the 20 miles from Blackville to Chatham Jct., that the matter has been discussed, but nothing has been decided.

The Ontario Railway and Municipal Board has confirmed the assessment made by the Sault Ste. Marie, Ont., town council on the C.P.R. property in the town. The assessment was fixed in 1905 at $50,000 for five years, and that term having expired, the town put a value of $128,000 on the property.

November Birthdays.

Many happy returns of the day to—

J. O. Apps, General Baggage Agent C.P.R., Montreal, born at Tara, Ont., Nov. 9, 1877.

A. B. Atwater, Assistant to President, lines west of Detroit and St. Clair Rivers, G.T.R., Detroit, Mich., born at Sheffield, Ohio, Nov., 1845.

W. F. Brougham, Local Right-of-Way and Lease Agent C.P.R., Vancouver, B.C., born in Westmoreland, Eng., Nov. 25, 1865.

G. B. Burchell, General Manager Maritime Coal, Ry. and Power Co., Joggins Mines, N.S., born at Sydney, N.S., Nov. 1, 1877.

J. R. Cameron, General Superintendent Canadian Northern Ry., Winnipeg, born at Truro, N.S., Nov. 5, 1865.

L. D. Chetham, City Ticket Agent C.P.R. and District Passenger Agent Esquimalt and Nanaimo Ry., Victoria, born at Matlock, Eng., Nov. 5, 1869.

F. H. Clendenning, Assistant General Freight Agent C.P.R., Pacific Division, Vancouver, B.C., born at Montreal, Nov. 9, 1881.

F. Conway, acting General Superintendent Kingston and Pembroke Ry., Kingston, Ont., born at Ernestown, Ont., Nov. 19, 1850.

W. L. Crighton, Advertising Agent Intercolonial Ry., Moncton, N.B., born at Derby, Eng., Nov. 9, 1871.

W. Cuthbert, Fuel and Tie Agent G.T.R., Montreal, born at Longueuil, Que., Nov. 9, 1856.

W. Downie, General Superintendent C.P.R. Atlantic Division, St. John, N.B., born at Rock Currie, Ireland, Nov. 12, 1850.

Jos. Dubrule, Jr., Manager Canadian Pacific Car and Passenger Transfer Co., Prescott, Ont., born at Spencerville, Ont., Nov. 14, 1872.

R. L. Fairbairn, District Passenger Agent Canadian Northern Ry., Saskatoon, Sask., born at Stillwater, Minn., Nov. 24, 1880.

Grant Hall, Superintendent Motive Power and Car Department, C.P.R. Western Lines, Winnipeg, born at Montreal, Nov., 1863.

C. R. Hosmer, director C.P.R., born at Coteau Landing, Que., Nov. 12, 1851.

J. McGillivray, Superintendent Inverness Ry. and Coal Co.'s lines, Inverness, N.S., born at Nairn, Scotland, Nov. 13, 1867.

T. E. Martin, Local Freight Agent C.P.R., Quebec, Que., born at Beauharnois, Que., Nov. 23, 1852.

C. Murphy, General Superintendent of Transportation Eastern Lines, C.P.R., Montreal, born at Prescott, Ont., Nov. 20, 1865.

F. Nicholls, Vice President Toronto Ry., director Canadian Northern Ry., born in England, Nov. 23, 1856.

H. P. Sharpe, General Agent Dominion Express Co., Toronto, born at Brockville, Ont., Nov. 24, 1864.

G. H. Shaw, Traffic Manager Canadian Northern Ry., Winnipeg, born at Smith's Falls, Ont., Nov. 25, 1859.

J. S. Sheppard, Contracting Freight Agent C.N.R., Winnipeg, born at Teeswater, Ont., Nov. 27, 1881.

F. M. Spaidal, General Superintendent Canadian Northern Quebec Ry., and Quebec and Lake St. John Ry., Quebec, born at Gananoque, Ont., Nov. 13, 1858.

J. Sparks, Assistant General Baggage Agent C.P.R. Western Lines, Winnipeg, born in London, Eng., Nov. 25, 1874.

H. P. Timmerman, Industrial Commissioner C.P.R. Eastern Lines, Montreal, born at Odessa, Ont., Nov. 6, 1856.

H. E. Whittenberger, Superintendent Eastern Division G.T.R., Montreal, born at Peru, Ind., Nov. 9, 1864.

Minneapolis, St. Paul and Sault Ste. Marie Ry.

The report for the year ended June 30, shows gross earnings, $24,335,403.98; operating expenses, $14,014,269.81; net earnings, $10,321,134.17. The other earnings, $921,283.34, brought the income up to $11,242,417.51, out of which was met the fixed charges, taxes, etc., $6,004,830.59, leaving $5,237,586.92 surplus. The accounts of the M., St. P. and S.S.M. R., together with the various statistical tables, are shown separately from those of the Wisconsin Central Ry., which is operated as the Chicago Division. During the year the company acquired the Cuyuna Iron Range Ry., 37 miles, connecting with the main line at Lawler, Minn., on the new Bemidji and Cass Lake Division, paying for it out of the proceeds of the issue of $2,200,000 of first consolidated mortgage bonds. The Wisconsin Central Ry. for years owned and operated the Abbotsford and Northeastern Rd., 15.16 miles, and this was on Jan. 29 amalgamated with the W.C.R., the entire stock and bond issue being retired. The W.C.R. terminal property in St. Paul and Minneapolis has been sold to the Chicago Great-Western Rd., and the business is now handled through the Sault line terminals under a 99-year lease. So far as can be ascertained, the directors state, the consolidation of management of the two lines brought about by the lease of April 1, 1909, will be highly beneficial. The full benefit of the consolidation will be more apparent when the several lines entering Duluth are in operation.

The general balance sheet shows assets of $109,315,706.06 to the credit of the M., St. P. and S.S.M.R., with liabilities of $98,977,680.49, leaving $10,338,025.57 at the credit of profit and loss account; and assets of $71,499,642.08 to the credit of the W.C.R., with liabilities of $69,252,806.67, leaving $2,246,835.41 to the credit of profit and loss account.

The Wisconsin Central Ry. owns 986.67 of main lines, has 90.91 miles of trackage rights over the lines of other companies, and 402.66 miles of side tracks and spurs, making altogether 1,480.24 miles of line over which its trains are operated. The Minneapolis, St. Paul and Sault Ste. Marie Ry. owns 2,476.15 miles of main and spur lines, and has trackage rights over 18.94 miles of other companies' lines. Adding to these figures the net mileage of the W.C.R. (1,037.96 miles), the company operates its trains over 3,533.06 miles of track. The 83.37 miles of track land on the Bemidji-Cass Lake line, and the Cuyuna Iron Range Rd. are not included in the figures given.

It was reported at the annual meeting, at which the retiring directors were re-elected, that an issue of $3,600,000 of 4% bonds had been sold.

Following are the officers and directors for the current year: President, E. Pennington; Vice President and Traffic Manager, W. L. Martin; other directors, W. D. Washburn, C. H. Pettit, H. Lowry, A. H. Bright, G. R. Newell, all of whom are at Minneapolis; E. A. Young, St. Paul; Sir Thos. G. Shaughnessy, R. B. Angus, I. G. Ogden, Montreal; Treasurer, C. F. Clement; Secretary, G. W. Webster; General Manager, G. R. Huntington; Comptroller, C. W. Gardner; these officers reside in Minneapolis.

H. W. McAll, Resident Engineer, Northern Division, G.T.R., Allandale, Ont., writes: "Herewith I remit renewal subscription for your excellent paper, which is one of the most useful I know."

The County Court judge at Sault Ste. Marie, Ont., has fixed the assessment on the right of way of the old Ontario and Sault Ste. Marie Ry., a G.T.R. charter, at $28,000, an increase of $17,000 on the old assessment.

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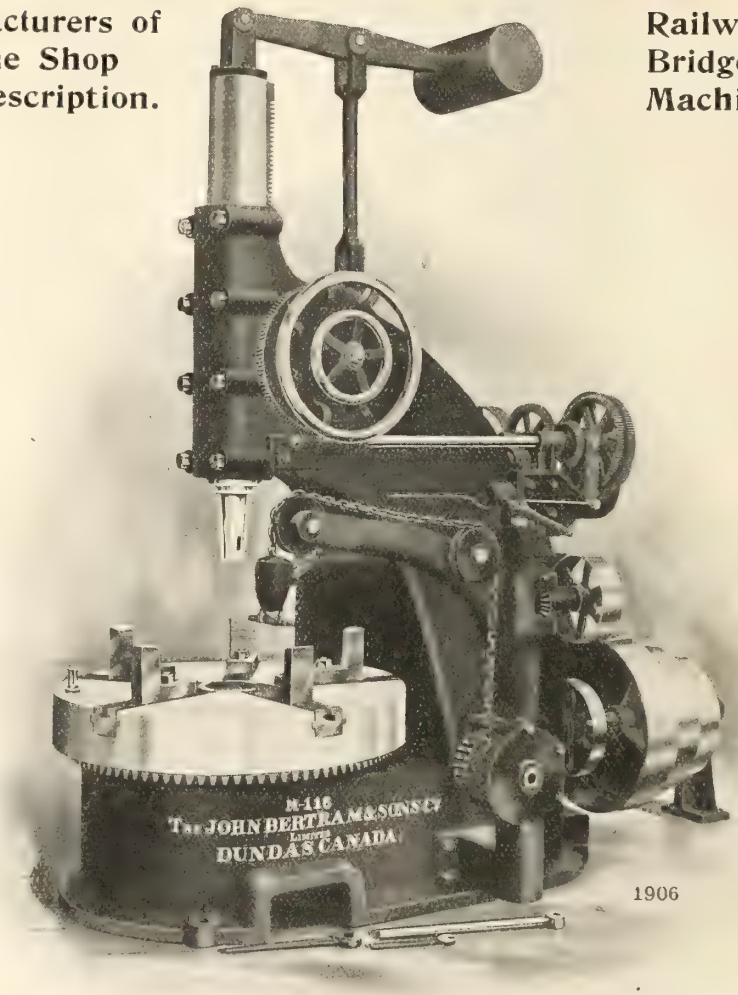
We are Manufacturers of General Machine Shop Tools of every description.

Railway, Shipyard, and Bridge and Boiler Shop Machinery.



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Repairing C. P. R. Boiler Tubes.

In the method of repairing boiler tubes, as done at the C.P.R. shops, West Toronto, there are several features of particular interest, which are worthy of note. In old boilers, the tube ends sometimes become so rusted and corroded, that they must be removed, the ends cut off, and new ones welded on. As a large number of tubes require this treatment, several labor-saving devices have been improvised at the shops with the object of reducing expense, and at the same time improving the quality of the work.

In many shops where new ends are welded on, it is quite customary to merely expand the end, introduce the new piece, and weld in that position, without tapering the ends to fit each other. This method, owing to the sharp ends coming on the flat of the other part of the tube, always leaves a seam around the tube, which tends to weaken it, often producing fracture. The C.P.R. always reams out the end of the tube with a taper reamer to a sharp edge at the end, and the new end is tapered down similarly to fit in.

In reaming out the ends, an improvised machine, fig. 1, is used, unique in some respects. Essentially it is a lathe, the original idea being the feed, which consists of an air cylinder which shoves forward the reamer. Air is controlled by a two-way valve, which allows air out of another passage as desired, to a piece of rubber hose, used to blow the chips away. When the cylinder is released, the piston resumes its initial position by the spring expanding. The make-shift construction of the lathe is interesting. It is formed of two 7 x 7 in. scantlings, on which are attached several wrought iron straps for securing the cylinder, etc. The reamer has a square shank which works in square holes in the cross-sectioned cross-pieces, which prevent it turning. The tubes are rapidly reamed by this method, a greater pressure being given than if fed by hand.

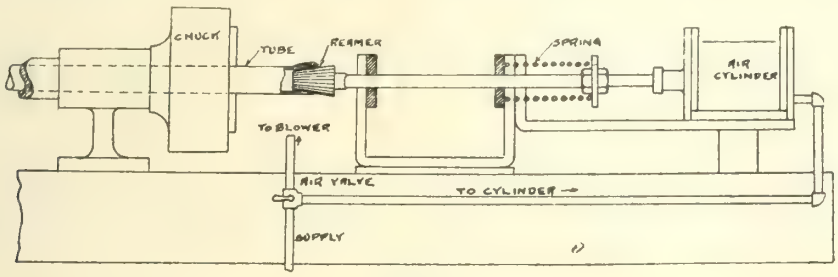

Figure 1.

When ready to be welded, the two parts are placed together, and shoved into a furnace as in fig. 2. The heat has a tendency to loosen the pieces which were lightly placed together, so, if removed when heated without precautions, they would probably part. A simple expedient prevents this. When ready to remove, a tread A, some 4 or 5 ft. back from the furnace, is pressed which slides bar B in its guides, the plate on the end striking the short piece of tube sharply, driving it further into the tube to be repaired, for the pieces are soft from the intense heat. This act in itself practically welds the pieces together, as well as doing what was originally intended, i.e., preventing the pieces falling apart before welding.

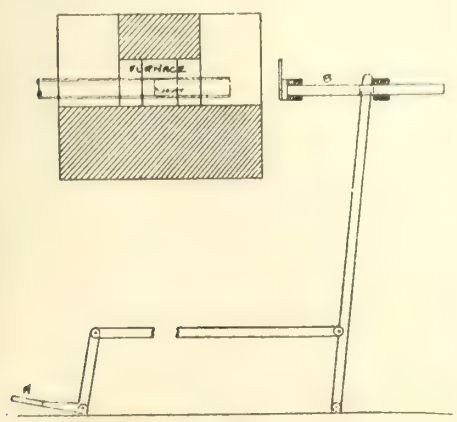

Figure 2.

The welding is done under a quick-acting air hammer, the tube being slipped over a mandrel during the operation.

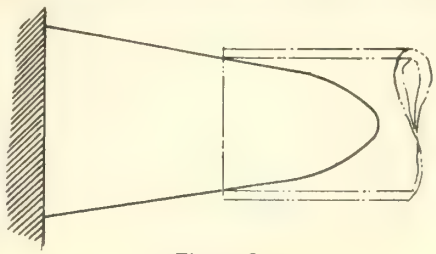

Figure 3.

The process insures a very nearly perfect joint, without mark, the size of the pipe being but slightly below the standard.

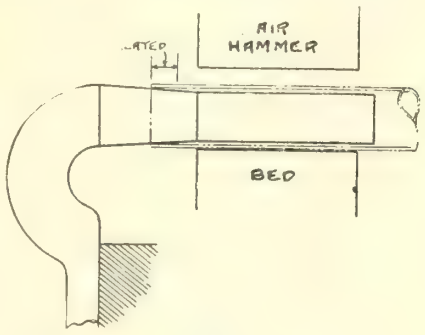

Figure 4.

Before putting into the boiler the back end must be expanded slightly so as to fit the tube sheet better. Formerly, this was done as in fig. 3, by first heating the end of the tube for about an inch, and driving the tube up on a tapered pin, by a couple of men swinging back and forth on to the pin, driving it further each swing till expanded the proper amount, a very slow job.

Fig. 4 shows the method used now for expanding the end. As before, the end is heated, but with the difference that it is now placed on a mandrel, tapered at one end, and under an air hammer. The oscillations set up in the pipe by the quick acting hammer striking the cold part, back from the heat, causes the end to swell, the operation being practically instantaneous, the blows being so rapid. The method is very much quicker and better than the old way, and the production is greatly increased.—Canadian Machinery.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers to distinctly understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

L. M. Booth Co., 136 Liberty St., New York, is distributing a leaflet describing its new type of Booth water softener.

In an article in our last issue on G.T.P.R. machine repair cars, it was stated that the power used is a Fairbanks 6 h.p. gasoline engine. The engines are of Fairbanks-Morse manufacture and supplied by the Canadian Fairbanks Co.

The Goldschmidt Thermit Co.'s quarterly, Reactions, contains a number of well illustrated articles on the use of thermit for the welding of rails and for welding repairs on steamships, etc., in addition to a discussion on the welding of locomotive frames.

W. C. Cuntz, for 18 years with the Pennsylvania Steel Co., has been appointed Vice President and General Manager of the Goldschmidt Thermit Co. of New York, which has a Canadian branch in Toronto. He succeeds E. Stutz, who has retired from the company.

G. McAvity, President T. McAvity and Sons, Ltd., St. John, N.B., is reported to have stated, recently, that it was absolutely necessary for the company to increase its plant, and it was probable that a brass or iron foundry would be established at Port Arthur, Ont., and possibly a branch works at Montreal.

The Safety Car Heating and Lighting Co. has commenced the publishing of a house journal under the name of the Safety Heating and Lighting News. The first number is well illustrated, and contains a lot of useful information regarding the heating and lighting of railway cars, one article being devoted to postal cars, with opinions as to the adaptibility of gas over electric light, by various railway officials, amongst whom is H. H. Vaughan, Assistant to the Vice President, C.P.R.

The Galena-Signal Oil Co. has introduced a new locomotive headlight oil, "Galena Railway Supply Oil B." We are advised that recent government tests, made by the Bureau of Standards at Washington, show this oil to produce, with headlights of ordinary construction, a minimum of 1,800 candle power, and with a headlight equipped with 16 inch optical lens, costing no more initially than the ordinary reflector, and much less for maintenance, a minimum of 2,400 candle power; and exhaustive service tests on a prominent railway have proven its adaptation to this purpose. The high fire test of this oil enables it to withstand the great heat generated by headlight burners without becoming gaseous, a condition developing with inferior oils and resulting in the consumption of much more oil than is necessary. The use of this oil insures immunity from danger resulting from smoked chimneys, damaged reflectors and the frequent burning up of headlights, and reduces, to a great extent, the labor necessary in caring for headlights.

Railway Lands Patented. Letters patent were issued, during August, for railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:

Canadian Northern Ry.	[illegible]
Canadian Pacific Ry.	2.77
Total	[illegible]

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RAILWAY DEVELOPMENT.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta and Great Waterways Ry.—The report of F. J. P. Crean, C.E., of an exploration which he made for the Department of the Interior, in northern Saskatchewan and Alberta, during 1909, has been issued. He reports generally favorably of the land and climate, and in conclusion says the difficulties of reaching a large section of the area explored will no longer exist "when the railway to McMurray, which is now proposed to be built, is completed." Numbers of papers continue to be filed in the courts at Edmonton arising out of the company's affairs. (Oct., pg. 825.)

The Alberta and Saskatchewan Central Ry. Lines was incorporated last session of the Alberta Legislature, to build the lines mentioned in our April issue. The provisional directors are: J. F. Ashe, J. Archer, Edmonton, Alta.; N. F. Hagel, H. W. Adcock, Winnipeg. The bonding power is fixed at $18,000 a mile of railway built. (April, pg. 271.)

Alberta Boundary to Peace River Landing.—A recent dispatch from Edmonton, Alta., states that W. C. Teter, a New York banker, has been in the city in connection with a project to build a line from the U.S.-Alberta boundary, through Calgary and Edmonton, with an outlet to the Pacific coast, via the Pine River Pass. He is quoted as stating that New York capitalists are ready to finance the enterprise.

Alberta Central Ry.—Application was made to the Minister of Railways, Oct. 5, for the approval of the route map of this projected railway from mileage 40 to Sounding Creek, and from Sounding Creek to Moose Jaw, Sask. From Moose Jaw the map shows a line westerly close beside the C.P.R., as far as Caron, where it strikes northerly, following close to the western side of Pelican Lake, crossing the Saskatchewan River almost directly north of Morse, and then westerly via Sounding Creek to mileage 40. The Board of Railway Commissioners has approved of the location of the company's projected line from Red Deer easterly, for 40 miles.

Construction is being pushed forward rapidly on the section from Red Deer to Rocky Mountain House, Alta., about 75 miles. Two camps are at work between Red Deer and Medicine River, and an additional grading outfit has been started west of Medicine River. Gangs are at work at Sylvan River and further west, clearing the right of way. The company is letting its contracts direct, and the grading is being done up to the specifications of a main line, the work being under the supervision of the Chief Engineer, J. Grant MacGregor. It is said that the cement piers for the bridge across the Red Deer River will be built during the winter and the steel superstructure, 1,000 ft. long, will be erected in the spring, by which time it is expected track will have been laid from Red Deer to the bridge site. It is reported in Red Deer that the company will build through to the Pacific Coast, via the Yellow Head Pass. (Oct., pg. 825.)

Alberta Ry. and Irrigation Co.—The Dominion Parliament will be asked to extend the time within which the following lines may be built:—From Cardston to some point in range one, west of the fifth meridian; from between Springcoulee and Mountain View, westerly to the C.P.R., between range two, west of the fifth meridian, and range 27, west of the fourth meridian; from Sterling easterly to range four, west of the fourth meridian, between the C.P.R. and the International boundary; and from between Lethbridge and Sterling to the International boundary between ranges 24 and 30 west of the fourth meridian.

Alberta Railways.—In a recent speech at Macleod, Alta, the Alberta Premier, dealing with the policy of railway extension, said the Government would insist on the completion of work for which bonds had been guaranteed, and would not tolerate a policy of renewing bonuses from year to year.

Algoma Central and Hudson Bay Ry.—T. J. Drummond, President Lake Superior Corporation, has recently completed an inspection of the A.C. and H.B.R., owned by the Corporation. The work at present being done on the line includes the building of the main line to a junction with the Michipicoten branch, an extension to Hobon, on the C.P.R. transcontinental line, and a branch to reach the Magpie iron mines, now being developed. (Oct., pg. 825.)

Atlantic, Quebec and Western Ry.—A receiver has been appointed for the Charing Cross Bank, London, Eng. The assets were stated in a recent report to be £1,607,000, with liabilities to depositors at about £1,000,000. The bank was owned by a private partnership, a Mr. Carpenter being the principal owner. The Carpenters have large interests in the Gaspe peninsula, of which the most important is the A., Q. and W. Ry., now under construction by the New Canadian Co. The Managing Director of this company is C. B. K. Carpenter, and its head offices are in Montreal.

A London cablegram of Oct. 18 says that Carpenter, who filed his own petition, denies insolvency and says he took the step in consequence of threats of certain persons to institute criminal proceedings against him in relation to the investment of the bank's money in a Canadian railway scheme.

Bangor and Aroostook Ry.—Grading is practically completed on the extension of the line along the valley of the St. John River, for 29 miles, ending at Fort Kent, Me., just south of Clairs, N.B. Track has been laid for a considerable distance, and it is expected to have the line completed by Dec. 31. (May, 1908, pg. 328.)

The Bow River Collieries Ry. was authorized by the Alberta Legislature last session to build a line from tp. 17, r. 17, 4 m., southerly to Taber, and to the International boundary at Coutts, in addition to lines previously authorized. (April, pg. 271.)

British Columbia and Alaska Ry.—Application will be made to the Dominion Parliament for the incorporation of a company with this title to build from near Lytton, B.C., along the Fraser River to Fort George, thence to a crossing of the Nechaco River at the mouth of Stewart River, following the same by way of Stewart Lake, Thatcher River, Trembleur Lake, Middle River, North Tacla Lake, Driftwood River, Bear Lake, passing through Fort Conley, along the valley of the Skeena River to a summit between the Skeena and the Stickine Rivers, down the Stickine River to Telegraph Creek, and thence up Telegraph Creek to the headwaters of Teslin River, following the same to the northern boundary of British Columbia, and from there by the most practicable route to Dawson, Yukon. A. T. Thompson is solicitor for the applicants.

A company with this title was incorporated by the B.C. Legislature last session, to build the line above described from Lytton to the B.C.-Yukon boundary. This charter has been acquired by the B.C. Railway and Development Co., which has been incorporated under the laws of the State of Delaware, with offices in New York, and a capital of $12,000,000. The company states that its plans contemplate the building of about 850 miles, from Vancouver to the Alaskan boundary. The route, for which reconnaissance surveys have been made, is stated to be the most feasible and forms the shortest link between the main U.S. territory and Alaska. Two survey parties are said to be in the field, locating the line between Vancouver and Fort George, B.C. The cost of construction of the line is estimated at $25,000 a mile. Application will be made, the prospectus states, to the Dominion and the Provincial Governments for subsidies. The officers and directors of the B.C.R. and D. Co. are: President, H. G. Villard; Vice Presidents, W. G. Conklin, J. Wolkenstein; Treasurer, J. W. Howie; Secretary, W. C. Pratt; other directors, E. Ashforth, S. D. Townsend, F. M. Van Horn. All these reside in New York. The consulting engineers are L. M. Rice & Co., Seattle, Wash. Recent press reports state that location surveys have been completed from Fort George down the Fraser River to Lytton, on the C.P.R., and that a gradient of 0.6% has been secured. The engineers in charge of the parties were J. Early and W. Simpson. (Oct., pg. 825.)

British Columbia and Dawson Ry.—Application will be made to the Dominion Parliament to incorporate a company with this title to build a railway from near Lytton, B.C., along the Fraser River to Fort George, to a crossing of the Nechaco River at the mouth of Stewart River, following this river by way of Stewart Lake, Thatcher River, Trembleur Lake, Middle River, North Tacla Lake, Driftwood River, Bear Lake, passing through Fort Conley and along the Skeena River valley to a summit between the Skeena and the Stickine rivers, along the valley of the latter river to Telegraph Creek, and along this creek to the headquarters of the Teslin River, following the same to the northern boundary of British Columbia, and thence to Dawson, Yukon; also a line from Ashcroft to the confluence of the Big Bear and the Fraser rivers, and also from Lillooet along the south side of Seaton and Anderson lakes, and via Lillooet Lake and river, and Harrison Lake to Vancouver. It is also desired to have power to amalgamate with the British Columbia and Alaska Ry. A. T. Thompson, Parliamentary Agent C.P.R., Ottawa, is solicitor for applicants. See British Columbia and Alaska Ry.

Burrard Inlet Tunnel and Bridge Co.—The Vancouver, Westminster and Yukon Ry. and the city of Vancouver opposed the B.I.T. & B. Co.'s application for approval of route maps, before the Minister of Railways, at Ottawa, Oct. 4, and the matter was adjourned. (Sept., pg. 725.)

Canada and Gulf Terminal Ry.—The first section of this railway, extending from Mount Joli, near St. Flavie, on the Intercolonial Ry., to Matane, Que., 35 miles, is expected to be opened for traffic Nov. 1. (Oct., pg. 825.)

Detroit River Tunnel. — Although freight trains were run through this tunnel between Detroit, Mich., and Windsor, Ont., Sept. 17, it was not until Oct. 15 that passenger trains were run and the ferry service discarded. The gradient is a 2% one on the U.S. side, and a 1.5% one on the Canadian side. A good deal of work has yet to be done in the yards at each side of the tunnel before everything is complete

The regular operation of passenger trains through the tunnel was begun Oct. 15.

Diamond Coal Co.—The Alberta Legislature last session authorized the company to build a railway to connect its mines with the C.P.R. Crow's Nest branch, and approved the work then done. The line has been built and operated by the company for over a year. (May, pg. 349.)

Durham Collieries. Six thousand acres of coal lands on the Little Bow River, 36

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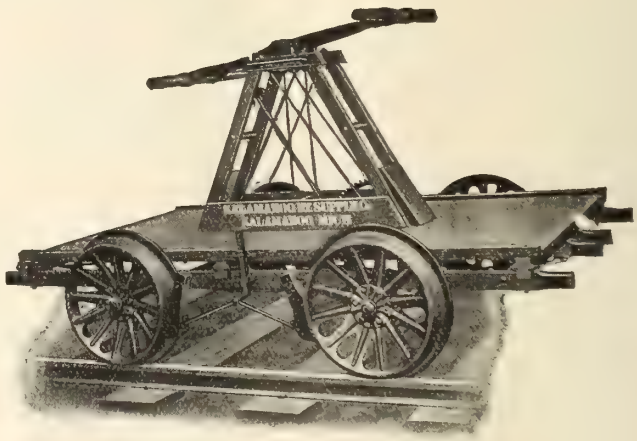

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miles north of Lethbridge, Alta., are being developed by a company with this title. A. Laidlaw, Spokane, Wash., and H. W. Galor, Vancouver, B.C., are reported to have sold a half interest in the property to Duluth, Minn., capitalists, who are providing money for development. As soon as the property is sufficiently developed it is proposed to build a railway from the collieries to the C.P.R, for the shipment of the output.

A press dispatch from Carmangay, Oct. 4, states that the company is proceeding with development about 15 miles from there and that a spur line will be built almost immediately.

Halifax and Eastern Ry.—We were recently advised that nothing definite had been done in the way of letting contracts for building this projected railway. (Oct., pg. 825.)

Hudson Bay and Pacific Ry.—Prince Albert, Sask., dispatches state that G. Atwood, Chief Engineer, has received instructions to proceed with the grading of the line from Prince Albert towards Hudson Bay, and to have a survey made southerly from Prince Albert to Pacific Jct., a station on the Great Northern Ry. near Havre, N.D. The Prince Albert-Hudson Bay line will be built, said Mr. Attwood recently, if not by this company, by another one. A dispatch dated Oct. 7, stated that the Canadian Northern Ry. was negotiating for the purchase of a controlling interest in the company, and had secured control of another charter authorizing the building of a line from Prince Albert to Port Nelson. This latter charter is controlled by Senator Davis and other Prince Albert people. (Sept., pg. 727.)

Intercolonial Ry.—The Halifax, N.S., Board of Trade has been informed by the Government Railways Managing Board, that plans are under consideration with a view of increasing the facilities at the piers for the coming winter.

New cattle sheds are being built at Marsh Road, St. John, N.B., and they are expected to be ready for the winter traffic. It is said that the present sheds at Gilbert's Lane will be abandoned as soon as the new sheds are completed.

The Halifax Board of Trade was informed by letter, Oct. 13, that it was expected to begin work shortly on the enlargement of the shed, and the other improvements at no. 4 pier.

The land valuers have completed the work of putting prices on the land and other property through which the proposed new line will pass, from Nelson station to the point where it will join the present Loggieville line. W. B. McKenzie, Chief Engineer, was in Chatham, N.B., recently looking over the route in Chatham, and inspecting the progress of the work on the portion of the line being built. The right of way has been cleared and fenced as far as the cemetery, and the contractor's camp has been moved to Bacon road, where grading is in progress. (Oct., pg. 825.)

Kettle Valley Lines.—Reports from Merritt, B.C., state that the grading of the new line in the Nicola Valley is being pushed forward rapidly. The work of clearing the right of way is well advanced over the mileage under contract, and grading is in progress. Murchison and McMillan are the subcontractors on the first 17 miles, Holley and Owens the next 4.5 miles, Bright and McDonald the next 4.5 miles, and Lungo and McDonald the next four miles. About a mile and a half from Merritt the course of the river is being diverted to do away with the necessity of bridge construction. The company's officials are said to be arranging for starting up construction work at Penticton and Midway. The survey parties have been reinforced by the engineers freed from the Merritt end of the line. It is expected that a tunnel of some length will have to be bored between Wilkinson Creek and Penticton Creek, so as to avoid heavy gradients.

The Spokane and British Columbia Ry., which is the extension of the line from Grand Forks into the U.S., now terminates at Republic, Wash. The company has power to extend this line to Spokane, and a contract for building a section is reported to be let to L. M. Rice & Co., Seattle, Wash. (Oct., pg. 827.)

The Lacombe and Brazeau Ry. Co. has been incorporated by the Alberta Legislature to build from Lacombe, where connection may be made with all lines entering the town, westerly to Bentley, thence northwesterly to Rimbey, and to the Brazeau River, and along its valley to its headwaters, with a branch to Edmonton or Strathcona. The provisional directors are: E. R. C. Clarkson, D. W. Alexander, C. Miller, Toronto. (May, pg. 351.)

Lethbridge Collieries.—Extensive development work has been done by the company on the coal lands owned in the vicinity of Lethbridge, Alta. It is proposed to build a spur line from the C.P.R. Lethbridge-Macleod line to the collieries opened in sec. 21, tp. 3, range 22, about 2½ miles from Kipp, and about a mile from the line of the Diamond Coal Co. The principal officers of the company are: President, E. B. Greenshields, Montreal; Chief Engineer and Managing Director, C. Fergie; Manager, W. Maxwell; Construction Engineer, N. C. Pitcher; Accountant, G. B. Saunders; construction foreman, A. Morrison.

Manitoulin and North Shore Ry.—The Board of Railway Commissioners has authorized the opening for traffic of the extension of the line from about 13 miles west of Sudbury to Krean Hill, Ont., 10 miles. (Oct., pg. 827.)

The Michigan Central Rd. is making considerable improvements to its tracks, bridges and trestle work at Niagara-on-the Lake, Ont.

The company's electrical experts had a conference with the St. Thomas, Ont., city officials, Oct. 13, with reference to the use of hydro-electric power for driving the machinery at its roundhouse, shops, and turntable there.

New Brunswick Coal and Ry. Co.—Tenders are under consideration for building a two-stall engine house at Minto, N.B. P. S. Archibald and J. R. Stone are the commissioners in charge of the line for the New Brunswick Government. (Oct., pg. 827.)

Pincher Creek, Cardston and Montana Ry.—Application will be made next session of the Alberta Legislature to change the name of the company to the Alberta Pacific Ry.; to extend the time for building the lines already authorized; to increase the bonding powers from $15,000 to $30,000 a mile; and to give power to build the following additional lines: from the previously authorized line at tp. 6, r. 1, w. 5 m., generally northerly, west of the Porcupine Hills to Calgary, continuing northerly, west of Snake, Gull and Pigeon Lakes to Edmonton, thence northwesterly to the western boundary of the province between latitude 55 and 56; and a line from the said line near Edmonton northeasterly and easterly to the eastern boundary of the province. O. E. Culbert, Pincher Creek, is solicitor for the applicants.

J. A. Taylor, in a recent interview in Calgary, is reported to have said arrangements had been made to build some 15 or 20 miles this year in the vicinity of Pincher Creek. The line will run from near Coutts, at the International boundary, to Pincher Creek, and on to Calgary, through the pass between the foothills of the Rocky Mountains and the Porcupine Hills, and along the Upper Sheep Creek. The company has a charter to build a line through the North Kootenay Pass in B.C. The projected line between Pincher Creek and Cardston will, it is said, cross the south fork of the Old Man River, by a steel bridge 1,100 ft. long and 170 ft. above high water.

The plans for 100 miles of the line from the International boundary to the west side of sec. 34, tp. 6, r. 2, w. 5 m., are said to have been approved by the Alberta Premier on behalf of the Government. The route shown is that followed by the engineers in making surveys for the line referred to as the Calgary, Alta., to Butte, Mont., railway. This survey from Calgary south runs west of the Macleod branch of the C.P.R., crossing Highwood River 25 miles west of High River and south through the valley between the Porcupine and Livingstone ranges. After crossing the C.P.R. Crow's Nest branch between Pincher Creek and Cowley, the projected line passes through Pincher Creek, through the Fishburn valley to Cardston, crossing the International boundary at Whiskey Pass. It is proposed to connect with the Great Northern Ry. at or near Shelby Jct., Montana. (Oct., pg. 829.)

Portland Canal Short Line.—A recent press dispatch from Stewart, B.C., states that Engineer Lewis has found an easy pass through the divide leading to the Naas Valley. The engineering difficulties are reported to be small, and include a short tunnel and one snow shed.

Notice has been given that application will be made to the British Columbia Legislature for authority to extend the line from the present proposed terminus generally easterly to the eastern boundary of B.C., where the Peace River intersects the boundary, by way or Pine River pass, with power to build a branch line down the valley of the Naas River to the Pacific coast; a branch line from near Stuart Lake to connect with the G.T. Pacific Ry., and a branch to the northern boundary of B.C.

A Victoria, B.C., dispatch of Oct. 7, states that in addition to the application for additional powers in B.C., the Alberta Legislature will be asked to authorize the building of lines from the boundary to a junction with the Canadian Northern Ry. near Edmonton, and that the Dominion Parliament will be asked to grant incorporation to a company for the building of the whole of the lines in the two provinces. Another report states that it is proposed to locate the eastern terminus of the line on Hudson Bay, with a view of establishing a trade route between western Europe and eastern Asia. Such a water and rail route would be exceptionally direct and economical.

G. G. S. Lindsey, who has returned to Toronto, after a visit to the mining camps in northern British Columbia, stated in an interview Oct. 15 that track was expected to be laid on this line from Stewart to Bitter Creek, about 10 miles, this year, and that the whole line to Bear Creek would be completed early in 1911.

A machine shop is being erected at Stewart for the line, and F. W. McLeod is Master Mechanic in charge of its erection and fitting up. (Oct., pg. 829. See also Canadian Northern Western Ry., in C.N.R. Construction, etc., on another page.)

Reid Newfoundland Co.—W. D. Reid, President, is reported to have stated in an interview at St. John's, Nfld., Oct. 1, that on Sept. 30, track had been laid for 50.5 miles on the Bonavista branch, and would be in Trinity within a few days thereafter. The grading gangs had completed 64.5 miles and were then working within five miles of Catalina, where there were several very heavy rock cuts. A steel trestle, 400 ft. long and 40 ft. high has been com-

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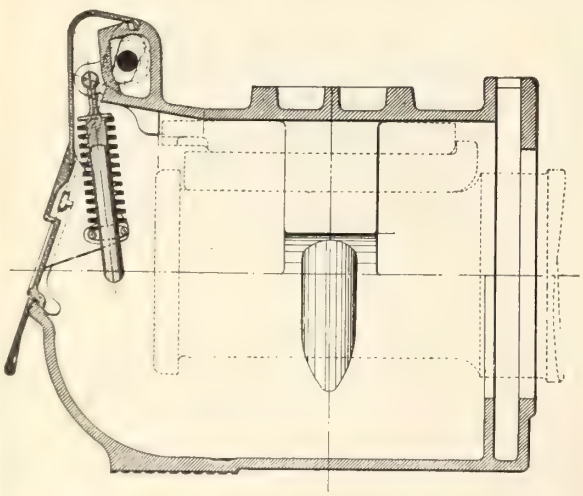

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pleted near the first pond going into Goose Cove, Southwest Arm, Trinity. By the erection of the trestle a loop of over a mile is formed, the trains going under the trestle and then gradually ascending, leaving it at a higher level. (Oct., pg. 831.)

Roberval and Saguenay Ry.—Application will be made to the Quebec Legislature for the incorporation of a company with this title to build from Roberval westerly and northwesterly to Peribonka, thence north of Lake St. John and the Saguenay River to a deep water port on the river, with branches to connect with the Quebec and Lake St. John Ry. at Hebertville and with the Ha Ha Bay Ry. at its junction with the Q. and L. St. J. Ry. in the Jonquieres district. The application is being made on behalf of J. E. A. Dubuc, J. E. Grenon, J. E. Cloutier, S. Lapointe, Chicoutimi, Que.; A. Pelletier, J. B. Carbonneau, Roberval, Que.; B. A. Scott, Quebec; W. Low, Brooklyn, N.Y.; by Lapointe and Langlais, attorneys, Chicoutimi. Of the applicants named above, J. E. A. Dubuc is Vice President, B. A. Scott is a director, and J. E. Grenon is Chief Engineer of the Ha Ha Bay Ry.

St. John River Valley Ry.—Field work on the surveys for this projected railway from St. John to Grand Falls, was expected to be completed by Oct. 31, and it is said that the plans and estimates will be ready for submission to the New Brunswick Government by Dec. 31. —. Maxwell is Chief Engineer in charge of surveys. (Aug., pg. 631.)

South East Kootenay Ry.—A press report from Hosmer, B.C., quotes T. Davis, President, as saying that construction will be started on this line from McGillivray to the International boundary in the spring. Twelve mining companies are reported to be developing coal areas in the territory through which the line will pass, and a wagon road has already been built to get in machinery, etc. The company was incorporated by the B.C. Legislature in 1906, and in 1909 obtained an extension of time for construction. (April, 1909, pg. 249, and Aug., 1906, pg. 457.)

Temiskaming and Northern Ontario Ry.—The branch line from Cobalt to Kerr Lake, Ont., five miles, has been opened for traffic. The question of a line to the Elk Lake country from Charlton is still in abeyance. Those interested in the development of the country express themselves strongly in favor of the Government building the line at once.

Engineers who have been making surveys from North Bay with a view of securing a route which would give better gradients and shorten the line to Liskeard, have almost completed their work, and their report was expected to be ready for presentation to the Commissioners by Nov. 30. During the year a good deal of work has been done on the line in the way of strengthening bridges and spreading additional ballast, to permit of heavier trains being run over it. (Oct., pg. 831.)

Toronto.—Work is being proceeded with on the spur line which the Toronto city council is building along the east bank of the Don River to the Ashbridge's Bay manufacturing district. The line will connect with the C.P.R. at Winchester St., and with the G.T.R. south of Eastern Ave., and will be about 6,000 ft. long. The work is ordinary cut and fill. The heaviest cut is north of Gerrard St., opposite the Isolation Hospital, where there is a heavy bank of blue clay. It is expected to have the work completed this fall, except the portion at the proposed Queen St. high level bridge. The work is being done by day labor, under the direction of E. L. Cousins, of the Engineer's staff. (Oct.,

The Board of Control passed a resolution Oct. 18, authorizing an application to the Board of Railway Commissioners for permission to connect the line with the C.P.R. and G.T.R.

Vancouver North to Grouse Mountain.—Application will be made to the British Columbia Legislature to incorporate a company with this title, to build a line, to be operated by steam, electric or other power, from North Vancouver to the summit of Grouse Mountain. W. A. Macdonald, Vancouver, is solicitor for the applicants.

Canadian Northern Ry. Earnings, Etc.

Gross earnings, working expenses and net profits from July 1, 1910, with increases over, or decreases from, those of 1909-10:

	Earnings.	Expenses.	Net Earnings.	Net Increase
July	$1,225,100	$876,900	$348,200	$118,.00
Aug.	1,093,000	830,000	263,000	58,600
	$2,318,100	$1,706,900	$611,200	$177,200
Inc.	$ 667, 00	$ 490,300	$177,200	.....

Approximate gross earnings for Sept., $1,279,900, and for two weeks ended Oct. 14, $667,700, against $1,076,800, and $598,800 for same periods, 1909.

C.P.R. Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits, increases or decreases over 1909-10, from July 1, 1910:

	Earnings.	Expenses.	Net Profits.	Net Increase
July	$3,869,214.32	5,384,594.73	3,484,619.50.	1,004,748.86
Aug.	9,255,331.67	5,563,659.34	3,691,672.33	727,614.46
	$ 18,124,545.99	$10,948,254.07	$7,176,291 92	$1,732,363.32
Inc.	$3,557,531.44	$1,825,168.12	$1,732,363.32	.....

Approximate gross earnings for Sept., $9,115,000, and for two weeks ended Oct. 14, $4,577,000, against $8,148,000 and $4,313,000 for same periods, 1909.

DULUTH, SOUTH SHORE AND ATLANTIC RY.—Operating revenue for Aug., $336,479.15; operating expenses, $209,892.08; net revenue, $126,587.07, against $308,439.92 operating revenue; $197,844.73 operating expenses; $110,595.19 net revenue for Aug., 1909. Aggregate operating revenue for two months ended Aug. 31, $648,462; operating expenses, $405,350.54; net revenue, $243,111.46, against $593,674.10 aggregate operating revenue; $401,133.43 operating expenses; $192,540.67 net revenue for same period, 1909. Approximate gross earnings for Sept., $310,331, and for two weeks ended Oct. 14, $139,948, against $321,45 and $147,045 for same periods, 1909.

MINERAL RANGE RY.—Operating revenue for Aug., $64,366.60; operating expenses, $59,075.02; net revenue, $5,291.58, against $76,301.05 operating revenue; $60,392.78 operating expenses; $15,908.27 net revenue for Aug., 1909. Aggregate operating revenue for two months ended Aug. 31, $122,500.33; operating expenses, $131,627.55; net expenses, $9,127.22, against $149,966.38 aggregate operating revenue; $123,242.78 operating expenses; $26,723.60 net revenue for same period, 1909. Approximate gross earnings for Sept., $69,506, and for two weeks ended Oct. 14, $32,842, against $75,766 and $31,548 for same periods, 1909.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RY.—Operating revenue for Aug., $1,183,408.68; expenses and taxes, $742,146.61; operating income, $441,262.07, against $1,204,104.17 operating revenue; $714,493.84 expenses and taxes; $489,610.33 operating income, for Aug., 1909. Aggregate operating revenue for two months ended Aug. 31, $2,412,063.77; expenses and taxes, $1,518,963.51; operating income, $893,100.26, against $2,348,625.99 aggregate operating revenue; $1,451,658.42 expenses and taxes; $896,967.57 operating income for same period, 1909. Approximate gross earnings for Sept., $2,053,512, and for two weeks ended Oct. 14, $ 1,039,132, against $2,504,701 and $1,169,176 for same periods, 1909.

CHICAGO DIVISION.—Operating revenue for Aug., $811,065.16; expenses and taxes, $585,085.56; operating income, $225,979.60, against $729,866.95 operating revenue; $462,482.02 expenses and taxes; $267,384.93 operating income for Aug., 1909. Aggregate operating revenue for two months ended Aug. 31, $1,617,726.23; expenses and taxes, $1,130,680.81; operating income, $487,045.32, against $1,448,279.03 aggregate operating revenue; $926,712.08 expenses and taxes; $521,566.95 operating income for same period, 1909.

Grand Trunk Ry. Earnings, Expenses, Etc.

The following figures show the earnings, expenses, etc., of the G.T.R., C.A.R., G.T. Western Ry., and D.G.H. & M.R. for Aug., 1910 and 1909, respectively:—

GRAND TRUNK RAILWAY

	1910.	1909.
Earnings	$3,067,600	$2,939,400
Expenses	2,213,700	2,092,800
Net earnings	$ 853,900	$ 846,600

CANADA ATLANTIC RAILWAY.

	1910.	1909.
Earnings	$ 162,500	$ 190,300
Expenses	157,900	168,700
Net earnings	$ 4,600	$ 21,600

GRAND TRUNK WESTERN RAILWAY.

	1910.	1909.
Earnings	$ 498,200	$ 576,700
Expenses	399,500	370,300
Net earnings	$ 98,700	$ 206,400

DETROIT, GRAND HAVEN AND MILWAUKEE RY.

	1910.	1909.
Earnings	$ 156,600	$ 172,900
Expenses	144,700	130,900
Net earnings	$ 11,900	$ 42,000

Approximate gross earnings for Sept., $4,107,955, and for two weeks ended Oct. 14, $1,843,722, against $3,949,004 and $1,817,637 for same periods, 1909.

TRAFFIC RECEIPTS OF THE SYSTEM.

	1910.	1909.
Grand Trunk	£1,813,107	£1,791,456
Canada Atlantic	95,403	108,744
G. T. Western	292,226	322,331
D. G. H. & M. R.	95,064	103,414
Totals	£2,295,800	£2,325,945

Quebec Public Utilities Commission.

The following orders have been passed:—

16. Oct. 4.—A. P. Robitaille vs. Quebec and Lake St. John Ry.—Complaint is made of the company having increased its rates illegally and without proper notice in respect of Charlesbourg station, as follows:—Return 1st class from 15c. to 20c.; series of 10 tickets from 75c. to $1.00; series of 55 tickets from $2.75 to $5. That the company does not maintain a blackboard at Charlesbourg, and announce thereon the time of passing of its various passenger trains. That the extra train leaving Quebec at 6.20 p.m. and leaving Charlesbourg to return at 7.30 p.m. has not been put on, and that the platforms of the cars are crowded for lack of seating accommodation. That near Charlesbourg station is a dangerous crossing, protected by gates, properly attended during the day, but left open in the evening and at night.

Considering that in respect of rates the charge respecting 55 trips has been dealt with in the case of Hamel vs. the Q. & L. St. J. Ry. and the Canadian Northern Quebec Ry., and the order therein is applicable to the present case. That the single rate and return fare are not excessive, but that the charge for a series of 10 trips should be reduced to 75c. As regards the maintenance and use of a blackboard for notifying the time of trains, Charlesbourg, not being a station where a regular telegraph operator is employed, the complaint is unfounded and is dismissed. The complaint respecting the extra train and overcrowding having been withdrawn, no order is made. Considering that it appears the crossing near Charlesbourg station is dangerous and should be protected at all times, the Q. & L. St. J.R. is directed forthwith to instal an automatic electric alarm bell, subject to the approval of the Commission's Engineer, and keep the same in proper operation.

17. Oct. 4.—Authorizing Turner Lumber and Pulpwood Co. to erect electric wires over the Quebec & Lake St. John Ry.

CROSSEN CAR MFG. COMPANY

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ROLLING STOCK

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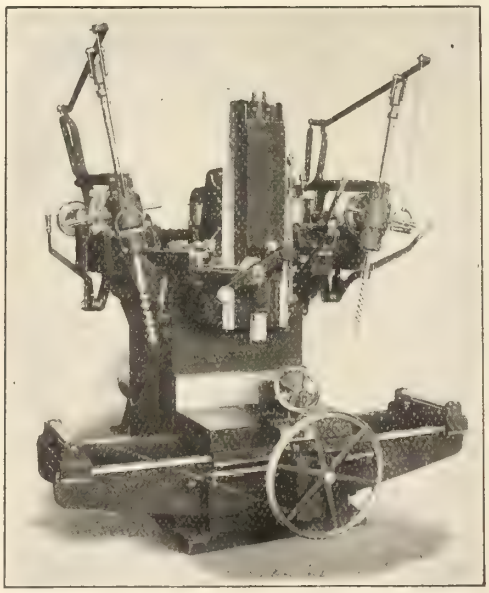

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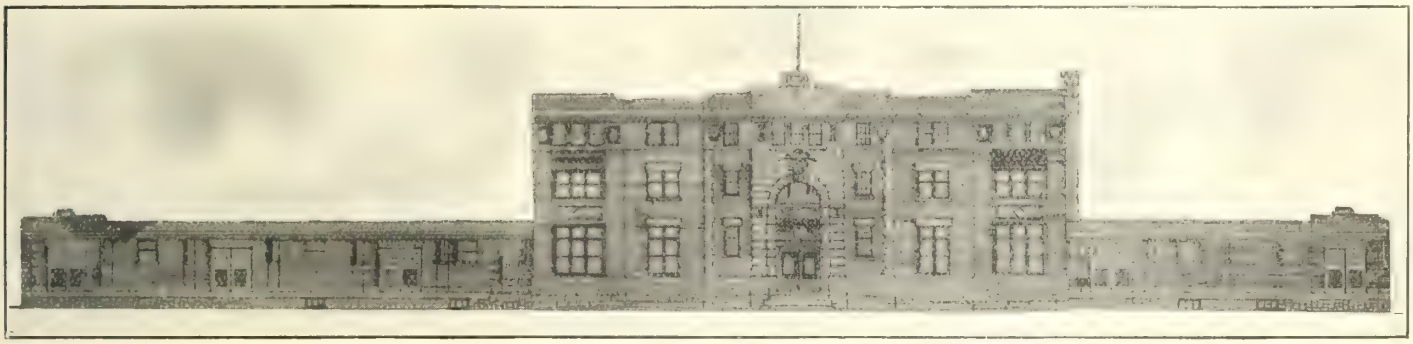
Fort William Union Station

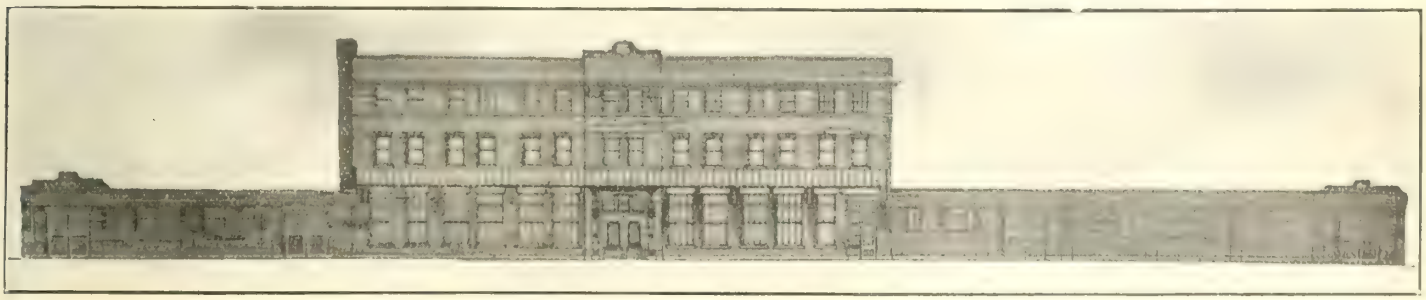
The C.P.R. has erected a new station building at Fort William, Ont., which will be used as a joint station with the G.T. Pacific Ry. It is of fireproof construction, the main portion being three stories high, with extensions at each end, one for baggage and the other for express. The main building has a frontage of 105 ft. and a depth of 50 ft. Entrance is obtained by granite steps to a vestibule, which leads into a general waiting room 71½ by 32 ft., and from this granite steps lead out to the train shed, 167 by 34 ft. To the right of the vestibule are women's waiting room, retiring room, and toilet room, the three rooms having a total length of 42 ft. and a depth of 16 ft. 8 in.; to the left of the vestibule is a waiting room for men, 33 ft. by 16 ft 8 in., and a lavatory. Adjoining the women's waiting room is the telegraph office, and right across from this is the joint ticket office, 14 ft. 7 in. by 18 ft., and on the left is the news office and parcel room. Adjoining the men's washing room is the stairway leading to the operating, divisional and other offices on the second and third floors. The baggage annex on the left of the main building is 104 by 34 ft., and contains offices for the station agent, baggage master, baggage checkers, a public office, and a section for valises. It is equipped with a suction scale, and an elevator to take baggage for storage to the basement.



Fort William Union Station, C.P.R. and G.T.P.R. Front elevation.

The express annex is to the right, and is approached from the general waiting room, between the telegraph and ticket offices. It is 63 by 34 ft., and is divided into two by a partition. The G.T.P. section immediately adjoins the main building, and is 16 ft. 3 in. by 34 ft.; the C.P.R. section being 45 by 34 ft. There are three entrances to the baggage room and one to each express room from the street, and a similar number from each annex to the station platform.

The excavation for the foundation was commenced in Aug., 1909, and a contract for the superstructure was let in Nov. to J. McDiarmid & Co., Winnipeg. The estimated cost of the building was $100,000.



Fort William Union Station, C.P.R. and G.T.P.R. Track elevation.

G. T. R. Construction, Betterments, Etc.

Shops at Richmond, Que.—The building of the new shops at Richmond, Que., is being rapidly pushed forward.

Montreal Grade Elimination.—We are advised that the matter of the elimination of the grade crossings in Montreal is still in the hands of the engineers, and it is not yet possible to give out any details as to the plans.

Ottawa, Rideau Valley and Brockville Ry.—The power behind this company was disclosed at a meeting held at Ottawa, Oct. 5, when W. Wainwright, Second Vice President G.T.R., and W. H. Biggar, G.T.R. counsel, were present. It is said to have been decided that the line should be built at once, the work to be done by the O.R.V. and B. Ry., and then operated by the G.T.R. A decision was also reached that the final surveys would be gone on with at once. The line will, it is said, be built from Ottawa through the southern parts of Carleton and Leeds counties to Brockville, connecting with the G.T.R. at both ends.

Following are the directors and officers, as recently elected:—President, Andrew Haydon; Vice President, D. H. Maclean; other directors, G. E. Kidd, W. C. Greig, S. Rosenthal; Secretary-Treasurer, H. W. Cooper, of the G.T.R. Treasurer's Department, Montreal.

Roundhouse at Belleville, Ont.—The new roundhouse at Belleville, Ont., which has been under construction since Aug. 10, is expected to be finished by Nov. 1. The building, which will have a capacity of 42 locomotives, is of reinforced concrete, with steel roof, covered with asbestos. The walls are 19 ft. high, 22 inches thick at the bottom, and 9 in. at the top. Adjoining the roundhouse is a machine shop 50 by 200 ft., and a store room 30 by 80 ft. A large number of new sidings have been laid in the yards.

Toronto Union Station.—E. H. Fitzhugh, First Vice President, in an interview at Toronto, Oct. 6, said the plans for the new Union Station were all prepared, and the company was ready to go ahead with the work. He could not say when a start would be made, but it was not contemplated to do anything at present.

Shops at Allandale, Ont.—E. H. Fitzhugh, First Vice President, is reported to have told the Mayor of Barrie, Ont., recently, that the delay in beginning the erection of the new shops at Allandale was due to the fact that the plans originally prepared were found not to be on a sufficiently large scale for the work contemplated to be done, and the company's engineers had been looking over the ground with a view to the building of more extensive works than were promised in the agreement with the town. The plans for the new shops were in preparation, and if they were adopted work would be started in the spring. There was no idea of removing the works elsewhere.

London Improvements.—Certain properties acquired by the G.T.R. in connection with its projected improvements in London, Ont., have been ordered to be cleared, and it is believed locally that this is preparatory to beginning work on the rearrangement of the tracks, and the building of new passenger and freight station. It is said that the new station will be built on the site of the present one, but that it will have a frontage on Bathurst St.

Tillsonburg-Brantford Line.—On the occasion of his recent visit to Brantford, Ont., E. H. Fitzhugh, First Vice President, had an interview with the city council in reference to a proposed change of the route of the Tillsonburg-Brantford line, so that it might serve the Holmedale manufacturing district. He promised to consider the suggestion and to make a proposition to the council at an early date. (Oct., pg. 835.)

During August, 18 employes were killed and 21 injured, in the course of their work on Canadian railways. Of the fatalities, 11 were due to being run over, two each to flying material and to collisions, and one each to falling material, to being caught between cars and to drowning, while of the other accidents, seven each were due to falls and to being caught between cars, three to being run over, two to collisions, and one each to being struck by an object in passing, to a fall and to flying material.
of."

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THROUGH TRAINS between BOSTON (via Boston & Maine R.R. and Cent. Vermont Ry.) MONTREAL, TORONTO and CHICAGO.
THROUGH TRAINS between NEW YORK, TORONTO and CHICAGO via Lehigh Valley R. R. and Niagara Falls.

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W. E. DAVIS, Passenger Traffic Manager, Montreal. G. T. BELL, Asst. Pass. Traffic Manager, MONTREAL.
G. W. VAUX, Gen. Passenger Agent, MONTREAL

Railway Commissioners' Traffic Orders.

Summaries of other traffic orders are given on another page under "Orders by Railway Commissioners":—

WHITE PASS & YUKON RY. ORE RATES.

11819. Sept. 7.—Re complaint of J. H. Conrad, alleging excessive freight rates charged by the White Pass & Yukon route on ores from Carcross to Skagway and on mining machinery and camp supplies from Skagway to Carcross. Upon hearing the complaint in presence of complainant and S. H. Graves, representing the White Pass & Yukon Route, it is ordered:

1. That the British Yukon Ry. Co., the British Columbia Yukon Ry. Co., the Pacific and Arctic Ry. and Navigation Co., and the White Pass and Yukon Ry. Co. forthwith cease and desist from discriminating against the applicant and in favor of the Atlas Mining Co., R. R. Neil and W. D. Greenough, and any and all of the said parties.

2. That the said railway companies cease and desist from discriminating in favor of the locality in which the Atlas Mining Co.'s properties are located and against the locality in which the applicant's mines are located.

3. That the said railway companies file with the Board tariffs showing the rates granted to the Atlas Mining Co., pursuant to the contract entered into between the Pacific and Arctic Ry. and Navigation Co. and the British Yukon Ry. Co. and the Atlas Mining Co., dated March 21, 1910.

4. That the said railway companies file with the Board a tariff amending, or supplemental to C.R.C. 9, issued Sept. 16, 1909, by the Pacific and Arctic Ry. and Navigation Co., the British Columbia Yukon Ry. Co., and the British Yukon Ry. Co., forming, as appears from the said tariff, "The White Pass & Yukon Route," giving carload rates of $1.75 a ton on ore and concentrates from Caribou to Skagway.

5. That the said railway companies grant to all shippers of ore and concentrates upon their line or lines of railway, proportionate rates and privileges at least as favorable as those granted to the Atlas Mining Co. under the said contract.

6. That the said railway companies, in due course, obtain for the applicant, if he notifies them in writing that he requires them so to do, the same or as favorable ocean rates as they have obtained for the Atlas Mining Co.; or, in the event of the said railway companies being unable to obtain the same or as favorable ocean rates for the applicant, then they are to cease and desist from obtaining discriminating ocean rates for the Atlas Mining Co.

7. That the said railway companies grant to the applicant exactly the same treatment as to wharfage at Skagway as that granted by the contract to the Atlas Mining Co., and handle the applicant's ore, and that of all other shippers over their lines, upon terms and conditions as to wharfage and otherwise exactly similar to that granted by the contract to the said Atlas Mining Co.

8. That the tariffs referred to in paragraphs 3 and 4 be filed on or before Nov. 1, 1910.

9. That the other matters covered by the applicant's complaint stand for disposition in connection with the complaints of the Dawson Board of Trade against the White Pass and Yukon Route.

CANADIAN CLASSIFICATION CHANGES

11866. Oct. 4.—Re order 11599, Sept. 2, 1910, approving, subject to certain exceptions and additions, the proposed Supplement 3 to Canadian Classification 14; and re application of Canadian Freight Association for order approving a revised rule 6 to replace rule 6 as it appears in the present Canadian Classification 14, the said revised rule to be incorporated in the new Canadian Classification 15, to be published forthwith; and re the matter of the application of the Canadian Freight Association for an order approving a revision of the classification of asphalt and asphaltum; upon considering the oral representations made to the Board by the Canadian Freight Association's Advisory Committee, Sept. 20, and upon reading the letter dated Sept. 22 from the chairman of the committee with respect to the proposed revised rule 6 to Canadian Classification 14, the said revised rule being more favorable to the shipper than the old one, and the Board having this day rescinded its orders 11463 and 11631, dated Aug. 3 and Sept. 12, 1910, respectively, it is ordered that the revised rule 6, to appear in the forthcoming Canadian Classification 15, be approved, to read as follows:

(a) Unless otherwise specified in this Classification, or subsequent amendments thereto, articles too long or too bulky to be loaded in a box or stock car through the side door thereof, and which are loaded on a flat or gondola car, will be carried at actual weight and tariff (class or commodity) rate, subject to a minimum of 5,000 lbs. for each car used, at first class rate for each consignment from one shipper to one consignee; except that when the Classification provides for any article a lower minimum weight than 5,000 lbs. when loaded on a flat or gondola car, such lower minimum weight will apply, instead of the minimum of 5,000 lbs. referred to, for each car used.

(b) Articles too long to be loaded in a box or stock car through the side door, and which are loaded through the end door or end window thereof, will be carried at actual weight and tariff (class or commodity) rate, plus 50%, but subject to a minimum charge of 1,000 lbs. at first class rate for each shipment.

(c) Articles too bulky to be loaded in a box or stock car through the side door, and which are loaded through the end door thereof, will be carried at actual weight and tariff (class or commodity) rate, plus 50%, but subject to a minimum charge of 1,000 lbs. at first class rate for each shipment, except that when articles are provided with specific minimum weights in this Classification they will be carried at such minimum weights and at the class ratings specified therefor.

And upon considering the letter dated Sept. 30, 1910, from the chairman of the Canadian Freight Association's Advisory Committee, proposing a revision of the classification of asphalt and asphaltum, and it appearing to the Board that the said proposed revision is more favorable to the shipper than the present ratings of the said articles, it is ordered that the following be stricken out, viz.: The words "except the product of petroleum as shown on pg. 53," relating to asphalt or asphaltum, from the amendments to the hardware list, pg. 10 (index no. 9), and the ratings of japan, or liquid asphaltum, pg. 2 (index no. 4), from Supplement 2 to Canadian Classification 14; also "asphaltum" from the list of petroleum and petroleum products, pg. 18 (index no. 4) of the proposed Supplement 3 to the said Classification, approved (with certain exceptions and additions) for publication and filing by 11599, Sept. 2, 1910. And it is further ordered that the following additional ratings be incorporated in the new Canadian Classification 15, to be published forthwith:

Asphaltum, liquid (see note)		
In bulk in barrels	l.c.l. 4	c.l. 7
In tank cars (to be furnished by shippers) subject to section (g) of rule 1		c.l. 7

Note.—These ratings will not apply on black asphaltum varnish (japan).

PAINTS AND VARNISH

Varnish

Black asphaltum (japan):

In cans, not boxed, crated, or jacketed	l.c.l.	d. 1
In cans, jacketed	l.c.l.	d. 1
In wood, o.r. pkge., or in cans, crated or boxed	l.c.l.	d. 3 c.l. 5

and that the letters "n.o.s." be added after "varnish," as the ratings therefor appear in the present Classification 14, pg. 55, item 7.

O. & N.Y. RY. INTERSWITCHING CHARGES.

11883. Re application of F. J. Balch, General Freight Agent Ottawa and New York Ry., for permission to reduce the company's interswitching charge from 2c. to 1c. per 100 lbs. on 17 carloads of cement used in April last in the construction of a canal wall at Cornwall, said shipments having originated at Hull, Que., and moved over the C.P.R. and G.T.R. to a connection of the G.T.R. with the applicant company's railway at Cornwall Jct., Ont., and from there switched by the applicant company. It is ordered that the terms of order 4988, July 8, 1908, prescribing an interswitching toll of 1c. per 100 lbs., and not more than $3 as a minimum and $8 as a maximum per carload, were applicable to the traffic in question at the time it was moved, and that the amount charged by the applicant company in excess thereof was unlawful.

A Railway to Hudson Bay.

It is said that at a conference between W. Mackenzie, D. D. Mann, and W. H. Moore, of the Canadian Northern Ry., and the Minister of Railways, at Ottawa, Sept. 23, the question of the railway from The Pas, Sask., to Hudson Bay was under discussion. Press reports state that a proposal for the leasing of the line, when built by the Dominion Government, to the Canadian Northern Ry. on an agreement similar to that with the G.T. Pacific Ry., for the operation of the National Transcontinental Ry., Eastern Division, was proposed, but the Minister of Railways said there was nothing of a definite character suggested or considered in regard to the line.

T. Turnbull, C.E., has recently returned to Winnipeg from Port Nelson, where he had been making surveys for the location of a suitable townsite. He is reported to have said that there is not much choice, but if the south side of the Nelson River were selected there would not be any necessity for building a bridge. That point, however, could not be finally settled until the surveys now in progress under J. P. Gordon, and the hydrographic surveys were completed.

In an interview at Norway House, Oct. 13, W. Ogilvie stated that there was sufficient water power on the Saskatchewan and Nelson rivers to develop all the electricity required for the operation of a railway twice the length of the proposed railway to Hudson Bay. On the Nelson River the chief falls are at White Mud falls, where he estimates 350,000 horse power could be developed; Bladder rapids, where 100,000 h.p. could be developed, and at Manitou falls, where the line is planned to cross the river, he estimates that 200,000 h.p could be developed. At the Grand Rapids on the Saskatchewan River he estimates that 350,000 h.p. could be developed. There are other smaller falls and rapids on the two rivers, in addition to falls on a number of swift flowing tributaries to both rivers.

The Countess of Antrim, sister to Earl Grey, the Governor General, sailed from Montreal for England recently, having spent the summer with her son, Hon. Angus MacDonnell, who is engaged in contracting on the Esquimalt and Nanaimo Ry. on Vancouver Island.

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Track Spikes **Bolts and Nuts**

Pig Iron

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in Rough, Rough Turned or Smooth Finished

ADDITIONAL SAFETY AND ECONOMY IN

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has been proved by the use of Continuous, Weber and Wolhaupter base-supported rail joints—after fifteen (15) years' service, having a record of over **50,000 miles in use**—the extent of which is evidence of their excellence. Made in Canada.

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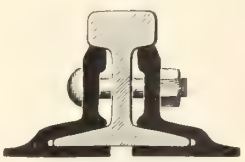
Paris, 1900;
Buffalo, 1901; St. Louis, 1904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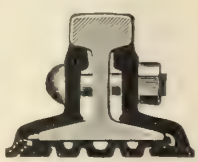
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Makers of Base Supported Rail Joints for Standard and Special Rail Sections, also Girder, Step or Compromise, Frog and Switch, and Insulating Rail Joints, protected by Patents.

National Transcontinental Railway.

Judge Cassels has decided in the Court of Exchequer that, the Crown is not liable to be sued on contracts made by the National Transcontinental Ry. Commissioners, and that actions on such contracts should be brought directly against the Commissioners.

An inspection of the line in New Brunswick was completed by C. O. Foss, District Engineer, Oct. 5, and in an interview at St. John, he is reported to have stated that section 1 would be ready for acceptance by Oct. 31; section 2 was ready for operation; section 3 could be taken over at any time, and section 4 would be completed by the end of the season. There was more delay in section 5 between the Tobique River and Grand Falls, the viaduct over the gorge of the Little Salmon River, and some other viaducts not having been completed. These would be completed in the spring, by which time section 6, which included the terminals at Edmundston, would be completed. The line in the province would be ready, and fully equipped for operation by the end of the summer of 1911.

The last day for receiving tenders for the erection of the superstructure of the bridge over the St. Lawrence River, at Quebec, was Oct. 1, when it was reported that four tenders were handed in by Canadian, British and other bridge builders. It will take some time to figure out the tenders, as they are made on the various shapes which enter into the construction of the bridge. The tenders have been turned over to the commission of engineers which prepared the plans for examination and report. With regard to the work going on at the piers, it was stated Oct. 10 that the caisson was being raised and would be examined to ascertain the extent of the damage sustained.

The plans of the union station which it is proposed to erect on the site of the Champlain market, Quebec, have been prepared by G. E. Tanguay, and have been submitted to the Commissioners.

S. R. Poulin, District Engineer, Winnipeg, completed an inspection of the work in progress in his district, extending easterly from Winnipeg, Sept. 30. He reports that work is progressing satisfactorily, considering the shortage of labor at all construction points. He expected to see the track laid from end to end of the district by Dec. 31, 1911. Track has already been laid for 25 miles easterly from Lake Superior Jct., and it is expected to add from 40 to 50 miles more by the end of the year.

The Commissioners have approved of standard plans for freight sheds, and storehouses, to be erected at different points on the line, and contracts have been let for the erection of such buildings at Lake Superior Jct., Ont. Redditt and Springfield, Man. The plans for the freight sheds show a frame structure, 28 by 60 ft., on posts, with a flat roof. One end of the building is arranged as an office, while the remainder, 50 by 28 ft., is devoted to a freight room. Two sets of sliding doors are provided on the track side, and an equal number on the opposite side, while there is a single sliding door leading into the freight room from a 9 ft. platform at the end. A room 10 by 14 ft. is built adjoining the office for perishable freight. A coal bin to hold 30 tons of coal is to be built under the office part of the building. The plans for the storehouse show a building 74½ ft. by 20 ft. 2 in. The casement is to be built of concrete, with an 8 in. concrete floor, and the rest of the building is to be of brick, with a tar and gravel roof. The basement store will be divided into two, the general store, 45 by 16 ft., containing the furnace and heating plant, and the second compartment being the oil vault, 25 by 16 ft. The main floor is divided into three sections, public office, foreman's office and store room. The basement store room is to be equipped with shelves, while the main store and foreman's office have shelves, drawers, plan cabinets, drawing tables, etc. This part of the building is heated by hot water from the boiler in the basement. The oil tanks, pumps and piping for the same, heating and lighting systems are to be installed under separate contracts.

Tenders were received to Oct. 18 for the machinery required for the equipment of a roundhouse at Lake Superior Jct., Ont., and for the centrifugal pumps and motors required for the sewage pumphouse at the Winnipeg shops. The specifications for the latter provide for the supply of one centrifugal pump, volute pattern, with a capacity of 16,000 galls. a minute, against a head of 48 ft., to be direct connected to a vertical motor of sufficient capacity; one centrifugal pump, volute pattern, with a capacity of 2,000 galls. a minute, against a head of 15 ft., to be direct connected to a vertical motor of sufficient capacity.

The arrangement for the temporary operation of the line from Winnipeg to Lake Superior Jct. was put in effect Oct. 6, when G.T. Pacific Ry. trains were run over the C.N.R. line in Winnipeg to the N.T.R., coming from the east, and so on to the G.T. Pacific branch line from Lake Superior Jct. to Fort William, Ont.

The members of the N.T.R. Commission arrived in Winnipeg, Oct. 13, from Fort William, Ont., having made their first official inspection of the newly opened line.

GRAND TRUNK PACIFIC RAILWAY.

Speaking at Montreal, Oct. 3, Senator J. P. Casgrain advocated the building of a line from Montreal to the National Transcontinental Ry. by the Provincial Government, and leasing it to the G.T. Pacific Ry. The G.T.P. Branch Lines Co. has charter powers to build such a line.

It was expected that the G.T. Pacific Ry. would be able to enter into possession of some part of the new union station at Winnipeg towards the end of Oct.

The arrangement between the G.T.P. R. and the Canadian Northern for the building of a loop to connect with the National Transcontinental Ry. at St. Boniface, Man., was not carried out, but a temporary arrangement was made, Oct. 4, by which the G.T.P.R. trains could connect with the N.T.R. over C.N.R. tracks.

In regard to the proposed lines from Regina to Moose Jaw, Sask., we were recently advised that the company was waiting to have the location maps approved by the Government. Since this information was received the plans have been approved, an arrangement having been made between the C.N.R., the C.P.R. and the G.T.P.R., by which the difficulties have been avoided, and satisfactory routes found for the two new lines without interfering with the C.P.R.

The Board of Railway Commissioners has approved of the location of the projected branch line from sec. 31, tp. 40, range 26, west second meridian, mileage 55.148 to mileage 111.536. The branch will start at Young, mileage 422.3, on the main line, and will terminate in Prince Albert. The question of the route into that place was under consideration at a meeting of the Prince Albert Board of Works, Oct. 11.

Reports from the construction camps Oct. 9, state that the grading gangs are working within 16 miles of Calgary, on the branch line from Tofield, Alta. The route was deflected to the east of Irricana, so as not to interfere with a C.P.R. spur. Contracts have been let for the building of a bridge across the Red Deer River. The bridge will be about 1,100 ft. long and about 170 ft. above high water, and is expected to be completed in about a year. Track has been laid to the site of the bridge at Red Deer, but it is doubtful if any further tracklaying will be done until the bridge is completed.

Construction on the line west of Edmonton, towards the Yellowhead Pass, is being proceeded with rapidly. A 12-stall roundhouse, with an addition for a repair shop, is being built, and a large acreage is being laid out for yard accommodation at Edson, the first division terminal point west of Edmonton.

At the Prince Rupert end of the line, according to an interview with G. G. S. Lindsey, who returned to Toronto Oct. 13, from a trip through Northern British Columbia, "The Hazleton section of the G.T.P.R. is progressing. Steel is laid, or will be, before the end of Oct. to Kitselas, 104 miles up, and grading is fast finishing to Hazleton, 81 miles farther on, and even to Aldermere, another 55 miles still farther east, to which point the rails will be down, it is said, early next year." A train service is in operation to mileage 65 for freight purposes, and the construction trains run for some miles further.

Resulting from the recent trip of inspection over the line by President Hays and Chairman Smithers, of the G.T.R., application was made to the British Columbia Government, Oct. 11, for an order-in-Council to permit the employment of Asiatic labor on the building of the line in the province. After hearing D'Arcy Tate, the company's solicitor, fully on the question, the Government decided not to grant the application.

The surveys for the branch from near Fort George to Vancouver are being proceeded with. A party under W. I. Bassett, is working from Agassiz north via Harrison River, Harrison Lake and Lillooet River to Lillooet. The trial lines from Lillooet to Lytton run early in the season are not considered satisfactory as to gradients, and the heavy rock work involved. It is expected that a low gradient will be secured by the new survey, and if this should prove to be the case, the line will parallel the C.P.R. from Agassiz to Vancouver, unless it is decided to adopt a line into North Vancouver. (Oct., pg. 845.)

Subway at Brock Ave., Toronto.—The Board of Railway Commissioners has ordered the construction of a subway under the railway tracks at Brock Ave., Toronto, plans to be submitted at once. The work is to be completed within six months of the approval of the plans, and an order will be made later on apportioning the cost. The tracks crossing Brock Ave. are G.T.R. line to North Bay, G.T.R. line to Stratford, etc.

The C.P.R. ran an immigrant train from Montreal to Winnipeg, via North Toronto, passing through that station Oct. 13. The immigrants for Toronto changed at Leaside Jct., for Toronto union station.

J. Arbuthnot, Winnipeg, Man., President of the Pacific Coast Coal Mines Co., stated Oct. 6 that there was no truth in the reports that the C.P.R. was about to purchase the company's collieries at South Wellington, Vancouver Island, for $4,000,000.

Boston & Maine Rd. officials confirm the report that the Hoosac tunnel is to be electrified. It is stated that the preliminary estimate of the cost of the change, including the cost of the electric locomotives, will be $1,000,000. Passenger and freight trains will be taken through the Hoosac mountain by electric locomotives between Tunnel station on the east and North Island on the west.

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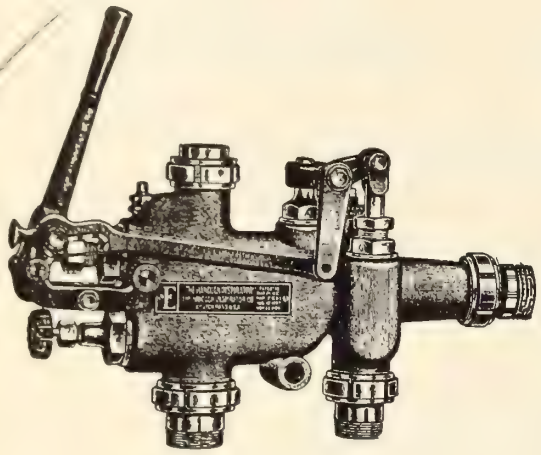

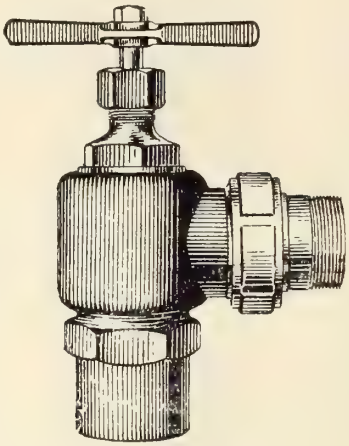

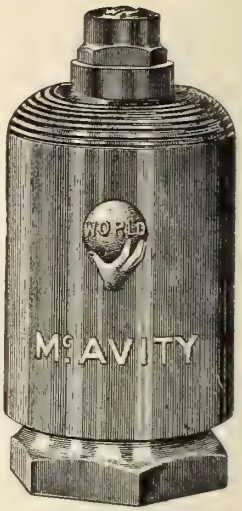

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Orders by the Railway Commissioners.

Beginning with June, 1904, we have published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed our paper have a continuous record of the Board's proceedings. No other paper has done this.

The dates given of orders, immed ately following the numbers, are those on which the hearing took place and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the date assigned to them

Orders 11616 to 11631 were omitted from our Oct. issue, the summaries of them not having been dispatched from Ottawa in time.

11616. Sep. 7.—Dismissing application of city of Toronto for order directing G.T.R. to allow applicant to carry its transmission line on lands expropriated by it under by-law 5433, passed March 14.

11617. Sept. 9.—Authorizinz C.N.R. to erect wires under Kaministikwia Power Co.'s wires near Kakabeka, Ont.

11618. Sep. 8.—Authorizing F. J. Ure, Woodstock, Ont., to lay drain under G.T.R. on county road, between Cons. 11 and 12, East Zorra tp., Ont.

11619. Sep. 7.—Authorizing G.T.R. to take additional lands in Toronto, to enable it to comply with orders 8487 and 10169, Oct. 15, and Dec. 8, 1909, re Toronto grade separation.

11620. Sep. 8.—Authorizing G.T.P. Branch Lines Co. to build across highway on its Prince Albert branch, between secs. 20 and 29, tp. 37, r. 26, w. 2 m., Sask.

11621. Sep. 8.—Approving C.N.O.R. location of part of its Sudbury-Port Arthur Division through unsurveyed territory in Sudbury mining division, Algoma District, mileage 200 to 220, from Sudbury Jct.

11622. Sep. 13.—Authorizing C.P.R. at expense of B. C. Public Works Department, to build two level crossings about 5,000 ft. apart, east of Kault station, B.C.

11623. Sep. 9.—Authorizing C.P.R. to build spur for Overbrook wheat farms, Eyebrow, Sask., on its Moose Jaw North Westerly branch. .

11624. Sep. 13.—Authorizing C.N.R. to cross C.P.R. Forward branch with its Moose Jaw extension, near Forward, Sask.

11625. Sep. 12. — Authorizing Chatham, Wallaceburg and Lake Erie Ry. to open for traffic that portion of its branch line to Pain Court, Ont.

11626. Sep. 9.—Authorizing Ontario Hydro-Electric Power Commission to use transmission wires erected across G.T.R. at lot 114, Thorold tp.

11627. Sep. 9.—Authorizing G.T.P. Branch Lines Co. to cross at grade C.P.R. Pheasant Hills Branch, in s.w. ¼ sec. 33, tp. 34, r. 27, w. 2 m., Sask.

11628. Sep. 9.—Authorizing Manitoulin and North Shore Ry. to open for traffic that portion of its line from about 13 miles west of Sudbury to Krean Hill, Ont., about 10 miles.

11629. Sep. 12.—Authorizing G.T.P.R. to build between secs. 11 and 12, tp. 53, r. 4, w. 5 m., Alta.

11630. Sep. 12.—Certifying correction of error in plan approved by order 10323, Apr. 23.

11631. Sep. 12.—Amending order 11463, made upon application of Kingston, Portsmouth and Cataraqui Electric Ry.

11763. Sep. 9.—Dismissing application of Burnaby District Board of Trade, B.C., for relief respecting G.N.R. freight rates between Vancouver and New Westminster.

11764. Sep. 22.—Extending to Dec. 31, time within which G.T.R. was authorized, by order 9344, to build branch in Goderich, Ont.

11765. Sep. 13.—Approving proposed separation of grades by C.P.R. over Yonge St. and Avenue Rd., Toronto.

11766. Sep. 22.—Ordering C.P.R., within 90 days, to install an electric signal bell at public road crossing, between Moffatt and Corwhin stations, Ont.

11767. Sep. 23.—Limiting speed of C.P.R. trains over its Kipp-Aldersyde Branch, Alta., from mileage 0 to 28.2, to 20 miles an hour.

11768. Sep. 22.—Authorizing town of Paris, Ont., to erect wires across G.T.R. on Broadway St. from south to north of the depot at east end of station.

11769. Sep. 21.—Authorizing Ontario Power Co. to erect wires across M.C.R. Buffalo branch, between lots 22 and 23, con. 7, Crowland tp., Ont.

11770. Sep. 23.—Approving Alberta Central Ry. location from Red Deer easterly, 40 miles.

11771. Sept. 23.—Authorizing Niagara, St. Catharines and Toronto Ry. to build spur on Pine and Water Sts., Thorold, Ont., through Montrose Paper Mills' property.

11772. Sep. 24.—Authorizing Canadian Niagara Power Co. to erect wires across Bell Telephone Co.'s wires at Courtwright and Robinson Sts., Bridgeburg, Ont.

11773. Sep. 24.—Extending to Nov. 1 time for publishing and filing C.P.R. revised westbound tariff on coal and coke.

11774. Sep. 23.—Authorizing Simcoe Ry. and Power Co. to erect wires across Bell Telephone Co.'s wires, between cons. 2 and 3, opposite lot 17, Tay tp., Ont.

11775. Sep. 23.—Authorizing London, Ont., Water Commissioners to erect wires across G.N.W. Telegraph Co.'s wires at Colborne and York Sts.

11776. Sep. 23.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across G.T.R. at lot 32, con. 1, Saltfleet tp.

11777. Sep. 23.—Authorizing Simcoe Ry. and Power Co. to erect wires across Bell Telephone Co.'s wires between cons. 4 and 5, opposite lot 15, Tay tp., Ont.

11778. Sep. 23.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across G.T.R. wires in New Hamburg tp.

11779. Sep. 23.—Relieving C.P.R. from providing further protection at crossing two miles east of Methven Man.

11780. Sep. 23.—Approving Algoma Central and Hudson Bay Ry. standard passenger tariff C.R.C. 41, providing maximum passenger toll between stations on its line of 4c. a mile or fraction thereof.

11781. Sep. 23.—Authorizing the building of drain under G.T.R., con. 7, Malahide tp., Ont.

11782. Sept. 24.—Authorizing G.T.R. to build siding on Mowat Ave., Toronto, according to new plan filed, instead of as shown on the plan in connection with order 4816, May 19, 1908.

11783. Sep. 24.—Authorizing G.T.R. to build siding from siding on Mowat Ave., Toronto, which it was authorized to build by order 4816, upon and across Mowat Ave., and on lots 44 to 37, inclusive, to H. Disston and Sons' premises, and that C.P.R. has right to use it on equal terms, and that it be completed within three months.

11784. Sep. 24.—Authorizing town of Swift Current, Sask., to lay pipe under C.P.R.

11785 and 11786. Sep. 24.—Authorizing Burroughs Falls Power Co. to erect wires under Boston and Maine Rd. at crossings south and north of Ayer's Cliff station, Ont.

11787. Sep. 24.—Authorizing M. Richardson to lay pipe under G.T.R. between Brant and Haldimand counties, Seneca tp., Ont.

11788. Sep. 24.—Authorizing London, Ont., Water Commissioners to erect wires across Bell Telephone Co.'s wires at Beaconsfield Ave. and Wharncliffe Road.

11789. Sep. 26.—Approving C.N.O.R. standard building plans for signal cabin 12x14, freight house 23x35, freight house 30x70, section dwelling house, section tool house, 40,000 gallon tank, station no. 2, station no. 3, single and double closets, on its Toronto-Ottawa section.

11790. Sep. 26.—Approving Niagara, St. Catharines and Toronto Ry. Standard Passenger Tariff C.R.C. 13, between all points on its railway, at 3c. a mile, or fraction thereof.

11791. Sep. 24.—Approving C.N.R. location between Edmonton and Camrose, Alta., mileage 0 to 44.40, through tps. 47-52, r. 20-24, w. 4 m.

11792. Sep. 24.—Amending order 11228, which authorized building of a spur at Medicine Hat, Alta., by substituting "Medicine Hat" for "Lethbridge," where it occurs in the order.

11793. Sep. 26.—Approving C.N.O.R. plans for station building at Port Hope, Ont.

11794. Sep. 26.—Authorizing C.N.O.R. to build across Quetton St., Washago, North Orillia tp.

11795. Sep. 26.—Approving C.N.O.R. location of part of its Sudbury-Port Arthur Division through unsurveyed territory in Sudbury mining division, Algoma District, mileage 220 to 240, from Sudbury Jct.

11796. Sep. 26.—Approving C.N.O.R. plans for station building at Cobourg, Ont.

11797. Sep. 26.—Relieving G.T.R. from providing further protection at crossing at Park Hill, Ont., con. 21, West Williams tp.

11798. Sep. 26.—Authorizing C.N.O.R. to build across G.T.R. spur to Lehigh Valley cement works, subject to certain conditions.

11799. Sep. 26. — Authorizing Toronto, Hamilton and Buffalo Ry. to change signalling system where its main line crosses G.T.R. east of Victoria Ave. South, Hamilton, Ont., and that the speed of its trains over the crossing be limited to 10 miles an hour.

11800. Sep. 26.—Authorizing C.N.O.R. to build across G.T.R. spur to Belleville cement works, Point Anne, subject to certain conditions.

11801. Sep. 24.—Amending order 9900, which authorized C.P.R. to open for traffic the portion of its Langdon North branch from mileage 0 to 38.88, Alta., by deleting clause limiting speed of its trains.

11802. Sep. 13.—Authorizing G.T.R. to build branch from the siding on Mowat Ave., Toronto, which C.P.R. was authorized to build by order 4816, to H. Disston and Son's premises, and that C.P.R. has the right to use it jointly with G.T.R., the G.T.R. to complete branch within three months from date, and that order 11783 be rescinded.

11803. Sep. 28.—Relieving G.T.R. from providing further protection at first highway crossing north of Langford station, Ont.

11804. Sep. 27.—Authorizing C.P.R. to build spurs for Metals Limited, Tees and Persse, and Campbell and Griffin, Calgary, Alta.

11805. Sep. 28.—Authorizing C.P.R. to build under Orillia municipality's wires between cons. 4 and 5, North Orillia tp.

11806. Sep. 13.—Authorizing C.P.R. to use jointly with G.T.R. the branch authorized by order 11802; that C.P.R. pay half cost of the construction, and half-yearly, half cost of maintenance; that the cost of construction and maintenance be established by G.T.R. Division Engineer's certificate, subject, in case of dispute, to Board's Chief Engineer, and rescinding order 11741, Sept. 13.

11807. Sep. 29.—Authorizing London, Ont., Water Commissioners to erect wires across G.N.W. Telegraph Co.'s wires at Beaconsfield Ave. and Wharrencliffe Rd.

11808. Sep. 19.—Authorizing G.T.P.R. to complete building of bridge in East Clover Bar District, about two miles west of Ardrossan station, between sec. 4 and 5, tp. 53, r. 22, w. 4 m.

11809. Sep. 19.—Authorizing Local Improvement District 24-S-4 to extend Alexandra St. across Calgary and Edmonton Ry. (C.P.R.), and authorizing Calgary and Edmonton Ry. to remove the switch outside the limit of crossing.

11810. Sep. 17.—Authorizing city of Calgary, Alta., to build overhead bridge across C.P.R. Macleod branch.

11811. Sep. 19.—Adding Clover Bar Sand and Gravel Co. as party to application of W. Humberstone, Edmonton, Alta., for order directing G.T.P.R. to build branch to his mine, in n.w. ¼ sec. 7, tp. 53, r. 23, w. 4 m.

11812. Sep. 19.—Authorizing G.T.P.R. to expropriate lots 36, 37, 38 and 46 in Dwyer subdivision, Edmonton, Alta., and within 10 days file plan for carrying its line over Norton St., and on approval, to complete all work necessary for the crossing on or before July 1, 1911, and to complete all necessary work to connect Nanton St. and Fort Saskatchewan trail in accordance with the standard regulations affecting highway crossings, as amended May 4, within one month from date; the Saskatchewan trail not to be closed for public travel until completion of Norton St. bridge.

11813. Sep. 19.—Adding C.P.R. as party to North Battleford Lumber Co.'s complaint on behalf of the retail lumbermen of North Battleford, Sask., alleging discrimination in lumber rates between Warman and Lloydminster, by C.N.R., and postponing hearing of application until C.P.R. answer is filed or time for filing has elapsed.

11814. Sep. 8.—Authorizing C.N.R. to extend siding from station 277-46, Vancouver, B.C., south for 300 ft. for the Prudential Builders.

11815. Sep. 12.—Dismissing application of Greenwood, B.C., board of trade, and O. McKay, for operation by V. V. and E. Ry. and Nav. Co. of branch near Myncaster.

11816. Sep. 19.—Ordering G.T.P.R. within 30 days to build highway crossing between secs. 25 and 30, Kirk, Alta.

11817. Sep. 1.—Dismissing Esquimalt and Nanaimo Ry.'s application to maintain in its present condition passage for foot passengers only, at crossing of old Esquimalt road, or to divert old Esquimalt road between William and Dalton Sts., Victoria, B.C.

11818. Sep. 6.—Dismissing C. J. Piper's application for order directing C.N.R. to build siding at Piper siding, B.C.

11819. Sep. 7.—Re ore rates, etc., on White Pass and Yukon route. This order is given in full on another page.

11820. Sep. 19.—Authorizing Alberta Government to cross Calgary and Edmonton Ry., according to plan on file, and ordering that if old crossing was one which C. & E. Ry. was bound to maintain, it shall maintain new crossing; if any dispute as to maintenance arises, either party may submit evidence to the Board as to company's liability.

11821. Sep. 16.—Authorizing C.P.R. to file plan showing location of spur to S. Houlton's premises, Calgary, Alta., and after ap-

Electric Headlight Saves Train

(From Daily Papers)

"Wednesday night B——— forgot to deliver an order to hold Eastbound Passenger Train No. 6, and only the fact that the Electric Headlight of the oncoming Passenger train was seen at a great distance by the Engineer of the Westbound Freight prevented a head end collision in the ——— Canyon near ———. The warning light was seen in time to enable the freight to get back on to the siding at ———."

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proval to build spur, and if it becomes necessary, to protect the crossing at Fourth St., S. Houlton to bear such portion of the expense as Board may determine.

11822. Sep. 17.—Postponing question of subway under C.P.R. on Fourth St. west, Calgary, Alta., and ordering C.P.R. to file plan within 30 days, showing location of gates on Fourth St. west; and within 60 days after the approval to erect them and to operate them day and night, the erection of gates not to prejudice rights of parties under agreement of Sept. 14, 1906.

11823. Sep. 19.—Authorizing G.T.P. Branch Lines Co. to file within 30 days, plan of overhead bridge over its line, n.e. ¼ sec. 34, tp. 45, r. 21, w. 4 m., the local improvement district, and the Alberta Government to deposit $200 and $500 respectively on or before Dec. 1 towards the work, to joint credit of the district council, the Alberta Government, and G.T.P. Branch Lines Co.; the company to complete the work on or before June 15, 1911; the local improvement district to complete approaches at both ends, and upon completion $700, together with accrued interest, be paid to the G.T.P. Branch Lines Co.

11824. Sep. 16.—Ordering C.P.R. to file, within 30 days, plan showing location of gates where Main St., Medicine Hat, Alta., crosses its right of way, and within 60 days after approval to erect gates, the cost to be apportioned: C.P.R. 40%, city of Medicine Hat, 40%, Railway Grade Crossing Fund, 20%.

11825. Sep. 26.—Amending order 11605, which provided for installation of interlocking plant where National Transcontinental Ry. crosses C.N.R. Dundee branch at mileage 246, near St. Boniface, Man., by providing that interlocking plant be installed, maintained and operated at expense of National Transcontinental Ry., by C.N.R., and rescinding order 11735, Sept. 20.

11826 to 11829. Sep. 29.—Temporarily approving Bell Telephone Co.'s agreements with Manitoulin and North Shore Ry.; Sandwich South tp., Ont.; Kitley Rural Telephone Co., and H. H. Coffey and J. A. M. Armstrong, for interchange of service, provided it does not authorize higher tolls than were authorized previous to May 13, 1906.

11830. Sep. 1.—Ordering British Columbia Government to build a level crossing over Esquimalt and Nanaimo Ry., according to plan.

11831. Sep. 30.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Toronto, Hamilton and Buffalo Ry. at Hunt St., Hamilton.

11832. Sep. 30. — Authorizing Montreal Light, Heat and Power Co. to lay pipe under C.P.R. on St. Denis St.

11833, 11834. Sep. 30.—Authorizing Shawinigan Water and Power Co. to erect wires across C.P.R. near Three Rivers, and across St. Maurice Valley Ry. at Mont Carmel, Que.

11835, 11836. Sep. 30.—Authorizing Erindale Power Co. to erect wires across Bell Telephone Co.'s wires at Birmingham Ave. and Sixth St., New Toronto, Etobicoke tp., and at Middle and Centre Roads, Toronto tp., Ont.

11837. Sep. 30. — Authorizing Shawinigan Water and Power Co. to erect wires across St. Maurice Valley Ry. at Marchand's station, Que.

11838 to 11841. Sep. 30.—Authorizing Erindale Power Co. to erect wires across Bell Telephone Co.'s wires at intersection of Evans Ave. and Church St., Mimico, at New Toronto and Sixth Sts., New Toronto; at Church and New Toronto Sts., and at Evans and Mimico Aves., Mimico, Ont.

11842. Sep. 30.—Relieving G.T.R. from providing further protection at first highway crossing south of St. Jacob's station, Ont.

11843. Sep. 27.—Authorizing C.N.O.R. to divert Princess St., Orono.

11844. Sep. 30. — Temporarily approving Bell Telephone Co.'s agreement with McKillop tp., Ont., for interchange of services.

11845. Sep. 30.—Relieving G.T.R. from providing further protection at highway crossing at Mitchell, Ont.

11846. Sep. 27.—Dismissing application of G. N. Smith, Clarke tp., Ont., for order directing C.N.O.R. to build overhead bridge on lot 3, con. 4, Clarke tp.

11847. Sep. 30.—Approving location of G. T.P.R. Alberta coal branch, mileage 0 to 37, from sec. 6, tp. 53, r. 18, to tp. 48, r. 21, w. 5 m., North Alberta District.

11848. Sep. 30.—Amending order 9980, made upon application of C.P.R., authorizing it to open for traffic the extension of its Lacombe Branch from Stettler to Castor, Alta.

11849. Sep. 30.—Authorizing C.P.R. to build bridge over South Saskatchewan River, near Outlook, Sask.

11850. Oct. 1.—Authorizing C.P.R. to reconstruct bridge 42.1 on its London subdivision, Ontario Division.

11851. Oct. 1.—Authorizing C.P.R. to build spur across Tucker St., Arthur, Ont.

11852. Oct. 1.—Amending order 11224 authorizing C.P.R. to build across and divert highways on the Macleod division of its Crow's Nest Branch, from mileage 0 to 30.7.

11853. Oct. 3.—Authorizing Ste. Cecile de Levrard municipality to construct highway across Quebec, Montreal and Southern Ry. in lot 258, cadastral 450, con. 4, Nicolet co., Que.

11854. Oct. 3.—Approving Esquimalt and Nanaimo Ry. revised location between Duncans and Cowichan Lake, B.C., from station 893-31 to 967.

11855. Sep. 27.—Amending order 9652, authorizing C.N.O.R. to build between lots 2 and 3, con. 4, Clarke tp.

11856. Oct. 3.—Authorizing town of Orillia, Ont., to lay pipe under G.T.R. about 1300 ft. west of road allowance between cons. 5 and 6.

11857. Oct. 3.—Authorizing Guelph, Ont., Water Works Department to lay pipe under G.T.R. on Dufferin St.

11858. Oct. 4.—Authorizing G.T.P.R. to divert highway between secs. 28 and 33, tp. 23, r. 8, w. 2 m., Yorkton District, Sask.

11859. Oct. 4.—Approving C.N.O.R. revised location between stations 617-65 and 696-15, St. Andrew's village.

11860. Sep. 27.—Authorizing C.N.O.R. to build a subway carrying Choate Road under its line from lot 5, con. 2, to and under crossing at Cavan St., lot 5, con. 1, Hope tp.

11861. Oct. 3.—Authorizing G.T.R. to build steel bridge across highway where its line crosses south of Chesley, Ont.

11862. Oct. 4.—Authorizing C.P.R. to use bridges 8.05, 14.2 and 15.6 on its Tobique section, N.B.

11863. Oct. 4.—Rescinding order 11463, Aug. 3, made upon application of Kingston, Portsmouth and Cataraqui Electric Ry., and rescinding order 11631, Sept. 12, amending same, re loading of long or bulky articles through side doors of box cars, upon application of Canadian Freight Association.

11864. Oct. 4.—Authorizing C.P.R. to use bridge 10.6 on its Fredericton section, N.B.

11865. Oct. 4.—Approving G.T.R. plan showing remodelling of passenger station at Windsor, Ont.

11866. Oct. 4.—Approving revised rule 6 in Canadian Classification 15, respecting articles too long and bulky to be loaded in box cars through side doors, also providing additional ratings for asphaltum, paints and varnish. This order is published in full on another page.

11867. Oct. 4.—Authorizing C.P.R. to build a Y and make connection with British Columbia Electric Ry. in n.w. ¼ sec. 2, tp. 16, r. 3, w. 7 m.

11868. Oct. 4.—Approving C.P.R. location sec. 12, tp. 33, r. 22, w. 3 m., to sec. 3, tp. 39, r. 28, w. 3 m., Sask.

11869. Oct. 5.—Authorizing Ontario Minister of Public Works to build a highway crossing over C.P.R. on lot 5, con. 3, Dowling tp., Sudbury District.

11870. Oct. 5.—Ordering C.P.R. to install gates and maintain day and night watchman at intersection of Westminster Ave., Montreal West.

11871. Sep. 26.—Ordering G.T.R. to build subway at level crossing at Brock Ave., Toronto.

11872, 11873. Oct. 4.—Approving G.T.R. diversion of line as constructed between lot 25, con. 1, Brighton tp., Ont., and lot 29, con. B, and to cross C.N.O.R. by a bridge.

11874. Oct. 5.—Authorizing C.P.R. to close two crossings between Churchville station and Eldorado Park, Ont., and to build a roadway in lieu of same.

11875. Oct. 5.—Authorizing C.P.R. to build spur for Standard Lumber Co., near Cranbrook, B.C.

11876. Oct. 5.—Approving Kootenay Central Ry. location from mileage 24.9 at Fort Steele, to 35.9 at Wasa, B.C.

11877. Sep. 27.—Rescinding order 11392, Aug. 9, authorizing C.N.O.R. to cross at grade between lots 10 and 11, con. 4, Clarke tp., the company to submit within 30 days detail plan of subway authorized by order 9562, Feb. 15, for approval of Board's Engineer, the work to be completed by May 1, 1911.

11878. Oct. 4.—Rescinding order 11736, dated Sept. 20, authorizing C.P.R. to operate branch from mileage 9.56, lot 6, con. 4, Etobicoke tp., to connection with G.T.R. in lot 7, con. 1, Etobicoke tp., and permitting it temporarily to put in switches and semaphores to be operated by hand.

11879. Oct. 5.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across C.P.R. telegraph wires at Strange St., Waterloo.

11880. Oct. 5.—Approving G.T.P.R. Standard Freight Mileage Tariff, C.R.C. 7, for mileage 1 to 200, inclusive, to enable it to operate parts of its line between Prince Rupert, B.C., and Thornton, Alta., already completed.

11881. Oct. 5.—Authorizing C.P.R. to build under Erindale Power Co.'s wires between cons. 2 and 3, Etobicoke tp., Ont.

11882. Oct. 5.—Ordering C.N.R. to complete work required by order 9173, Jan. 6, which directed it to provide suitable accommodation for traffic between Rainy River and Fort Frances, Ont., by Nov. 15.

11883. Oct. 6.—Declaring that interswitching charges by Ottawa and New York Ry., in excess of 1c. per 100 lbs., and $3 and $8 as minimum and maximum per car load, respectively, as prescribed in order 4988, July 8, 1908, are unlawful.

11884. Oct. 6.—Ordering C.P.R. within 90 days to install improved electric bell at crossing at Mechanicsville, Ottawa.

11885. Oct. 6.—Extending for three months time within which G.T.R. was authorized to build branch to W. Knechtel and Son's premises.

11886. Oct. 5.—Authorizing C.P.R. to build spur for Dougall Varnish Co., Montreal.

11887. Oct. 6.—Authorizing C.P.R. to build spur to J. Hanbury's sawmill, Vancouver, B.C.

11888. Oct. 7.—Authorizing town of Berlin, Ont., to move Berlin and Waterloo Street Ry. tracks where they cross G.T.R. on King St.

11889 to 11893. Oct. 7.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across C.P.R. telegraph wires at five points.

11894. Oct. 7.—Authorizing Seymour Power and Electric Co. to erect wires across Bell Telephone Co.'s wires in Thurlow tp., Ont.

11895. Oct. 8.—Authorizing C.N.R. to build across certain highways as shown on profile approved by order 9722, Feb. 26.

11896. Oct. 7.—Authorizing G.T.R. to install, within 90 days, improved type electric bell at first highway crossing west of Wales, Ont.

11897. Oct. 7.—Authorizing C.N.R. to open for traffic that portion of its line from Ochre River to end of steel on Ste. Rose du Lac branch, 15 miles.

11898. Sept. 27.—Ordering C.N.O.R. to cut timber 200 ft. south of its track across public road between lots 4 and 5, con. 4, Clarke tp., to make a clear view 700 feet westerly from the highway.

11899. Oct. 7.—Ordering that a building material list be provided in the forthcoming new Canadian Classification 15.

11900, 11901. Oct. 8.—Approving location of C.N.R. Goose Lake extension through tps. 30-31, r. 11-15 and r. 16-20, w. 4 m., Alta., from junction with Qu'Appelle, Long Lake and Saskatchewan Ry. at Saskatoon, Sask.

11902. Oct. 10.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across C.P.R. telegraph wires at King and Sophia Sts., Hamilton.

11903. Oct. 10.—Authorizing C.N.O.R. to build between lots 13 and 14, con. 4, Hope tp.; to divert highway along the north side of right of way to connect with road between cons. 3 and 4; and divert highway between cons. 3 and 5 to cross its line at right angles, by a subway; and rescinding orders 10066 and 10357.

11904. Oct. 10.—Approving revised location of portion of C.P.R. main line as constructed from mileage 70.4, Thomson subdivision, near Spence's Bridge, B.C., to mileage 90; mileage 101 to 121.4, Thomson subdivision; and mileage 0 to 49.06, Cascade subdivision, at Ruby Creek.

11905. Oct. 10.—Authorizing C.P.R. to build additional track across first street east and first street west of Robert St., and across two intervening streets, in Hastings, B.C., and to build an extension to the undercrossing and bridge on which to carry the extra track.

11906. Oct. 10.—Extending, for six months, time within which C.N.R. was authorized by order 9072 to install interlocking plant at crossing near Midale, Sask.

11907. Oct. 10.—Approving G.T.R. plan of side track and location of building at Wyebridge, on branch line authorized by order 10514.

11908. Oct. 10.—Authorizing Toronto, Hamilton & Buffalo Ry. to build branch with spurs, from east of Harvey's Lane northwesterly to International Harvester Co.'s lands, Hamilton, Ont.

11909. Oct. 10.—Authorizing C.P.R. to build extension to spur for Hamilton Powder Co., near Barnet station, B.C.

11910. Oct. 10.—Authorizing C.N.R. to build branch across Alberta Ave., Lloydminster, Sask.

11911 to 11913. Oct. 10.—Authorizing C.P.R. to use bridge over highway at Bala, Ont.; Marion Ave. subway, Parry Sound; Little Bridge, St. Almonte; and bridges 82.1, 105.0, 105.3, and 123.9, on its Chalk River section, Ont.

11914. Oct. 10.—Authorizing Walkerton and Lucknow Ry. to use bridge 16.35.

11915. Oct. 10.—Authorizing C.P.R. to use four bridges on its Listowel branch, Ont.

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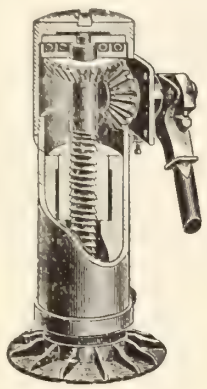

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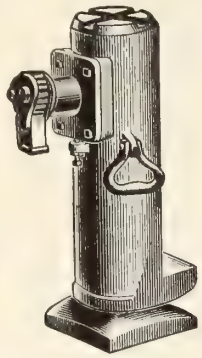

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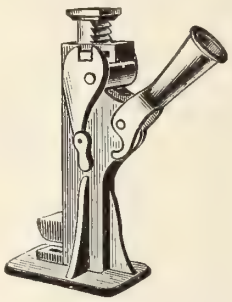

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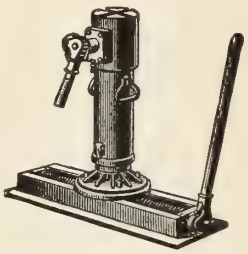

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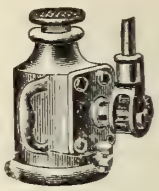

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OFFICE AND WORK

ESPLANADE STREET EAST, TORONTO

11916, 11917. Oct. 10.—Authorizing Montreal Terminal Ry. to build extension to Dominion Light, Heat and Power Co.'s works and United Soap Co.'s works, Maisonneuve, Que.

11918 to 11921. Oct. 10.—Authorizing C.N.O.R. to build between lots 604 and 607, South River range, and across roads on lots 646 and 647, North Rouge River range; 596 and 597, South Rouge River range; 630, 631 and 632, Rouge River range, St. Andrew's parish.

11922. Oct. 10.—Approving location of C.P.R. Lauder extension from mileage 0 to 3.23, w. p. m., Man.

11923. Oct. 10.—Authorizing C.P.R. to use bridges 43.79, 84.9, 9.3, 35.4, 115.4, 71.2, 50.4, and 62.5, on its Chalk River section, Eastern Division.

11924. Oct. 10.—Authorizing W. J. Aikens, of Dunnville, Ont., to lay gas pipe under G.T.S. near Onondaga station.

11925. Oct. 10.—Authorizing Seymour Power and Electric Co. to erect wires across G.T.R. at lot 13, con. 1, Thurlow tp., Ont.

11926 to 11932. Oct. 11.—Temporarily approving Bell Telephone Co.'s agreements with Apsley Telephone Co., Nov. 3, 1908; Fingal Telephone Co., July 13, 1908; North American Telegraph Co., July 1, 1909; Camden Independent Telephone Co., Sept. 16, 1910; Houghton and South Walshingham Telephone Co., May 21, 1907; Little Nation Telephone Co., Dec. 28, 1905; and Hawthorne Hill Telephone Co., Aug. 18, 1908.

11933. Oct. 10.—Approving plan of drain to be built under M.C.R. in Harwich tp., Ont.

11934. Oct. 11.—Authorizing C.P.R. to build bridge 72.6 over Little Key River, on its Lake Superior Division.

11935. Oct. 11.—Authorizing C.P.R. to build spur for Saskatoon Brick and Supply Co. at Dunfermline, Sask.

11936. Oct. 11.—Authorizing G.T.R. to build branch with spurs, from C.P.R. district 16, Middle Division, near Waterdown station, to National Fire Proofing Co.'s premises, East Flamboro tp., Ont.

11937. Oct. 11.—Approving Western Union Telegraph Co.'s tariff of maximum tolls for messages between its offices in Nova Scotia, New Brunswick and Quebec, filed as Tariff C.R.C. 6.

11938. Oct. 11.—Temporarily approving agreement between Bell Telephone Co. and North Huron Telephone Co., Sept. 27, 1910.

11939. Oct. 11.—Authorizing town of Farnham, Que., to lay culvert under C.P.R., St. Guillaume branch.

11940. Oct. 11.—Authorizing city of Montreal to lay sewer under Montreal Park and Island Ry., at Sixth Ave., Notre Dame de Grace.

11941. Oct. 11.—Authorizing Chatham Gas Co. to lay pipe under G.T.R. at Lacroix St., Chatham, Ont.

11942. Oct. 11.—Authorizing Seymour Power and Electric Co. to erect wires across Bell Telephone Co.'s wires between Sidney and Thurlow tps., near Belleville, Ont.

11943. Oct. 11.—Authorizing Welland Electrical Co. to erect wires across G.T.R. on Major St., Welland, Ont.

11944. Sept. 22.—Ordering C.P.R. to place watchmen at Main and Tupper Sts., Portage la Prairie, Man., where its railway crosses; the C.N.R. to appoint watchman on said streets where C.N.R. and G.T.P.R. cross, each company to bear half the expense; that leave be reserved to the city to apply for additional protection where the C.N.R. and G.T.P. cross if it is found that one watchman for the two roads is insufficient.

11945. Oct. 12.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across C.P.R. telegraph wires at John St., Waterloo.

11946. Oct. 12.—Authorizing C.P.R. to use bridge over Wellington St., Ottawa.

11947. Oct. 12.—Approving Campbellford, Lake Ontario and Western Ry. location from near Toronto to western boundary of Port Hope, Ont., with the exception of portions through Whitby, Oshawa and Bowmanville.

11948. Oct. 12.—Approving bylaw 11, authorizing General Manager of British Yukon Ry. to prepare and issue tariffs of tolls.

The G.T. Pacific Ry. Co. has issued writs against a number of companies in Vancouver, B.C., to have them prohibited from using the words "Grand Trunk" as part of their titles.

The first of a series of actions involving altogether over $600,000, in which the C.P.R. is the defendant, is being heard in the U. S. Circuit Court, Portland, Me. It is alleged that extensive forest fires in northern Maine in 1908 were caused by sparks from C.P.R. locomotives, and that in the fires camps, machinery, bridges, cut timber, etc., were destroyed.

C. P. R. Annual Meeting.

The 29th annual meeting of shareholders was held in Montreal, Oct. 5. Sir Thos. G. Shaughnessy, President and Chairman of the Board, in moving the adoption of the report for the year ended June 30, which was published in our last issue, said:—In round figures the gross revenue of your railway lines, exclusive of ocean steamships, shows an increase as compared with the previous year of $18,600,000, working expenses an increase of $7,700,000, and net earnings an increase of $10,900,000. The actual result was somewhat better than this, because the directors thought it wise to create at the cost of working expenses an additional fund of about $3,700,000 to provide for maintenance works of one kind or another contemplated, but not completed in the current year. These figures furnish conclusive evidence of the growth and progress in Canada, and of the earning power of your property, and show in a most emphatic way that the large sums provided during the past seven or eight years for improvement and facilities of every description over the whole system are yielding handsome returns in the efficiency and economy with which your traffic is being handled.

Insufficient rainfall in some sections of Western Canada during the growing season had a damaging effect upon grain crops, with the result that the quantity of wheat to be moved during the next few months is considerably less than it would have been had normal weather conditions prevailed. Up to the present this has had no material effect upon the revenue, but it is not improbable that later on there will be some shrinkage in gross earnings.

At the meeting of directors in August it was decided to increase the dividend on common stock to 7% per annum, exclusive of the 1% paid from land revenue, making a total distribution of 8%. Your directors are aware of the feeling amongst the shareholders that, taking into account the income and financial position of the company, this is scarcely sufficient, and if last year's returns be taken as a basis, that feeling is not without reasonable foundation, but we must not lose sight of the fact that conditions may not always be so favorable, that we may have lean years, and that in such contingency a large cash reserve will be a source of convenience and strength. But then apart from surplus earnings you have extraneous assets in deferred payments, or land mortgages, cash proceeds of land sales, and other items of like character in process of realization, that may be roughly estimated at $50,000,000, without taking into account unsold lands, and in ordinary course this amount should be substantially augmented within the next few years. In the opinion of your directors the best interests of the company and its shareholders will be subserved by keeping intact a considerable portion of these assets instead of resorting to the policy ordinarily characterized as melon-cutting, which has not always proved a boon to the beneficiaries. At the same time there is every reason why shareholders of the present day should expect such advantage in the way of income from these assets as may be possible without unduly encroaching on principal, and it is the intention of your directors to determine during the coming year how this can best be brought about.

There has been a very striking expansion in passenger traffic between this continent and Europe through Canadian ports since your two steamships, Empress of Britain and Empress of Ireland, were put into service, and the time has now arrived when steamships of greater size and speed should be provided for the route in the interest of Canadian ports, the country generally and rail transportation lines. While there has not been the same increase of traffic on the Pacific, there has been a steady growth, and your steamship line has been securing at least its proper share. While your Pacific boats are still in excellent condition, they are now too small for the trade, and should be replaced. Plans for meeting the situation on both oceans are receiving attention, and your directors expect that, within the next few weeks, they will be able to complete an arrangement.

Among measures that will come before you for approval at this meeting is a bylaw amending existing bylaws, so as to remove the necessity for closing books in Montreal, London and New York, before payment of each dividend on common shares. This will make it practicable to deal with the dividend quarterly instead of half-yearly, and your directors propose to do this, commencing with the first quarter of the current year.

Quite recently Sir Wm. Van Horne, who since his resignation as President in 1899 has been Chairman of the Board, decided to retire from that office, but, of course, to retain his seat on the board. The directors, in common I know with all shareholders, have a keen appreciation of the splendid services rendered to the company by Sir William, first in the early days of construction, when there were physical and financial difficulties to overcome that seemed almost insurmountable, and later when the railway, having been completed to the Pacific coast, it became his duty to formulate a policy of branch line construction, to establish relations with connecting railways for the interchange of business, and to complete and perfect an organization for securing traffic and for handling it as economically as circumstances would permit. With the pessimism that then prevailed at home and abroad he might easily have been discouraged, and the location and building of branch lines with great rapidity in a territory so vast furnished ample opportunity for error, but he was not given to discouragement, and the soundness of his judgment, as well as the accuracy of his work, have stood the test of time and experience. When he surrendered the Presidency I am quite sure that he was actuated, not so much by the call of growing years or the desire for leisure as by the wish that his chief lieutenant and his friend might have scope and opportunity; and during the intervening 11 years that have marked the development of what might be called a new C.P.R. he has been among the foremost directors in support of every measure of progress and enlargement, and it is a source of great satisfaction to me, as I know it is to him, that after 30 years of intimate business association, nearly all of them with the C.P.R., we are still colleagues and co-workers in the promotion of the welfare of the great company in which we all take such pride. For the directors and shareholders I express the earnest hope that Sir William will be with us for many years to sit at our board and to share in our councils.

Sir Thomas then moved the adoption of the report which was carried. The following resolutions were also adopted:

That the lease of the New Brunswick Southern Ry. be sanctioned and approved, which lease, among other things, demises to this company for 999 years the whole of the railway now constructed from St. John to St. Stephen, N.B., about 83 miles, and its appurtenances, at an annual rental equal to the interest payable on its bonds at present outstanding amounting to $500,000 at 3% per annum, and on such bonds as may

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be issued by the N.B.S.R. Co. to replace or redeem the said outstanding bonds at such rate as may be agreed upon by the two companies.

That the lease of the St. Maurice Valley Ry. be sanctioned and approved, which lease, among other things, demises to this company for 999 years the railways as now constructed from Three Rivers to Shawinigan Falls, thence to Grand Mere, Que., about 27½ miles, and all other railways or branches hereafter constructed by that company and their appurtenances at an annual rental equal to the interest payable on all bonds carrying interest at a rate not exceeding 4% per annum payable half-yearly it may issue at the request of this company expressed in writing under its corporate seal, the payment of such interest being guaranteed by this company, and the aggregate of all such bonds outstandings, not to exceed at any time $35,000 a mile of railway then either constructed or under contract to be constructed.

That the lease of the Kootenay Central Ry. be sanctioned and approved, which lease, among other things, demises to this company for 999 years the whole of the railways and branches which the Kootenay Central Ry. Co. has been by law authorized to construct, and whether constructed or to be constructed, including the railway from Fort Steele to about 5½ miles east of Wardner and from Fort Steele to Golden, B.C., and all other railways or branches hereafter constructed by that company and their appurtenances at an annual rental equal to the interest payable on all bonds carrying interest at a rate not exceeding 4% per annum, payable half-yearly, which it may issue at the request of this company expressed in writing under its corporate seal, the payment of such interest being guaranteed by this company and the aggregate of all such bonds outstanding not to exceed at any time $30,000 a mile of railway actually constructed and handed over to this company from time to time in sections for operation.

That the action of the directors in authorizing the construction of irrigation works for the purpose of irrigating the eastern block of the company's land grant in Alberta, east of Calgary, at an estimated cost of $8,500,000, be approved.

The directors are hereby authorized, whenever it is competent for the company to do so, to purchase the preference stock of the Dominion Atlantic Ry. Co., consisting of £270,000, at 60% of face value, and the ordinary stock, consisting of £230,000 at 20% of face value, and to acquire all or any portion of its securities at such prices and upon such terms as they may deem advisable, and to take a lease of the railway for such term as may be agreed upon, which lease shall, as nearly as circumstances permit, be in the form usually adopted by the company and may contain a clause providing for the guarantee of payment by this company by way of rental of the interest upon the existing securities and such other securities as it may issue with the consent of this company.

That whereas the branch lines and extensions set forth below have been constructed or are in course of construction, and it is deemed desirable that authority be given to the directors to issue consolidated debenture stock to meet the requisite expenditure in connection therewith, it is therefore resolved that the construction and equipment of the following branch lines and extensions of other branch lines which have been authorized be approved; an extension northwesterly of the Moose Jaw branch, now known as the Moose Jaw-Outlook branch, from the westerly end of the branch and extension heretofore authorized, to the Pheasant Hills branch at or near Macklin, about 118 miles. A branch westerly from Weyburn on the northwestern extension of the Souris branch, and now known as the Weyburn-Lethbridge branch, 50 miles. An extension northerly direction of the Stonewall branch, and known as the Teulon extension from Stonewall via Teulon to Icelandic River, about 56 miles. An extension westerly direction of the Lauder branch, now known as the Lauder-Griffin branch, from or near Broomhill, 20 miles west of Lauder on the Souris branch, 33 miles. A branch northerly and northeasterly from Regina via Craven to Colonsay on the Pheasant Hills branch, and known as the Regina-Colonsay branch, 134 miles. A branch northwesterly direction from Craven on the Regina-Colonsay branch, and now known as the Craven-Bulyea branch to or near Bulyea, about 21 miles. A branch northerly and northwesterly from or near Kipp on the Crow's Nest Pass branch, to be known as the Kipp-Aldersyde branch, 58 miles. A branch northerly from the main line at or near Langdon, to be known as the Langdon branch, 40 miles. An extension easterly of the Snowflake branch from Mowbray to Windy Gates, about 7 miles. A branch northerly direction from Virden on the main line to or near McAuley on the Pheasant Hills branch, and now known as the Virden-McAuley branch, about 36 miles.

And that for the purpose of aiding the construction and equipment of the said branch lines and extensions the directors may issue and dispose of consolidated debenture stock to such amount as they may deem expedient, not exceeding in the aggregate an amount equal to £6,000 a mile in respect of the Moose Jaw-Outlook branch extension, the Regina-Colonsay branch, the Langdon branch and the Virden-McAuley branch; £5,000 a mile in respect of the Weyburn-Lethbridge branch, the Stonewall branch extension, the Craven-Bulyea branch and the Kipp-Aldersyde branch, and £4,000 a mile in respect of the extensions of the Lauder-Griffin and the Snowflake branches.

Amendments to a number of bylaws as passed by the directors were approved.

Sir Wm. Van Horne, in moving the re-election of the retiring directors, took the opportunity to express his appreciation of the remarks respecting himself, made by the Chairman, and stated that he felt that the greatest service that he had been to the C.P.R. was in being instrumental in inducing Sir Thos. Shaughnessy to come to Canada, and that the shareholders may congratulate themselves in having at the head of affairs of the company in which they are so much interested, so able, so energetic and so upright a man as Sir Thomas.

The retiring directors, Lord Strathcona, Sir Thos. G. Shaughnessy, and T. Skinner were re-elected for a further term of four years.

At a meeting of directors held after the shareholders meeting, the following officers were re-elected for the current year:—President, Sir Thos. G. Shaughnessy; Vice President, D. McNicoll; Executive Committee, R. B. Angus, D. McNicoll, E. B. Osler, Sir Thos. G. Shaughnessy, Lord Strathcona, Sir Wm. C. Van Horne.

Damages of $13,500 were awarded at London, Ont., Oct. 3, in the case of a fireman against the C.P.R. for injuries sustained through coming in contact with a water column, while leaning from his locomotive at Ayr station. In evidence it was stated that the distance between the locomotive cab and the water column was 18 inches.

Great Northern Ry. Lines in Canada.

Midland Ry. of Manitoba.—The Mayor of Winnipeg informed Jas. Fisher, solicitor for the company, Oct. 3, that unless the company's representatives immediately signed the agreement to proceed with the erection of terminals in the city, the streets closed would be declared open, and all negotiations with the company would be at an end. Mr. Fisher appeared before the Board of Control, Oct. 4, and stated that the company, he understood, was prepared to go ahead with the work on its projected terminals at Ross Ave. in the spring. He was in communication with St. Paul, Minn., on the subject, and was awaiting instructions. The wording of the agreement had not been definitely settled, but everything could be arranged if he had his instructions. The Mayor said the city was anxious to have the matter settled, the agreement signed, and the work started as soon as possible.

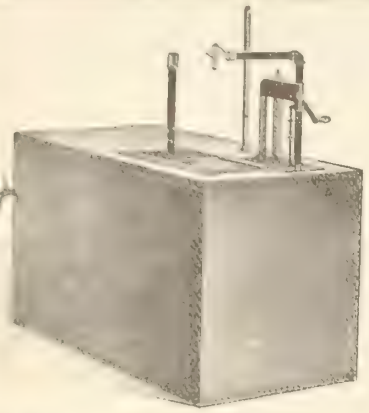
Projected Lines in Alberta.—A press report from Calgary states that Great Northern Ry. interests are planning to extend its railways through Alberta. The idea is to secure a line from near Sweet Grass, at the International boundary, which is a terminal point of the G.N.R., just south of Coutts, Alta., to Pincher Creek, to Calgary and Edmonton, and thence to the Peace River, with a branch through the Kootenay country to connect up with the Vancouver, Victoria and Eastern Ry. The report states that the Pincher Creek, Cardston and Montana Ry. charter will be acquired. This company is making surveys for a Coutts-Pincher Creek line, and applying to the Dominion Parliament for powers to build the additional lines named. The New York people at present interested in the P.C., C. and M. Ry. are said to be friendly to G.N.R. interests. (See Pincher Creek, Cardston and Montana Ry. under Railway Development.)

Vancouver, Victoria and Eastern Ry. and Navigation Co.—A spur line is being built from near Princeton, B.C., to the United Empire coal mine. No further construction is being gone on with at this end of the line, but the contractors are still pushing forward the work between Abbotsford and Chilliwack. Survey work from Chilliwack, through the Hope Mountains is still being proceeded with, and the engineers are hopeful of getting a route with a maximum gradient of less than 2%. Nothing has been announced as to when construction will be gone on with.

The improvements at False Creek, Vancouver, which are to be carried out under an arrangement between the company and the city council, have been held up by the Provincial Government declining to give its consent to certain parts of the plans. The matter is still under consideration and it is expected that something will be done, so that the work can be gone on with. The question of fixing a date for the voting on the bylaw has been postponed until this matter is settled. (Oct., pg. 845.)

The Reid Newfoundland Co. has offered to give a free site at Fort William, St. Johns, Nfld., to put in the foundation, and to subscribe $50,000 towards the capital of the projected tourist hotel there.

The application of Hon. W. Pugsley, Minister of Public Works, to have a special accounting made of the affairs of the New Brunswick Coal and Ry. Co. and the Central Ry. of N.B., has been dismissed by the New Brunswick courts. Mr. Pugsley subsequently criticised the action of the commission which investigated the railway's affairs, and Oct. 12 invited the commissioners or their solicitor to bring an action against him for libel.



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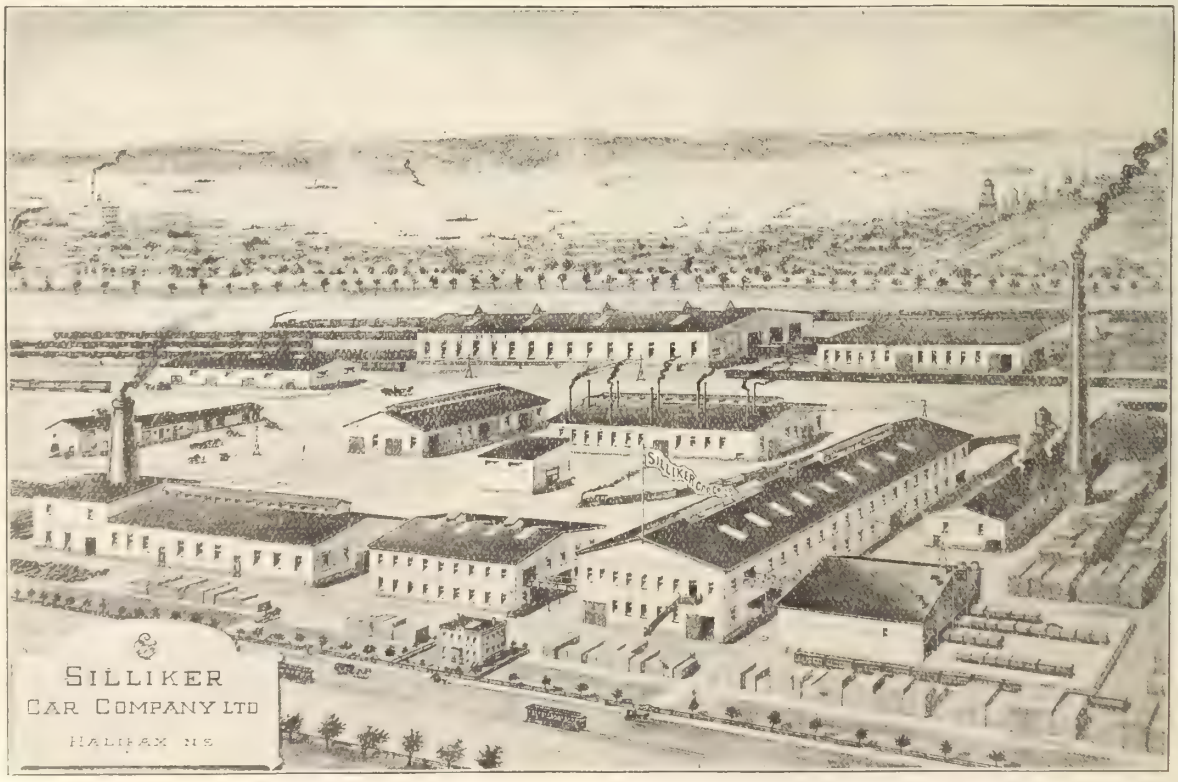


HEAVY FORGINGS AND CASTINGS

RAILWAY, FREIGHT AND PASSENGER CARS OF ALL KINDS

Canadian Northern Ry. Construction, Etc

Canadian Northern Quebec Ry.—The Board of Railway Commissioners has authorized the building of a Y to connect the main line with the spur line to the St. Marc quarries in Grondines parish, Portneuf county, and the acquirement of certain lands for right of way.

A connection between the C.N.Q.R. and the National Transcontinental Ry. at River Charest, Que., has been authorized by the Board of Railway Commissioners.

Canadian Northern Ontario Ry.—An arrangement has been made, subject to sanction by the Board of Railway Commissioners, between the company and the Ottawa city council, by which the C.N.O.R. will be carried across Hurdman Road, temporarily. In a recent interview President Mackenzie stated that the company's Toronto-Ottawa line would be completed to Sydenham, within 90 miles of Ottawa, this year. In the spring the balance of the line would be taken in hand and rushed to completion. The route for this 90 miles has been approved by the Board of Railway Commissioners. As to the entrance into Ottawa, Mr. Mackenzie said the company had been terribly handicapped, but he hoped that by the spring everything would be straightened out.

Good progress is being made all along the sections of the line under construction between Toronto and Trenton, and in the vicinity of Belleville. Those in charge of construction at the latter point are said to have received instructions to get the work finished by Jan. 1. In consequence work will be rushed as fast as possible. Good progress is being made west and east of the city, and nearly all the property required in Sydney and most of that for the route in Belleville has been purchased. The Dominion Bridge Co., which has the contract for bridges over the Trent at Trenton and Moira at Belleville will commence operations immediately.

Track was reported, Oct. 14, to have been laid to near Cobourg, Ont. Station buildings at Grafton and Colborne are being built, and the preliminary work for the bridge over the Trent at Trenton is under way.

The Board of Railway Commissioners has approved of plans for station buildings at Port Hope and Cobourg, and of standard plans for various buildings to be erected on the Toronto-Ottawa line.

Representatives of Parry Sound, Ont., had an interview with President Mackenzie Oct. 11, and it is said that a proposition will shortly be submitted to the town for the establishment of repair shops, and the erection of a 500,000 bushel elevator.

The Board of Railway Commissioners has approved of the location plans of the line through unsurveyed territory in the Sudbury mining division, Algoma, mileage 200 to 220, and from mileage 220 to 240, from Sudbury, Ont.

Canadian Northern Ry.—M. H. McLeod, General Manager and Chief Engineer, recently completed an inspection of the betterment work done on the line between Port Arthur and Winnipeg during this year. The principal work done has been in the way of straightening out the track, and the building of a cut-off in the vicinity of Stanley, Ont. At the time of the inspection all the work had been completed, with the exception of about two miles of tracklaying, and this was expected to be finished by Oct. 31. Nothing more in the way of betterments would be undertaken, Mr. McLeod stated, this year.

In the course of some very extensive forest fires in northern Minnesota and the Rainy River district of Ontario, considerable damage was done to the railway at different points between Fort Frances, Ont., and Beaudette, Minn.

A permit has been granted by the Winnipeg city council for the erection of freight sheds, offices and cold storage plant, to cost about $87,000. The buildings will be situated near the new station on Main St., at the foot of Broadway. With the exception of the office, which will be of brick, the buildings will be of steel on concrete footings. They will cover an area of 664 by 60 ft., the freight shed taking up 542 ft. of the frontage. The architect is R. B. Pratt, and the contract has been let to Carter, Halls and Aldinger.

The ballasting on Oak Point extension was expected to be completed by Oct. 31. A train service is being operated for the accommodation of the settlers by the contractors.

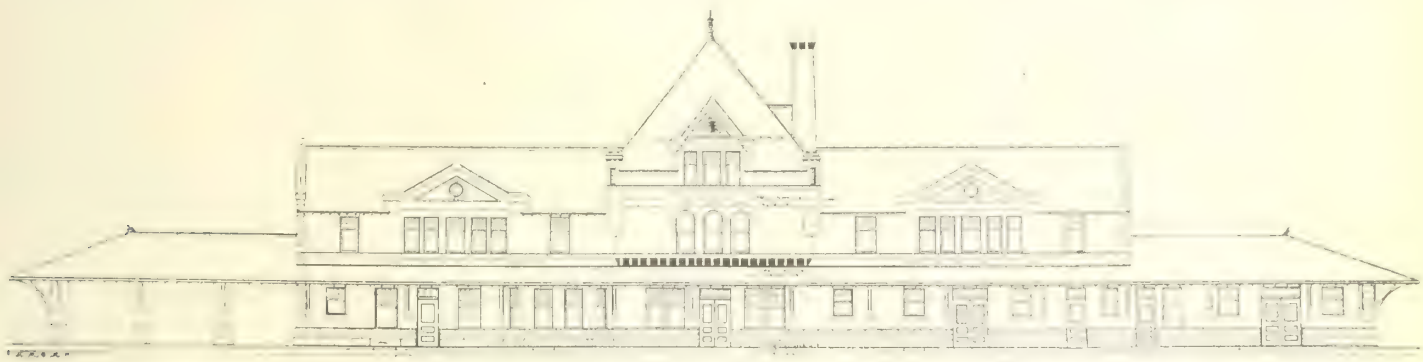
In connection with the company's application to the Board of Railway Commissioners for approval of its plans for building a transfer railway along certain streets in Brandon, Man., Chief Commissioner Mabee, stated recently that the compensation to be paid to those whose property would be injuriously affected would have to be as the commissioners directed. The application was subsequently withdrawn.

The Board of Railway Commissioners has authorized the opening for traffic of an additional 15 miles from Ochre River to the end of steel, on the Ste. Rose du Lac branch, Man., and has also approved of the location of the Goose Lake extension through tps. 30-31, ranges 11-15 and ranges 16-20, west 4th meridian, Man.

The Minister of Railways has approved of plans for the building of a line from Regina to Moose Jaw, Sask. The plans show a line running into sections 24, 3, 21, 20 and 19 in township 17, range 21, through the same sections in 17-22, through sections 24, 23 and 22, southwesterly into 15, 17 and 18 in 17-23, along 13, 14, 15, 9, 8 and 7, in 17-24, through 1, 2, 3, 4, 5, 6, in 17-25, between the borders of 16-26 and 17-26 to Moose Jaw. The line is about two miles distant from the route approved for the G.T. Pacific Branch Lines between the same places, and is very close to the C.P.R., particularly from the western boundary of range 25, between tps. 16 and 17. The question of the entry of the line into Moose Jaw has yet to be settled, not only with the city, but with the G.T. Pacific Ry.

The station at Saskatoon, Sask., illustrated on this page, and which was completed a short time ago, is located on First Ave., at the intersection of 23rd St., from which a good view of the central tower of the station, which is about 58 ft. high, can be seen. The total length of station is 218 ft., including a covered platform 40½ ft. long at the end. The width is 62 ft., including canopied platform at either side. The platform on track side is 20 ft. wide, and is reduced to 14 ft., extending along main line 250 ft. both ways from centre line of building, making a total length of 500 ft. The building has full basement, with ample rooms for boilers, fuel and storage, on which is built three floors forming the central main tower, having a two storied feature extending 52 ft. on either side, with stone facade in centre. The extreme ends are one story high, with foundation strong enough to allow of them being increased by an additional floor. The main entrance to building is from First Ave. into ticket lobby, located close to ticket office, and situated between general waiting room, 29 ft. 2 ins. by 29 ft. 2 ins., and ladies' waiting room, 20 ft. by 29 ft. 2 ins., with necessary toilet rooms attached. The parcel room and baggage room, 30 ft. by 30 ft., are located convenient to general waiting room, and the express room and offices are large enough to take care of the ever increasing express business. The exterior is built of Menomonie sand brick, moulded red brick, red mortar joints with trimmings of white Tyndall limestone, rock faced. The interior finishing throughout was selected, keeping in mind the necessity for a complete sanitary finish, as well as a good general appearance. The ticket lobby, general waiting room and toilet rooms have tile floors, base and dados, the remainder of the floors are polished maple floors. The baggage and express rooms have hardwood dados 7 ft. high. The remainder of the trim on this floor is hardwood finished mission style. From this floor are two stairs communicating with floor above, one for use of general offices of the executive and engineering staff, which occupy the north end of the first floor; the other stair to the superintendent's quarters in the south end. This floor is finished throughout in clear B.C. fir, natural finish. The superintendent's quarters are so arranged they can be turned into offices at any future date. The building is steam heated and electric lighted throughout. The toilet rooms are complete with the most up to date sanitary fittings. The canopy round the outside of the building has a complete system of fixtures to light platform, which is controlled by switches from ticket office.

Application was made Oct. 4, for the



Canadian Northern Railway Station at Saskatoon, Sask.

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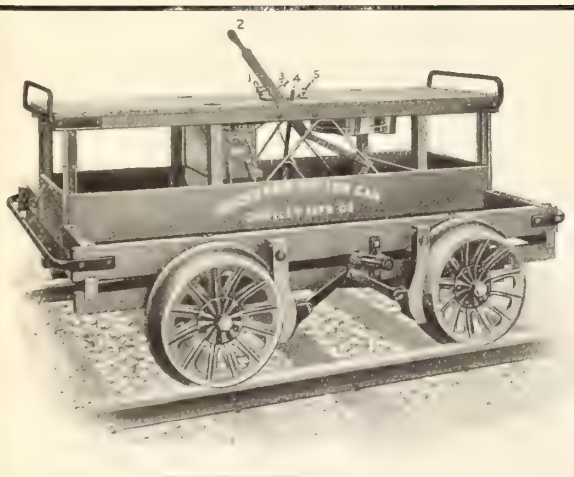

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approval of a revision of the location of the Prince Albert-Battleford, Sask., line. It was contended on behalf of those opposed to the plans that the company was building the line without having secured approval either of the general route or location plans. After considering the matter it was finally arranged that a revised location from near Prince Albert to the west side of Redberry Lake be approved. A press report states that the object of the diversion of this line is to run it westerly to connect up with the line northerly from Edmonton at St. Albert, and so open up a large area of farming land.

The work on the development of the coal fields on the Brazeau River Valley by the General Development Co., was reported to have been suspended Sept. 22, and D. D. Mann, Vice President, stated that this was brought about by the fact that the C.N.R. Co.'s plans for the building of its line had not been approved by the Board of Railway Commissioners, and the C.N.R. had to suspend construction work on the line it was building. Owing to the difficulty of taking in supplies, work on the mines had been suspended until the spring.

The location plans for the Edmonton-Camrose line from mileage 0 to mileage 44.40, through tps. 47-52 and ranges 20-24, west of the fourth meridian, have been approved by the Board of Railway Commissioners.

Canadian Northern Western Ry.—Application will be made to the Alberta Legislature to incorporate a company with this title to build a railway from Edmonton or Strathcona to the boundary between Alberta and British Columbia, near the Pine or Peace River passes or one of them; also a line from the Canadian Northern Ry. between Edmonton and Calgary, to Rocky Mountain House, thence to the Brazeau and Macleod Rivers, and along those rivers or either of them to a point on the C.N.R. main line west of Edmonton; with power to build branches to the various coal areas in the vicinity of the line, and such other branches within the province as may from time to time be authorized by the Lieut.-Governor-in-Council. Short, Woods, Biggar and Collisson, Edmonton, are solicitors for the applicants.

Canadian Northern Pacific Ry.—The agreement with the British Columbia Government for the building of this line did not make any provision for the granting of a right of way through Crown lands, consequently the company has made a further agreement by which the land necessary for right of way, station sites and yards may be acquired from the Government on the basis of $5 an acre for agricultural land, $2.50 an acre for upland, and $1 an acre for wild land.

On the line between the Alberta boundary and Port Mann, B.C., survey work, we are advised, is still being gone on with, and it is being closed up as between New Westminster and 100 miles above Kamloops. No further work has been done between Yellowhead Pass and 100 miles up the North Thompson River since the trial location was made last year. Plans have been filed for a 45 mile section reaching from the crossing of the North Thompson River west, showing a route crossing the river just above the Frankland's home farm, following the contour of Garde Lefferty, along the foot of which plateau yard limits a mile in length are laid out.

Tenders will, it is said, be asked for at an early date for building the line between Chilliwack and Lytton, at the junction of the Fraser and Thompson rivers, a distance of about 90 miles. A. R. Mann, President of the Northern Construction Co., went over the route recently, with a view of submitting a tender.

On the 60 miles from near Port Mann, let to the Northern Construction Co. sub-contracts have been let as follows:—C. Johnson, 29.5 miles; W. P. Tierney, 5.5 miles; C. Johnson, 1.5 miles; McDonald Bros., 20.5 miles. The work is being done under the direction of T. H. White, Chief Engineer, with W. G. Swan as Resident Division Engineer, and the following engineers in charge of sections:—D. A. Graham, F. H. Chesnut, J. H. Devey, R. M. Taylor, G. H. Reed. The construction headquarters are at Langley, and J. M. Mercer is manager for the Northern Construction Co. There are about 500 men at work grading and building culverts, trestles, etc. The three sub-contractors named have let out their sections into smaller mileages, and the following are reported to be engaged in grading contracts on different parts of the 60 miles:—F. C. Lane, Schacht & Co., D. Matheson, H. Noreen, Burress Bros. and McClure.

The Port Mann site is not yet laid out. It is situated about two miles above the Fraser River Bridge at New Westminster, on the south side of the river. Tenders for the clearing of the site were received to Sept. 26, and are under consideration.

A site of 30 acres has been acquired in Fort Langley, fronting on Main St., and running back a considerable distance parallel with the river. It is stated that a station will be built on the street, and a storage yard, with accommodation for about 1,400 cars laid out.

In a recent interview the Mayor of New Westminster said he had had long consultations with T. G. Holt, the company's Executive Agent in Vancouver, and T. H. White, Chief Engineer, who had assured him that New Westminster would be made the principal port of the railway, and that the shops would be located at Port Mann. Plans have been made of three possible entrances into New Westminster. One, over the Great Northern Ry. tracks, going no nearer the city than the Fraser River bridge; the second along the water front beside the C.P.R., and the third by a tunnel. The waterfront route appeared to be the most favored.

We were advised, Oct. 18, that the company's officers have no information with respect to the tenders for grading between Chilliwack and Lytton, which, press reports quoted above, stated were to be called for at once. A contract has been let for a wharf 1,000 ft. long by 100 ft. wide, with sheds, at Port Mann. The work is to be proceeded with at once.

Vancouver Island.—G. B. Hughes is Engineer in charge of surveys on Vancouver Island, with headquarters at Victoria. The plans for the location of lines on the island show one from Deep Cove, which will be the landing place of the car ferry from Port Mann, to Victoria. From Victoria the route located to Barclay Sound is by way of Goldstream to Mill Bay, then to the Cowichan River, along the valley of that river to Cowichan Lake, thence to Nitinat Lake, reaching Barclay Sound in the neighborhood of Coleman Creek. A route via Serito was also surveyed, but it involved considerable difficulties in the way of construction. A Victoria dispatch, Oct. 10, stated that a serious hitch had occurred in carrying out the agreement between the company and the Government as to construction, and that the agreement so far as Vancouver Island was concerned, was in danger of not being carried out. In an interview Oct. 12, D. D. Mann stated that the report had absolutely no foundation in fact. "There is no trouble nor unnecessary delay in construction of our road at all," he said emphatically. "The difficulties of locating and building a road in British Columbia are very great, and we have had engineers working for years in the country. And as for the construction of the road on Vancouver Island that is spoken of, we are awaiting the final report of our surveyors; that is all there is in it. We have had no complaints from anyone in connection with delays in actual work, and we have sent no message to Premier McBride refusing to carry out the contract we entered into with him." (Oct., pg. 855.)

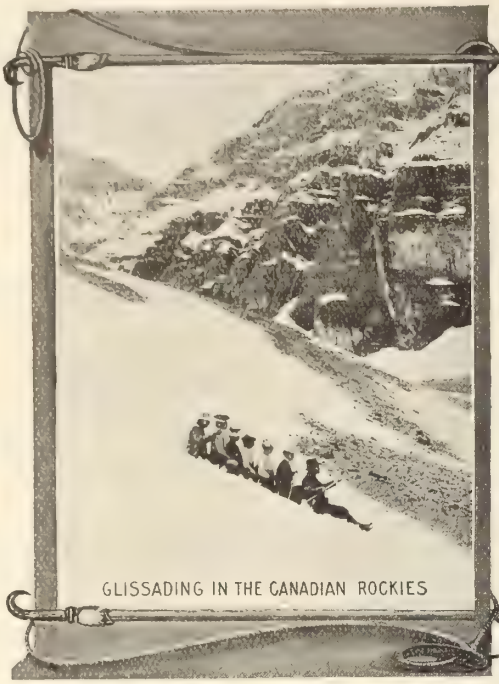
Telephone Dispatching on the G. T. R.

The G.T.R. has recently put in on its Northern Division, two telephone train dispatching circuits. One between North Parkdale Jct. and Burlington Jct., via Allandale, 145 miles, and another between Allandale and Nipissing Jct., 165 miles. Train dispatchers on each of these circuits are located at Allandale. On the circuit between North Parkdale Jct. and Burlington Jct. there are 21 way stations, and on the circuit between Allandale and Nipissing Jct. 20 way stations. These circuits are constructed of no. 9 gauge hard drawn copper wire, transposed at intervals of every half mile through the open country and as much more frequently as is necessary in the vicinity of high voltage power lines, in order to avoid inductive influences and to render the telephone circuits absolutely quiet. The station equipment consists of a swinging arm transmitter and head band receiver for each way station, thus giving the operator free use of his head, hands and body while using the telephone; the apparatus is swung to one side out of the way while not in use. The train dispatching office is equipped with a selector system for calling offices and the duration of the ring in each way station is controlled by the dispatcher, who plainly hears the ring through his receiver. Any office on the line can be signalled within eight seconds, and as the signal bell in each office consists of a four inch gong there is little doubt that the operator will hear his call, even though outside of the office and at a distance from it. The dispatcher has absolute control of the circuits and way stations must obtain his co-operation when desiring to communicate with one another.

The telephone is considered as being superior to the telegraph as a medium for dispatching trains, both as a factor of safety and a saving of time. By telephone each station and numeral is first pronounced and then spelled out, letter by letter, by the dispatcher, for verification when an order is issued, and repeated in like manner by the receiving operator, while by telegraph stations and numerals can only be spelled out in Morse characters.

During the past three years the telephone has made rapid strides on trunk line railways in Canada and the United States for train dispatching purposes and to-day over 30,000 miles of railway is being so dispatched, the C.P.R. having a considerable portion of its mileage so equipped. While the expense for constructing and equipping telephone circuits greatly exceeds that of telegraph lines, the railways have obtained so much better results with the telephone that they feel justified in spending the money. It is the intention of the G.T.R. to extend the use of the telephone over its more important lines in the near future.

The new system has met with the immediate favor of the dispatchers and operators, the transmission being so excellent that the work is transacted in fully 50% less time and in a more personal and satisfactory manner than is possible with the telegraph.



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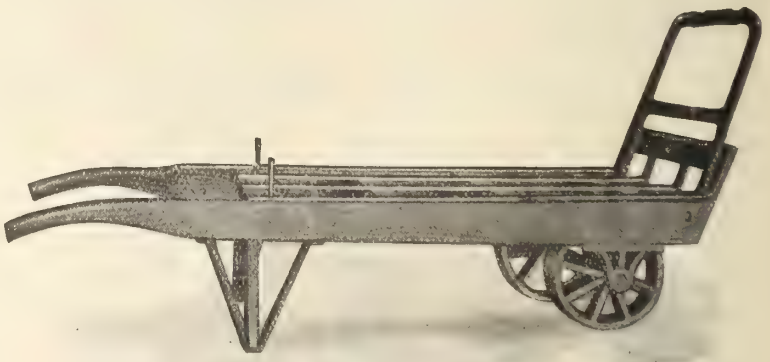

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MONTREAL TORONTO ST. JOHN, N.B. WINNIPEG SASKATOON CALGARY VANCOUVER

C.P.R. Betterments, Construction, Etc.

Developments in Nova Scotia.—D. McNicoll and G. M. Bosworth, Vice Presidents, having visited Halifax, N.S., recently, and made a trip of inspection over the Dominion Atlantic Ry., which will be taken over by the C.P.R. in the spring, Mr. Bosworth stated that a through freight service would be established between Montreal and Halifax over the Dominion Atlantic Ry., but for the present there would be no car ferry placed on the Bay of Fundy.

Improvements at St. John.—It was announced at a meeting of the St. John, N.B., city council, Oct. 4, that the certain shore lots on the west side of Courtenay Bay would be transferred to the C.P.R., upon which extensive terminal facilities would be established. This, according to a statement made by Vice President McNicoll, refers to an exchange of property which had been under consideration for some time past. The property which the company hands over has a frontage of 1,600 ft. and stretches out into the bay. This is the property referred to in the resolution recently passed by the city council authorizing the making of the necessary agreements in conjunction with the Dominion Government, with the C.P.R., for the surrender to the city by the company of certain lands, upon which there shall be erected a retaining wall for the reclaiming of the area so required. When the leases at Blue Rock are relinquished, and the land reclaimed, the C.P.R. will remove its tracks to the eastward, so as to allow the present right of way to be used as a public highway.

In connection with this transfer of property, Mr. McNicholl stated that the company had big plans, which would take some time to carry out, for the development of St. John as a winter port. He hoped shortly to be able to announce what those plans were.

Hotels.—Vancouver, B.C., papers quote G. Ham, of the C.P.R. head office staff, as having stated in an interview during a recent visit there, that the company proposed to build 12 hotels along its line during 1911. One of these would be at St. John, N.B., one at Ottawa, one at Toronto, one at Golden, B.C., and one at Nelson, B.C., while the remaining seven would be distributed along the line at suitable points.

The company is carrying out an extensive programme of additions to its existing hotels, and adding some new ones. It is said that another wing is to be added to the Chateau Frontenac, Quebec. At the Place Viger, Montreal, extensive alterations will be made as soon as the new building for station purposes down stairs and hotel purposes upstairs is ready. Enlargements are going on at Banff, Lake Louise and other places. A new hotel is being built at Balfour, a contract having been let to C. W. Sharp, Winnipeg. This hotel is situated on Kootenay Lake, opposite Proctor, B.C., and is to be completed by May, 1911. It is to be a frame structure 205 by 150 ft., and will be about 48 ft. high above the first floor, which is to be raised about 10 ft. above the ground on a foundation of boulders embedded in cement. The building will be three stories, and will accommodate about 100 guests.

At Vancouver, the foundations for the first addition to the present hotel have been completed for some time, and W. S. Painter, architect, stated recently that the active construction of the building may be looked for at an early date.

St. Lawrence Boulevard, Montreal.—The C.P.R. has the tunnel carrying its tracks over the boulevard well advanced, but the contractor for other parts of the work has not got on as well as was anticipated, owing to unforseen delays. The Board of Railway Commissioners has granted an extension of time to Dec. 30 for the completion of the work.

Lachine Bridge.—A good deal of work is being done in the way of preparing foundations for widening existing piers and new piers for the double track bridge across the St. Lawrence River at Lachine.

The Montreal city council is asking the company to consider an arrangement by which a separate road can be constructed for vehicles, and foot passengers. The present bridge carries only a single railway track, and the plans for the new bridge provide only for a double railway track. The city is extending in the direction of the bridge, and the opinion is expressed that the Dominion and the Provincial Governments should be asked to bear a portion of the cost of providing a roadway on the bridge for general traffic.

Ottawa Tunnel Proposals.—A resolution has been passed by Ottawa real estate men favoring the adoption of the C.P.R. plans for a tunnel through the city. The proposal is to close up the Rideau canal from the deep cut, using the bottom of the canal as a roadbed, and tunneling under Wellington St.

Ottawa, Northern and Western Ry.—Application will be made to the Dominion Parliament to extend the time within which the company may extend its line from Maniwaki to James Bay, and to Lake Timiskaming, Que.

Campbellford, Lake Ontario and Western Ry.—In connection with the approval of the route plans of the Toronto and Eastern Ry., Oct. 12, the Minister of Railways intimated that unless the C.P.R. began the construction of the line surveyed along the lake front within 18 months, he would confer with the Board of Railway Commissioners with a view of having the approval of the route cancelled.

Application will be made to the Dominion Parliament to authorize the company to build from the C.P.R., between Sharbot Lake and Smith's Falls, southwesterly to Cobourg, thence westerly and northwesterly to between Locust Hill and Leaside Jct., instead of the line authorized by sec. 8, chap. 54 of the statutes of 1904.

Toronto Grade Separation.—An order has been issued by the Board of Railway Commissioners approving of the proposed separation of the grades of the C.P.R. over Yonge St. and Avenue Rd., Toronto.

Toronto Terminals.—In an interview at Toronto, Oct. 7, Sir Thos. G. Shaughnessy, President, is reported to have said that while the company was planning the best possible facilities for itself, it was at the same time considering the needs of the citizens. The C.P.R. had spent hundreds of thousands of dollars in buying property in Toronto, and would spend millions in laying out terminal facilities. The contract for using a union station with the G.T.R. had still 40 years to run, and it could only be broken by mutual consent. Some other understanding, apart from a union station at the waterfront might be arrived at. While the company had prepared very elaborate plans for Toronto, it must proceed gradually in carrying them out.

West Toronto Yards.—For some years past the C.P.R. has been steadily acquiring areas of land westerly of its original yards at West Toronto, on the south to Dundas St., and also on the north, and has been laying down additional tracks, so that the yards, as they now exist, extend up to Lambton station and a considerable distance north of the through line. A large area of land owned by the company has not been touched, but some gangs were set at work Oct., 14, grading outside the existing yard tracks. Press and other statements are to the effect that the yard accommodation is to be largely increased, trackage being laid for an additional 400 cars. The company has been negotiating for some time past with the York township council for permission to close up Jane St., and put in an 8 ft. subway. The matter came up before the council Oct. 3, but was not finally disposed of.

At a meeting of the York township council, Oct. 17, an arrangement was made for the construction of a 26 ft. subway at Jane St., and a 30 ft. subway, with a deviation of St. Clair Ave., instead of the closing up of Jane St. and Scarlett road, as originally proposed.

In connection with the proposed developments at West Toronto, the matter of the subway under Elizabeth St., which is within the city limits, was considered by the Board of Railway Commissioners, Oct. 14. The C.P.R. proposed a 40 ft. subway, while the city asked for a 60 ft. one. After hearing evidence, the Board made an order for one having a roadway 56 ft. wide, the C.P.R. to bear the total expense.

New Freight Route.—As soon as the connection has been completed with the G.T.R. tracks at Mimico, Ont., the C.P.R. will run its freight trains, which now run over the G.T.R. Toronto-Hamilton line, via the Mimico-Islington cut-off, direct into its own yards at West Toronto. This will considerably reduce the traffic in and out of Parkdale station.

Islington-Mimico Branch.—The Board of Railway Commissioners' Chief Engineer inspected the line from Islington to Mimico, Ont., Oct. 18, and approved of its being opened for traffic. J. Oborne, General Superintendent, stated that the spur would not be opened for some time owing to the delay in the installation of the interlocking plant at Mimico by the G.T.R.

Liskeard, Ont.—At a meeting of the Timiskaming Board of Trade, at Liskeard, Ont., Oct. 10, a resolution was passed in favor of increased railway accommodation, and suggesting the opening up of negotiations with the C.P.R., which, through a subsidiary company, has power to build an extension of its Lake Temiscamingue Colonization Ry. from Timiskaming or Kippewa, Que., to Ville Marie and other points north, and a branch could be built round the head of the lake to Liskeard.

Thessalon Station. — Reports from Thessalon, Ont., state that work has been started on a new station at the junction of the Thessalon and Northern Ry. with the C.P.R. Algoma branch, and that the old station is to be abandoned.

Guelph and Goderich Ry.—Application will be made to the Dominion Parliament to extend the time within which the company may build the branch lines authorized by sec. seven, chapter 81 of the statutes of 1904.

Walkerton and Lucknow Ry.—The Dominion Parliament will be asked to extend the time within which the company may build its authorized line from Walkerton to Lucknow, via Teeswater, Ont.

St. Mary's and Western Ontario Ry.—Toronto papers of Oct. 12 stated that the C.P.R. has taken over the St. M. and W.O. Ry. charter, thereby gaining the right of entrance to Stratford and surrounding country, and the right to build a line to Grand Bend, Ont. The line from Stratford to Grand Bend was originally intended to be an electric one, but it is now said that it will be built as a steam road, and that a line will be built from Stratford to Linwood, a station on the Guelph and Goderich Ry. There is a good deal of truth, a good deal of error, and some omissions in these reports.

The St. M. and W.O. Ry. was incor-

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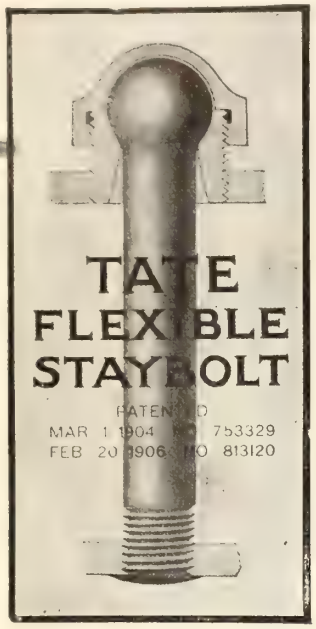

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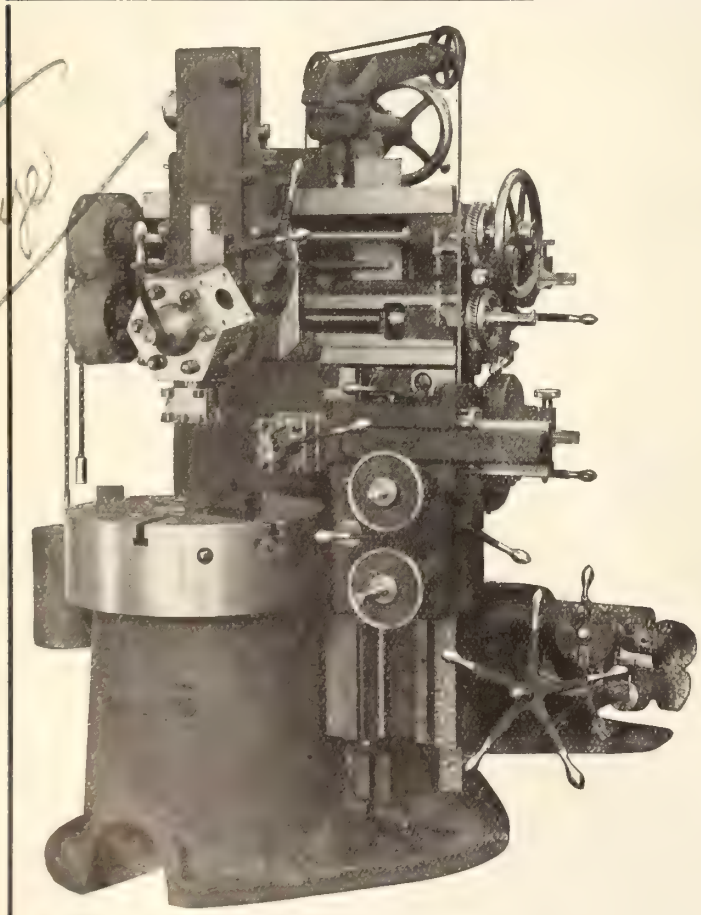

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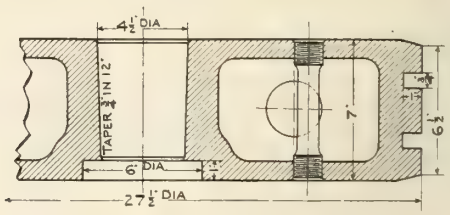

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porated by the Dominion Parliament in 1905, to build from near Woodstock to Sarnia, via St. Mary's and Exeter, and in 1909 it was given power to build additional lines, including one from St. Mary's to Stratford and Linwood, and one from St. Mary's to Grand Bend via Exeter. Under the original act a line was built from St. Mary's to Exeter in 1907-08, where connection was made with the C.P.R., Tillsonburg, Lake Erie and Pacific Ry., and other connections are now being built, so as to make the connection between those lines and the Toronto-Windsor line more perfect. From the first the line has been operated under a 99-year lease by the C.P.R., at a rental equal to 4½% on the bonds issued with the consent of the C.P.R., which also has power under the lease to purchase the entire capital stock of the company at any time within 12 years, for the sum of $25,000.

The Linwood-Stratford line was surveyed as a branch of the Guelph and Goderich Ry., and the St. Mary's-Stratford line as a branch of the St. M. and W.O. Ry., in 1907, but the negotiations for a right of way through Stratford did not result satisfactorily and the matter has been in abeyance. The Tillsonburg, Lake Erie and Pacific Ry., which is now part of the C.P.R. system, has power under its act to extend its line from Ingersoll to the Georgian Bay, proceeding either via Stratford or Berlin.

Collingwood Southern Ry.—Application will be made to the Dominion Parliament to extend the time within which the company may build the line authorized in 1907 from Collingwood to Baxter, on the Sudbury branch of the C.P.R., and from Collingwood to Orillia, Ont., also on the C.P.R.

Georgian Bay and Seaboard Ry.—Construction is reported to be progressing rapidly on the extension from Coldwater Jct., where it crosses the C.P.R. Toronto-Sudbury line, via Atherly Jct. to Orillia, Ont. Survey work is being gone on with from Orillia easterly, C. W. P. Ramsey being in charge.

The Dominion Parliament will be asked to increase the company's bonding powers and to authorize it to connect with the C.P.R. Toronto-Montreal line between Burketon Jct. and Havelock, Ont.

London Improvements.—Nothing definite has been announced as to the work to be undertaken at London, Ont., but we understand that the company has acquired the necessary property and proposes in the near future to erect a roundhouse, shops, stores, coal chutes, the necessary tracks for the same, some additional sidings, a yard office, and probably a local station in the vicinity of Quebec St.

South Ontario Pacific Ry.—Application will be made to the Dominion Parliament to authorize the company to build a line from near Guelph Junction to Hamilton, Ont.

The Sault Ste. Marie, Ont., Station is being moved a short distance north of its present site, and some new buildings added for baggage, express and immigration detention rooms. The present curve in the track is to be eliminated and an additional track laid.

Rossport—Pays Plat—Port Arthur.—Considerable work has been done during the season on the track between these points. A number of trestle bridges have been filled in, and concrete and steel bridges have been built at several places. New station buildings are in course of erection at Loon Lake and Marion.

Fort William Terminal and Bridge Co.—Tenders have been asked by the C.P.R. Assistant Chief Engineer at Winnipeg for the construction of piers and abutments for a bridge across the McKellar River at Fort William, authorized to be built by the F.W.T.R. & B. Co.

Parliamentary Powers.—Notice is given of application to the Dominion Parliament for an act increasing the company's bonding powers in respect of its Toronto-Sudbury branch; authorizing it to make the terminus of its Lauder branch at Weyburn, Sask., and extending the line for building the following lines:—From north of Teulon to between Marsh Point and the north boundary of tp. 25, Manitoba; from Estevan northwesterly, with power to terminate at Forward, Sask., on the Weyburn branch; from tps. 6, 7, 8 or 9, range 30, west of the second meridian, westerly with power to terminate at Lethbridge, Alta.; from Outlook, Sask., to a junction with the Lacombe branch of the Calgary and Edmonton Ry.; from Lanigan to Prince Albert, Sask., and from Wilkie northerly and westerly towards the Battle River, thence southerly to a junction with the Lacombe branch of the Calgary and Edmonton Ry.

Power will also be asked to build the following additional lines:—From near Boissevain, on the Manitoba and South Western Colonization Ry, to near Lauder, Man.; from near Wilkie, on the Pheasant Hills branch, southerly to a junction with the Moose Jaw branch, in tp. 32, 33 or 34, ranges 22 or 23, west of the third meridian, Sask.; from near Wilkie southerly to a junction with the Moose Jaw branch in tps. 31, 32 or 33, ranges 18 or 19, west of the third meridian, Sask.; from near Conquest, on the Moose Jaw branch to near Asquith or Dunfermline, on the Pheasant Hills branch; from the Crow's Nest branch in sec. 12, tp. 9, range 26, west of the fourth meridian, westerly along the north side of Old Man River, to sec. 36, tp. 7, range four, west of the fourth meridian, 55 miles.

Manitoba and Northwestern Ry.—The Dominion Parliament will be asked to extend the time for building the following lines:—From Yorkton to Prince Albert, Sask.; from Russell to the northern or western boundary of Manitoba; from between Portage la Prairie and Arden to the northern or western boundary of the province; from between Westbourne and Beautiful Plains northwesterly in the direction of Lake Dauphin or Duck mountains; from between Theodore and Insinger to tp. 32, range 18 or 19, west second meridian, with power to terminate in range 16 or 17, and from Bredenbury to Kamsack.

Winnipeg-Brandon Second Track.—The second track between Winnipeg and Portage la Prairie, Man., 55 miles, was handed over to the operating department Oct. 4, and that portion of the line is now being operated as a double track line. The contractors are continuing the grading for a second track from Portage la Prairie to Brandon, but, as we have previously stated, no track will be laid on it this year. A press report from Brandon states that the grading for a second track will be continued from Brandon to Regina, and that the work will probably be completed next year.

Brandon, Man.—Local press reports state that the C.P.R. is preparing plans for a new station for Brandon, Man., and that the building will be gone on with next year. The report also states that it is possible that the company will build a hotel in the city, for which purpose options on certain properties have been secured.

British Columbia Southern Ry.—Application will be made to the Dominion Parliament to extend the time within which the following lines may be built:—From near Michel to Kananaskis, B.C.; from the Elk River and the Kootenay River to the 49th parallel and the Tobacco Plains, B.C.; from the Lower Kootenay River to New Westminster and Burrard Inlet, with a branch to Nelson, via Salmon River, B.C.; from Michel Creek to Martin Creek, B.C.; from the main line 36 miles west of the eastern boundary of B.C., southerly and easterly, not exceeding 10 miles, and such branch lines from its main line and from the line between Fort Steele and Golden, as may hereafter be authorized by the Governor-in-Council.

Subway at Regina, Sask.—The Board of Railway Commissioners has ordered the C.P.R. to immediately file plans for a subway under its tracks at Broad St., Regina. The subway will carry 19 tracks, and will be 400 ft. long. J. E. Schwitzer, Assistant Chief Engineer, Winnipeg, is reported to have stated that the superstructure will require about 950,000 lbs. of steel, and that that subway will cost altogether about $1,000,000. The Board of Railway Commissioners will make a further order apportioning the cost of the subway between the company and the municipality.

Estevan Westerly.—In reference to the grading going on north-westerly from Estevan, Sask., we are advised that no track laying will be done this year. It is intended to connect up the mileage thus graded with the line projected from Weyburn to Lethbridge. The reason the work was undertaken was that there was some damage to the crops in the southern portions of Alberta and Saskatchewan, due to lack of rain, and in order to tide the farmers over the winter with cash, the company made an arrangement with J. D. McArthur to do 15 or 20 miles of grading. The company gave a reduced rate from points as far west as Gull Lake, and Mr. McArthur advanced the freight on outfits, holding the teams as security until the money advanced was repaid out of earnings.

Kipp Jct.—Cassills or Brooks.—Press reports state that C.P.R. engineers are making surveys for a line from near Kipp Jct. to near Cassills or Brooks, Alta., on the main line, and that the survey will be continued through to Saskatoon or some other point in Northern Saskatchewan. The route being surveyed follows the Little Bow River till the Durham Collieries are reached, then strikes north easterly to Bow City, and then on to the main line between Cassills and Brooks.

Wetaskiwin, Alta.—Three new through sidings have been laid in the yards at Wetaskiwin, Alta., and two others are being laid. This will give accommodation for about 200 cars beyond the old facilities. It is reported that four stalls will be added to the roundhouse, making it a 10-stall one. The present one is too small, and to meet the requirements for repairing engines, a quantity of new machinery has been installed in the repair shop.

A press report from Wetaskiwin states that the company proposes to build another dam at Bigstone Creek in the spring, so as to make an additional storage reservoir for 1,000,000 galls., connected up to the local water tank. Some time ago the company made a proposition to the town council with a view of a joint pipe line to Pigeon Lake to provide a water supply for the railway and the town, but after some negotiations the matter was dropped.

Strathcona-Edmonton High Level Bridge.—The bylaw confirmed last session of the Alberta Legislature respecting the contribution to be made by the city of Edmonton towards the building of the high level bridge across the North Saskatchewan River, to connect Strathcona with Edmonton, by the Calgary and Edmonton Ry. (C.P.R.) provides for the raising of $154,000 by means of debentures for the provision of

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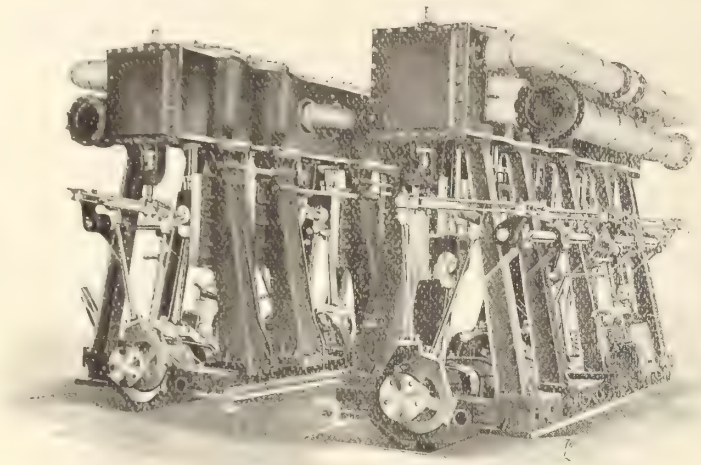

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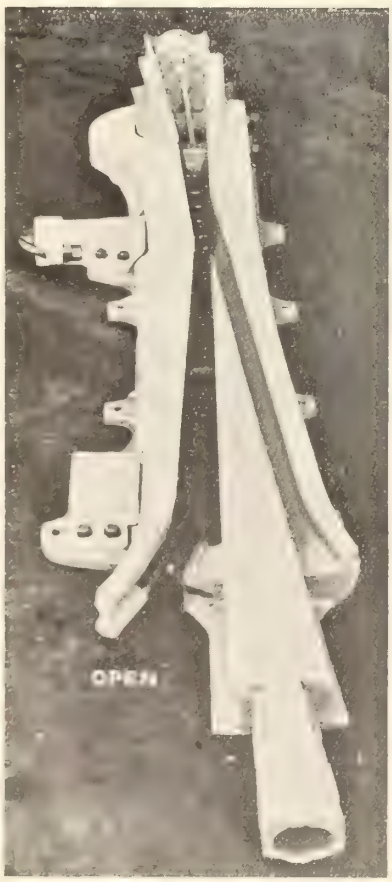

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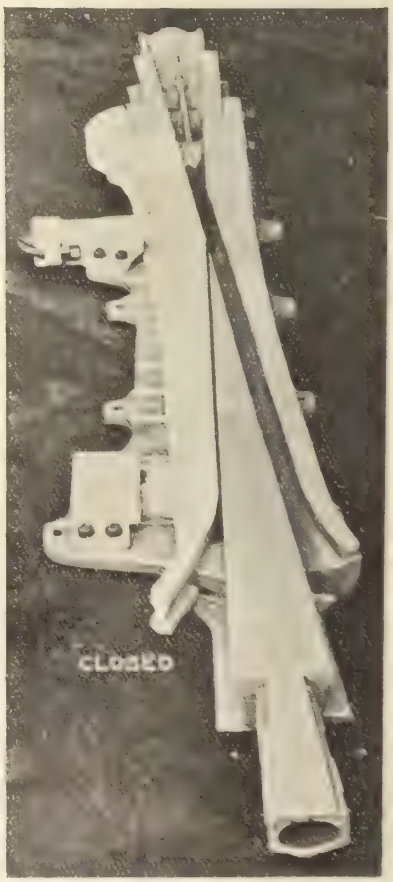

a traffic deck and other attachments. The agreement attached to the bylaw grants the C. and E. Ry. the right to lay its track along certain streets from the south side of Saskatchewan Ave. to Mackenzie Ave., and westerly to the west limit of Sixteenth St., but this street is not to be crossed until the company is ready to extend the line to the western limits of the city. The city has the right within four years to apply to the Board of Railway Commissioners for an order for an under or overhead crossing of the railway at Sixteenth St. The city further agrees to stop up and close certain streets, and to extend certain avenues across the track by means of overhead bridges. and to carry Jasper Ave. by a subway under the tracks, while the railway company is to build a bridge to carry the track across Saskatchewan Ave. The agreement also contains a great deal of detail as to the dimensions of the bridges to be built, the subways to be constructed, etc., the most important being that the Jasper subway is to be 80 ft. wide, the city to pay $5,500 for the extra 20 ft. of the right of way.

Improvements at Fernie.—The yard tracks at Fernie, B.C., are being extended northward to the towerhouse at the crossing of the Great Northern Ry. tracks, and to the south as far as the site of the new roundhouse. This will nearly double the yard capacity. The new roundhouse will be built near the site of the old coal chutes, at an early date. A steel bridge has been erected in place of the old wooden one at Coal Creek, just south of the yards. All along the line from Lethbridge to Wardner, heavier steel rails have been laid.

Kootenay and Arrowhead Ry.—Application will be made to the Dominion Parliament to extend the time within which the company may build its projected line from Gerrard to Arrowhead, B.C.

Kootenay Central Ry.—Reports from Wardner, B.C., state that grading is being proceeded with on this line northerly from that point; that another grading gang has been working out of Fort Steel for some time, and that about 15 miles of grading has been completed southerly from Golden. It is not likely that any steel will be laid before spring.

Donald Forest Reserve.—An order-in-Council has been passed by the Dominion Government granting the company a lease for 21 years of 6.70 acres of land in the Donald Forest Reserve, B.C., at $1 a year, for use as a ballast pit.

New Bridge at Cisco.—A new three-span bridge, which has been built at Cisco, B.C., by the Canadian Bridge Co., to replace the old cantilever bridge, was inspected and approved by F. F. Busteed, General Superintendent British Columbia Division, Oct. 1.

Port Moody and Indian River Ry. After being held up for some days until the Board of Railway Commissioners had settled some difficulties as to the route, construction has been restarted on this line. The commissioners have decided that the line must be moved for some distance, about 70 ft. back from the right of way previously staked.

Vancouver and Lulu Island Ry.—The Dominion Parliament will be asked to extend the time within which the company may build the branch lines authorized by sec. 3, chap. 86 of the statutes of 1901.

Esquimalt and Nanaimo Ry.—The first 30 miles of the extension of the line from Wellington to Alberni, Vancouver Island, was not opened for traffic Oct. 1, as was anticipated. The necessary authority was subsequently received, and Oct. 19 fixed as the day for putting on a regular service. The section of the line opened extends from Wellington to Cameron Lake.

A recent press report stated that a contract had been let to Janse, Macdonald and Timothy, for clearing the right of way and grading on the projected branch line to Cowichan Lake. This branch is to be built for the development of the 54,000 acres of timber lands recently purchased by the Empire Lumber Co. of New York, out of the E. and N.R. land grant. While the press dispatches state that the contract has been let, we understand that the matter is not definitely settled, and also applies to the invitation for tenders for the building of the branch line to Comox. (Oct., pg. 859.)

Machinery for N. T. Ry Shop.

The specifications for the supply of the machine equipment for the National Transcontinental Ry. repair shop at the 18-stall roundhouse, at Lake Superior Junction, Ont., as the place is called in the advertisement, or Graham, Ont., as it is called in the specifications and accompanying blue prints, provide for the supply and erection complete of the machinery, with the necessary motive power, as follows:—

ENGINE, GENERATOR AND SWITCHBOARD. —One 50 k.w., d.c. generator, 250 volts, to be mounted on extension base of engine; calculated to deliver its full rated load continuously, with a rise in temperature not to exceed 40 deg. C., in any part of the machine, and of carrying 25% overload for a period of two hours immediately following the above, with a temperature not exceeding 55 deg. C.

One simple non-condensing steam engine, to be direct connected to above generator both units to be mounted on the same base. The engine to be of the enclosed type, horizontal sidecrank; steam pressure 110 lbs., maximum back pressure 5 lbs.; it shall develop its full load rating at ¼ cut off, and shall be designed to carry an overload of 50% continuously without overheating in any part.

The switchboard is to consist of one generator panel and one feeder panel.

AIR COMPRESSOR.—One horizontal, duplex, steam driven air compressor, designed for steam pressure at 110 lbs., maximum back pressure 5 lbs., capacity 700 to 800 cubic ft. of free air a minute, at a speed not exceeding 100 revolutions a minute. Automatic speed and pressure regulator to be provided, and to be operated by the air pressure in the receiver.

One vertical air receiver 54 by 12 in., of the best steel, rivetted, and to be tested to 175 lbs. water pressure, and guaranteed safe and tight for a working pressure of 125 lbs., and equipped with necessary screwed openings, valves, etc.

MACHINES.—One 28 in. by 16 ft., motor driven gap lathe complete, with 26 in. four-jaw independent chuck, large and small face plates, six lathe dogs and standard equipment.

One 20 in. by 10 ft. motor driven double back geared engine lathe with taper attachment, with 18 in. four-jaw independent chuck, large and small face plates, six lathe dogs, three tool holders, with tools, complete with standard equipment.

One 16 in. by 8 ft. motor driven high speed double back geared engine lathe with quick change gears, 16 in. four-jaw independent chuck, etc., as for the 20 in. lathe.

One 14 in. by 6 ft. portable motor driven bolt turning lathe, with standard equipment.

One 30 in. by 30 in. by 8 ft. bed motor driven planer, with one tool head on cross rail, and standard equipment.

One 4 ft. motor driven radial drill, with set of taper sockets and standard equipment.

One 20 in. motor driven vertical back geared drill, with set of sockets, and standard equipment.

One motor driven crank shaper, one motor driven pipe machine to take from one to four inch, right and left hand; one motor driven single head bolt cutter, one motor driven combined punch and shear, 12 in. throat, ¾ in. hole, ¾ in. plate and to cut ¾ in. plate; one 500 lb. motor driven self-contained power hammer, 18 lb. stroke; one 6 in. by 36 in. motor driven grindstone; one double emery grinder, with two 16 in. wheels; one 30 in. motor driven band saw, one 20 in. motor driven buzz planer, two 60 in. updraft circular forges with tanks, complete with stacks; two electric forge blowers, with motors direct connected.

One 50 ton portable forcing press, mounted on four wheels, four column type, with hand operated pump; one three ton portable crane, two swage blocks, 150 lbs., planed true, and the necessary complement of miscellaneous tools necessary in a repair shop of this size.

Atlantic, Quebec and Western Ry.—Since page 909 went to press a London cable to the Montreal Star says: —"Canada is, it seems, directly responsible for the suspension of the Charing Cross Bank, with estimated liabilities of £2,000,000. The bank is trading under the name of A. W. Carpenter, who says he filed his petition in consequence of threats of certain persons to institute criminal proceedings against him in relation to investments of the bank's money in a Canadian railway scheme. It is understood the railway is the Atlantic, Quebec and Western, of whose bonds Carpenter or the bank is believed to hold £800,000. The company here refuses to give the amount of the bonds issued. Carpenter's son is an official of the company in Canada. Carpenter himself is also associated in Canadian oil enterprises. The effect of the suspension is very far-reaching, as the bank had branches in forty leading provincial centres in England, Wales, Scotland and Ireland, and the depositors are largely artisans."

Dominion Railway Subsidy Contracts. —A contract has been entered into, under the act respecting aid to certain railways, between the Dominion Government and the Halifax and Eastern Ry. for the building of the following line of railway:—From the Intercolonial Ry., near Dartmouth. to Dean's Settlement, 80 miles, thence to Melrose, 2 miles; thence to New Glasgow, and on to Guysborough, with a branch to Country Harbor, 116 miles.

An action has been entered in the Montreal Courts arising out of some transactions between D. Russell and J. E. Greenshields of Montreal in connection with the Qu'Appelle Long Lake and Saskatchewan Rd. and Steamship Co., Russell claiming $1,250,000 as damages.

The G.T. Pacific Ry. and the Quebec Central Ry. are reported to be interested in a project for the erection of a hotel at Levis, Que., to cost about $1,000,000. The city council has promised to give Shaw Park as a site for the hotel.

The statement above referred to was contained in a dispatch sent from Levis, and purporting to give particulars of a resolution passed by the town council at a meeting held Sept. 27. We were advised Oct. 17 that the management of the Quebec Central Ry. is not aware of there being anything in the report, and on the same date, the G.T.R. management advised us that there was no truth in the report.

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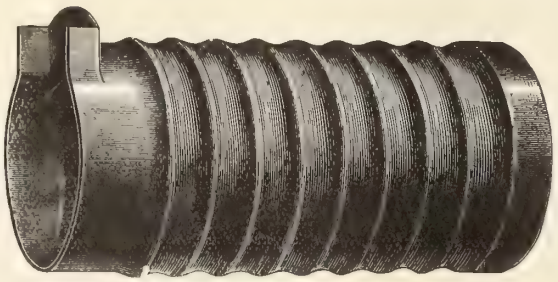

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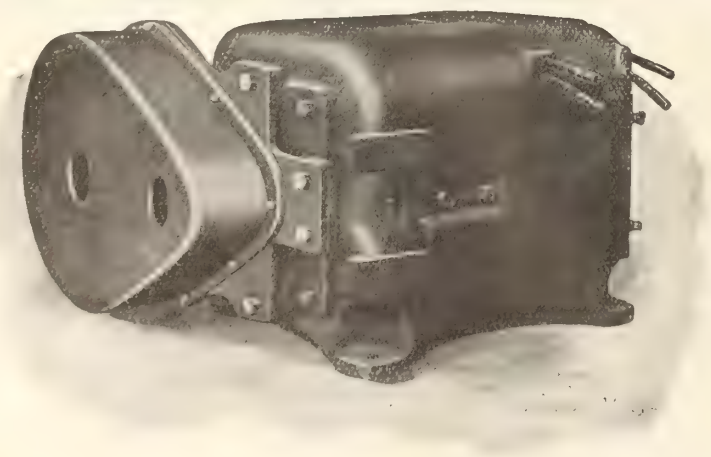

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Canadian Ticket Agents' Association.

The annual gathering of the members of the Association was held in Quebec, Oct. 5, 6 and 7, the Chateau Frontenac being the headquarters. It was one of the most successful in the Association's history, 114 members and a large number of ladies being in attendance. As usual all arrangements had been most carefully made in advance by the secretary, E. de la Hooke.

The business meeting was held Oct. 5, at 10 a.m. J. P. Hanley, President, occupied the chair, and was assisted by S. B. Morris, First Vice President. Mayor Drouin, of Quebec, welcomed the members in French, Alderman Cannon, pro-mayor speaking in ~~French~~. F. W. Churchill C.P.R. ticket agent Collingwood, Ont., responded for the Association.

The Secretary-Treasurer E. de la Hooke, presented his annual report, in which he congratulated the Association on the fact that death had not invaded its ranks during the year. In referring to the membership he said: "It seems a hard proposition to exceed the 200 mark in our membership, and it is only occasionally that we even number that many, but we are always thereabouts. Twenty-five new members enrolled during the year, which if added to the number 192 reported on the roll last year, would have given us 217 but, alas, the withdrawals numbered 19, so that 198 in good standing is all that we can boast of. Some of the shrinkage arises from men retiring or going into other business, but the greater number are caused by men still eligible, who in spite of persuasion to renew their subscription, maintain an undignified silence. Do members do what they should do, viz. introduce to agents eligible for membership the advantages of joining the Association? I quite believe that were an effort put forth in this direction by each member in his immediate vicinity, good results would follow. That some do this, I know from experience, and our membership is increased thereby. Bear in mind the interests of the Association and its objects at all times, and speak out to your brother agents at every convenient season, as it is only by such means that the Association can grow and be of the power and numerical strength that it should be. When kindred and senior associations acknowledge us by sending delegates to represent them at our meetings, should we not be encouraged to bestir ourselves and prove that we are worthy of such acknowledgment. Let 'Excelsior' be our motto.

"It has often occurred to me that members are not the help to one another that they should be. For instance when a member has ticketed his passengers to a given point, why not then give them his card, suggesting that they call on the member in that place for further transportation, (advising him in the meantime). The passengers would accept it as a mark of attention and it would probably be a profit to your fellow member. Again, if a member visits a city, town or village where a brother is located, call on him (whether you know him or not) get acquainted with him, pass the compliments of the day, compare notes, buy yourself a cigar and say 'So Long.' It is astonishing what these little exchanges of courtesies produce and undoubtedly establish a bond of union much to be desired. Good seed sown in good ground cannot fail to bring forth a bountiful harvest."

The receipts of the year were $544.25, which, with a balance of $123.82 from the previous year, made a toal of $668,-07. The expenditures were $498.49, leaving a balance of $169.58 carried forward.

PRESIDENT'S ADDRESS.

J. P. Hanley said:—"It is with feelings of pleasure beyond expression that I welcome you to our annual convention in this historic city. Probably there is no place in this broad Dominion so suggestive of our past history and of our future possibilities as the hallowed spot wherein we are now asembled. It was from old Quebec in bygone days that the brave and dauntless men set forth through untravelled forest and unknown waters, to lay broad and deep the foundation of Canada's commercial greatness. With what engineering skill they blazed their right of way, with what unerring instinct they selected their line of route and their stations is best shown by the fact that our great railway systems now occupy the trail of these hardy, adventurous travellers of olden days.

"It is with pardonable pride that we as Canadians can reflect on the marvellous growth and development of the business with which we are so intimately associated. It seems but a short time ago when the work of our transcontinental line was projected by the Canadian people. There was grave searching of hearts as to the wisdom of the undertaking. Now there are three lines running from ocean to ocean, practically on Canadian soil, with branch after branch piercing into every corner where business exists, and forming a net-work of railway lines not excelled in commercial excellence and importance the world o'er. And we seem only at the beginning of our career. This year alone there are thousands of miles of railway under construction. We seem a great empire without bounds, without limitation. By sea as well as by land has our progress been remarkable. It is not long after all in the history of nations, since the canoe of the wandering Indian was the only medium of communication on our Great Lakes and rivers; now this fair Dominion boasts a commercial fleet, her flag may be seen waving proudly aloft over valuable cargoes, in trim and valiant ships that are officered and manned by brave and fearless men, born of the soil of Canada.

"This is the calling with which we are proud to be associated, advancing year by year in public value and benefit. We are in daily association with the traveller, and with his wants and desires we are intimately acquainted. There is therefore on our part a double obligation, to the Company and to the public, for we are in a great measure the agents of both and trusted by both alike. It is therefore with great pleasure I welcome to our meeting the representatives of the American Association of General Passenger and Ticket Agents and also the representatives of the American Association of Passenger Agents, whose presence here cannot but be productive of the greatest good. We will welcome their sound advice and ripe judgment while at the same time they form an important link and bring our association closer to our various administrative heads. The stores of information gained by us in our daily life may through this medium be of wide benefit to our companies and our patrons.

"I draw your attention to our continued growth in numbers as well as in influence. We are to-day 198 strong, the largest in our history. And there are many of our calling whose presence we earnestly desire, whose wise council and able assistance we are anxious to secure. To you I appeal. Use every legitimate means to have these enrolled. Let every man here be a missionary in this work. In the words of the Scripture let me say: 'Go ye forth and gather them into the barn.'

"Once more I welcome you. Sincerely do I hope our labors may be crowned with mutual advantages. Let us have a good time too. We are in a city of hospitality and among a people famed the world over for good cheer and merriment. Let us make our meeting here one that we will recall with pleasant remembrances in the years to come."

AMERICAN ASSOCIATION OF PASSSENGER AGENTS.

N. Mooney, General Agent New York Central Lines, Montreal, said: "I have been selected by the American Association of Passenger Agents, many of whom are scattered over the Dominion of Canada, to represent them at this meeting in Quebec. They wish me to convey to you their greetings and the assurance of that brotherly love which keeps the world going. Within the past year I came among you to live, having been appointed General Agent of the N.Y.C. Lines at Montreal. The treatment which I have received from the railway men has been most cordial and greatly appreciated by me. Going to Montreal—a stranger—I was received with open arms.

"I have been asked by President Andrews, of the American Association of Passenger Agents, to say a few words at this meeting. I find the question of transportation, both passenger and freight, is at this moment one of the greatest problems which we have to deal with, both on this and the other side of the border. The passenger department of a railway has in times past been termed the silk stocking end of the corporation—the freight department the money-maker. In other words the freight department the dog, and the passenger department the tail, but conditions have changed. A few years ago, every merchant and manufacturer who shipped a pound of freight over any railway could, for the asking, get transportation for himself, his family or any of his friends, and the consequence was that the passenger trains were running crowded with people but comparatively little revenue coming into the treasury for the service performed. Today, on account of our Interstate Commerce Law in effect in the United States, everyone is treated the same and there is no discrimination, whether it be one of the largest shippers in the country, or one of the most humble citizens, and instead of carrying passengers on free transportation the passenger department is now receiving the revenue which in former years the freight department got all the credit for, while we, the passenger men, did all the work.

"The relation of the passenger and freight departments should be most cordial. You will often hear passenger men say 'That does not concern me, that is a freight matter," or vice versa. This condition should not exist—we are all working for one cause, to get revenue for the company we represent, whether it be passenger or freight, as the money all goes into the same locker and we all get our pay from the same pay-car. Co-operation is one of the essential things to bring success. Within the past few weeks there have been conferences between the members of the Canadian Board of Railway Commissioners and the Interstate Commerce Commission in regard to this very co-operation, with the sole object of mutual benefit to the railways on each side of the border. I would heartily recommend that each individual member of this Association do everything in his power to bring about this agreement.

"I am sorry I shall have to limit my visit here to a day, as the meeting of the American Association of Passenger Agents takes place in Dallas, Texas, on the 10th and 11th of this month, and business of importance makes it necessary for me to attend. It will be a pleasure for me to convey to that Association

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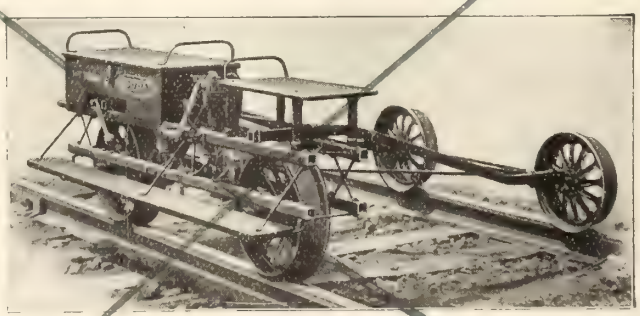

SALES AGENTS:

DOMINION EQUIPMENT & SUPPLY CO.,

354 Main St., WINNIPEG, MAN.

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the greetings of the Canadian Ticket Agents' Association."

AMERICAN ASSOCIATION OF G. P. & T. A.

The Secretary read a letter from G. A. Cullen, G.P.A., Delaware, Lackawanna & Western Rd., New York, who had been delegated to represent the American Association of General Passenger and Ticket Agents, expressing his regret at being unable to be present and sending the following paper to be read:

"I esteem it a great honor to be invited to address you, representing as you do, so worthily and so fully, the passenger transportation interest of this great and growing division of the British Empire. Standing in this, one of the most historic cities of the New World, viewing the scenes where British valor and British genius have established this Dominion and, with wise laws firmly enforced, have practically created this land of opportunity, it is but natural that our minds should dwell upon at least one (and that one far from the least) of those sturdy virtues that have made England the majestic world power that she has been now these centuries.

"It is told of Prof. Huxley that in the course of a conversation with some savant Huxley was deploring the fact that men of learning were not as a rule better versed in the ordinary facts of every-day life and especially in the facts of nature. The savant took issue, contending that he, himself, being fairly representative of his class, was familiar above the average man with those facts, and challenged Huxley to stump him. Said Huxley: 'Well, well, suppose you define a crab.' 'Oh,' said the learned doctor, 'a crab is a small, red fish that swims backwards.' 'Exactly right,' said Huxley, 'except that a crab is not red, it is not a fish and does not swim backwards.' It was doubtless this sort of thing that led our homely American humorist, Josh Billings, to remark in his crude way, 'The trouble with most folks is, not that they don't know enough, but that they know too darned much that ain't so.'

"Bravery is rightly regarded as the greatest of all virtues, for no other virtue is effective without it. But bravery is not enough. England does not owe her achievements through all these centuries solely, nor even principally, to being braver than her enemies. Was Napoleon less brave than Wellington? Ask Kitchener if the Dervishes were cowards? Did Havelock's men so greatly surpass the Sepoys in courage? No, England owes her pre-eminence to a far less spectacular virtue than bravery (much as she has had of that), to a virtue without which no nation in the history of man has done great things for so long. If there is one word that expresses the secret of England's long supremacy better than another that word is 'thorough.' Thorough in preparation, thorough in investigation, thorough in execution and administration, and back of it all, thorough in the conscientious daily life of her people. I do not suppose anyone can be educated to be thorough who has not the elements of thoroughness in the fibre of his character, (and that may be why so many practical failures are turned out of our schools and colleges), but the great majority of us Anglo-Saxons have that goodly heritage, although often undeveloped. Thoroughness is made up of an active imagination stimulated by an ambition to get at the facts, of a scorn of superficial half-knowledge, and above all of a readiness and eagerness to work and dig into the very heart of a problem. Thoroughness it is that leads our little ships of life off the treacherous shoals of 'I think' out into the deep and safe channel of 'I know.' Thoroughness is the very cardinal principle of successful railroad administration. As I see what it is that goes to make an exceptionally eminent railroad president. I am reminded of what someone has said—'Genius is an infinite capacity for taking pains.' We cannot all of us be railway presidents, just as we do not all of us have that infinite capacity that spells genius, but I venture the broad assertion that the man who wishes to travel in the direction of the presidency, rather than towards the other end of the ladder, will do well to develop his capacity for thoroughness. I know of nowhere that thoroughness is more necessary, nor at the same time where the temptation to a lack of thoroughness is greater, than in the important office of railway ticket agent. Temptation to slur over work is always greater where one is removed from daily contact with some supervising officer and deals largely with those who know far less than himself about his business, and it is to the everlasting credit of the ticket agents, both of Canada and the United States, that they have so largely resisted and triumphed over this temptation. Indeed, it is to their thoroughness in mastering the details of their business that their high standing in their various communities and with the travelling public is due. And I may say that a good part of the travelling for pleasure that is done today (and it is a large part of the total), would not be done at all were it not that the 'crooked paths have been made straight' in advance by the well informed, interested and capable ticket agent, and the apprehensions of discomfort allayed by his manner of confidence based on knowledge.

"You have not invited me here to preach a sermon or deliver a lecture, but I trust you will bear with me if I express the contempt both moral and intellectual which I feel for the man who, occupying the dignified and responsible position of ticket agent, representing the passenger department of a great railway Company, attempts, either through the desire to secure business or the even worse desire to cover up his own ignorance to give a passenger information that, as Josh Billings says, 'Ain't so.' 'Bluffing' is poor policy in the railway business. Bluffs always come home to roost, if not to the agent himself, certainly to his company. You and I can remember the day when men had the effrontery to boast of this sort of thing. Thank God it isn't 'good form' in the railway business today.

"Industry and intelligence are things that have made the ticket agent a personified encyclopedia of information in the past and—there is no royal road—these must be relied upon to keep him in that role in the future. I will only refer in passing to two features of a ticket agent's responsibilities that tend to develop his thoroughness and enhance his value to himself and to his company. The first is travel—who would expect a salesman in any other line of business to be successful who had not even seen his 'line of goods?' Particularly should a man know his own line and through car connections, not by the folder and guide merely, but by actual observation. I think many companies make a great mistake in not encouraging their agents, especially at the more important points, to familiarize themselves with the one thing the companies have to sell—transportation. Another means of development for the ticket agent is in employing some of his spare time in soliciting business outside of his office. This not only improves his acquaintance but develops capacities that are very apt to be of much use to him personally.

"But I must not be didactic. You 'know the game' quite as well and probably better than your preacher. I am your guest today. Let me be your host when you can find time to take a trip over the Lackawanna."

A TRIP ROUND THE WORLD.

M. McNamara, G.T.R. ticket agent, Walkerton, Ont., read the following paper: "Some two or three weeks ago I received a note from our esteemed secretary, Mr. de la Hooke, reminding me that I was booked for an address at this meeting, covering a trip around the world on British soil. I certainly felt frightened at his reminder, for I could not see how I was going to manage it. There are considerable stretches of water on the journey and our aeroplanes have as yet an unpleasant habit of tumbling to earth or the sea when required for carrying passengers.

"Last year Mr. McIlroy gave us a most interesting trip around the world starting from Peterboro. A two dollar rate for a certain trip then prevailed in that celebrated town and quite a number took advantage of the figure rate and found the trip most enjoyable. This year I determined to start from Walkerton, the enterprising capital of the county of Bruce. I had seen it stated in print that all sensible people travel by the Grand Trunk. Wishing to be considered a sensible man myself I determined to travel by that route. But instead of going around the world on British soil I decided to make the trip under the British flag. The flag of Britain represents the British soil wherever it flies and is the proud emblem of our nationality in every quarter of the globe. After many great battles all the nations of the earth and all the ships that sail the sea, have been forced to acknowledge its supremacy.

"Setting out from Walkerton by the G.T.R. we soon reach Montreal. Here we have a choice of several fine steamship lines all flying the British flag. We make our choice and sail down the majestic St. Lawrence fringed with beautiful scenery and alive with inspiring historical associations. We pass the grand old city of Quebec peopled with noble memories of the past and not unmindful indeed of the many inspiring attractions of the present. We sail on through the Gulf of St. Lawrence, pass the bleak Island of Anticosti, known in song and story as the graveyard of the Atlantic. The bones of many a noble ship lie bleaching on its desolate shores. On we sail through the straits of Belle Isle and out into the broad Atlantic. The first point of interest that we reach on the other side of the ocean is the Emerald Isle, dear old Ireland, that sweet gem of the sea, that for more than a thousand years has exerted a greater influence on the history of the world than any other place of its size on the habitable globe. When all Europe was a prey to barbarism after the downfall of the Roman Empire in the sixth century, Ireland alone kept the lamp of learning burning. From the time of St. Patrick in A. D. 432, down to the first English invasion under Henry II in 1155, the great university of Armagh, often containing more than 7,000 students, sent forth teachers and missionaries who spread the gospel and founded institutions of learning in every country in Europe.

"Sailing across the Irish Sea, we soon reach England. In many respects England contrasts strongly with Ireland. The union of the two countries has not always been peaceful, but it has produced great results. Liberty trickles down slowly from the founders of empires to the common man and indeed not much of it has yet reached the multitudes in some countries of Europe. By contrast, England may well be considered the cradle of liberty. It unites liberty with security in more just and equal proportions than any other country in Europe. Its union with Scotland under James I in 1603 has produced the happiest results. The Scotch and Irish did the fighting and the English pocketed the proceeds. They did not get the whole

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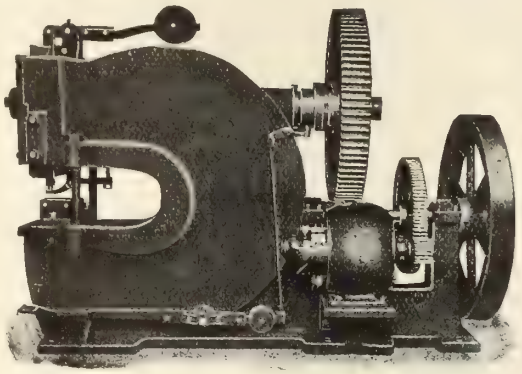

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A HISTORY OF THE PAY-AS-YOU-ENTER CAR
AND ITS LESSON

The following cities are using Pay-As-You-Enter Cars: Chicago City Railway, 839 cars; Chicago Railways, 1,328; Public Service Corporation of New Jersey, 466; New York City Railway, 555; Third Avenue Railroad, New York, 550; International Railway, Buffalo, 200; Buffalo & Lake Erie Traction Co., 10; Washington Ry. & Elec. Co., Washington, D.C., 100; Capital Traction Co., Washington, D.C., 51; Municipal Traction Co., Cleveland, Ohio, 180; United Rys. Co. of St. Louis, Missouri, 310; Portland Ry., Lt. & Pwr. Co., Portland, Ore., 25; Columbus Ry. & Lt. Co., Columbus, Ohio, 10; Wichita R.R. & Lt. Co., Wichita, Kan., 14; Jacksonville Elec. Co., Jacksonville, Fla., 5; Dallas Elec. Co., Dallas, Texas, 20; Houston Elec. Co., Houston, Tex., 41; Northern Texas Trac. Co., Ft. Worth, Texas, 25; Ithaca Street Ry., Ithaca, N.Y., 2; Peoria Street Ry., Peoria, Ill., 13; Urbana & Champaign Ry., Champaign, Ill., 3; Mutual Lt. & Water Co., Brunswick, Ga., 4; Rochester Ry. Co., Rochester, N.Y., 25; Ft. Dodge, Des Moines & So. R.R. Co., 2; Muskogee Elec. Trac., Muskogee, Okla., 6; Union Traction Co., Dubuque, Ia., 4; Topeka Ry. Co., Topeka, Kas., 12; United Rys. & Elec. Co., Baltimore, Md., 32; Detroit United Ry., Detroit, Mich., 225; Cincinnati Traction Co., Ohio, 50; Montreal Street Railway, 400; British Columbia Elec. Ry., 30; Calgary Street Railway, 18; Metropolitan Street Ry., Kansas City, Mo., 50; Edmonton Radial Ry., 4; San Antonio Traction Co., San Antonio, Tex., 6; Rockford & Int. Ry., Rockford, Ill.; Cairo Street Ry. & Lt. System, 6; Des Moines City Railway, Iowa, 12; Macon Ry. & Lt. Co., Macon, Ga.; Virginia Ry. & Power Co.; Columbia Elec. St. Ry. & Lt. & Power Co., Columbia, S.C.; Aurora, Elgin & Chicago Ry., Chicago, Ill.; Wichita Falls Traction Co., Wichita Falls, Tex.; Ottawa Electric Ry. Co., Ottawa; Bloomington & Normal Ry. & Lt. Co., Bloomington, Ill.; Corsicana Transit Co., Corsicana, Tex.; Compania Electrica y de Ferrocarriles, Mexico; The Milwaukee Elec. Ry. & Lt. Co., Milwaukee, Wis.; Springfield Street Ry. Co., Springfield, Mass.; Lynchburg Traction Co., Lynchburg, Va.; Chicago & Southern Traction Co., Chicago, Ill.; Calumet & South Chicago Ry. Co., Chicago, Ill.

THE LESSON

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of them, though, for the canny Scot pertinaciously asserted his claims to a pretty good share, and got it too. The Irish will get their reward hereafter. In our journey around the world, under the British flag, one may well pause for a while in the British Isles. Looking at a map of the world we cannot help being struck with amazement at the thought that such a little country as England, Scotland and Ireland, the whole of them not much larger than half a dozen Canadian counties, should have achieved such astonishing results. They have established the greatest empire the world has ever known. The glories of ancient Rome fade before it. It covers the world, and has brought the priceless blessing of political liberty to mankind. What is the cause of this extraordinary result? Why have not other nations risen up to dispute its achievements? France was the first in the field as the leader of civilization in Europe. We may well accord it the same claim in America. Standing here in grand old Quebec, amidst so many monuments of its ancient glory, and recalling the greatness of its history, on this continent, we may well ask why England has taken the lead? Is it due to the different character of the people, or is it the result of their different political institutions?

Proceeding leisurely across the English Channel in our good ship, still flying the British flag, we stop for a moment at Calais in France. This was the last British possession on the continent of Europe. We must remember that the kings of England from the Norman conquest in 1066 down to the death of Queen Anne in 1710, claimed to be also kings of France, and much good blood was spilled and many bloody battles fought in support of this claim. Calais was alternately French and English for a century, but was finally taken by the French in 1554, whilst Mary Tudor was Queen of England. It is a matter of history that Mary died of a broken heart at the loss of Calais. On her death bed she said that if her body were opened 'Calais' would be found written on her heart. We don't take things so seriously now, or possibly time has changed the value of their possession. But we sail on from Calais with scarcely a thought of its ancient glory. Coasting along at our leisure along the coast of France and Spain, we come to Gibraltar. What British heart does not thrill at the name of Gibraltar? It was anciently known as one of the pillars of Hercules and has been held alternately by the Turks, the French and the Spaniards until it finally fell into the hands of the British in 1704. The fortress commands the entrance to the Mediterranean and is considered impregnable. We now peacefully enter the straits and sail down the Mediterranean. In the midst of these historic waters we find the little island of Malta, with the British flag flying proudly from its government house. I need scarcely remind a religious assembly like this, that St. Paul was shipwrecked at Malta in A.D. 62. Indeed it is difficult to go to any place of either ancient or modern renown, without finding the British flag at the top of the mast. At the end of the Mediterranean we come to the Suez Canal. It is said that in the time of the Romans, Cæsar had a channel for his galleys cut through from Aden to Port Said, 90 miles. But it fell into disuse afterwards and again filled up with the sands of the desert. The present canal was cut by a French company, under the celebrated French engineer, M. de Lesseps, in 1858, but became British property in 1876, through a purchase of the majority of the stock for $22,500,000, by a vote of parliament. This is the modern way of accomplishing great things for money is now the ruler of the world. We go through the Suez Canal with our flag flying, and pass into the Red Sea, going down along the coast of Egypt, which in effect has become a British possession. It is surprising how a handful of British people have obtained control of this wonderful country. Its population is about 20,000,000 and its civilization dates from the beginning of the world. The first of its Pharoahs, or great kings, is said to have been a grandson of Noah. It is now a British colony.

"Passing out of the Red Sea through the Gulf of Aden, we sail on to India, picking our way through hundreds of islands all flying the British flag. India has a population of over two hundred million people, composed of all sorts of Oriental castes and races. Their internal divisions enable a handful of British people to rule this vast empire, and this again illustrates the genius of Great Britain for governing the world. From Hindustan we cross the Bay of Bengal and out into the China Sea. Here again the commercial genius of the British people is most wonderfully exemplified. They have a strong grip on China and to a large extent dominate its commerce. China is not well known to the western world. Its own people claim an antiquity of a hundred thousand years, but western historians assert that it was founded by our own ancestor Noah as soon as he got out of the ark. It has a population of four hundred million industrious, capable people, who are now studying the civil and military arts of Europe and America. Four hundred million people with guns in their hands and able to use them as well as ourselves is a threatened peril that our descendants will one day have to face. After exploring China under the protection of the British flag, we return to our ship and pass on down through the Molucca Islands and on to New Zealand, Van Dieman's Land and Australia. For want of time we have to overlook the immense British possessions in South Africa, and the swarms of British islands in the Indian Ocean, the South Atlantic and the Pacific. Van Dieman's Land was for the first half of the last century used as a convict station for political prisoners, chiefly from Ireland. New Zealand was discovered by Capt. Cook in 1770. He found potatoes there in 1773 and took them to Europe. Sir John Hawkins had found them previously in Chili and Peru in 1565 and Sir Francis Drake found them in Santa Fe in 1586, but Sir Walter Raleigh found them in Virginia in 1560, during the reign of Queen Elizabeth, and planted them in Ireland. He is fairly entitled to the credit of having first grown both potatoes and tobacco in Europe. And such is the irony of history, that Elizabeth's successor, James the First, cut off his head. His Majesty did not smoke. With the British flag proudly floating from our mast head, we arrive at Australia. It is the largest island in the world and has an area of three million square miles. It was first known as New Holland and belonged to the Dutch, but became British by the usual process in 1790. It competes with Canada for the honor of being the greatest British possession under the flag.

"And now we are approaching our own beloved Canada, from the other side of the world. Sailing from Australia up the Pacific ocean we reach Vancouver. Here we take a C.P.R. train, under the superintendency of our old friend, Mr. Foster, and in due time, reach Walkerton. And what sensible man does not rejoice at living in Walkerton, a small, modern city, with advantages that neither Cæsar nor Napoleon could enjoy? Fine schools, beautiful churches, graded streets, city water, sewers, cement sidewalks, electric lights, and the most enlightened public sentiment in the proudest country that flies the British flag. Such is our beloved home."

AFTERNOON SESSION.

The business meeting was resumed after luncheon when letters were read from D. McNicoll, Vice President C.P.R., G. T. Bell, Assistant Passenger Traffic Manager, G.T.R., and M. H. Bohreer, District Passenger Agent, Mobile & Ohio Rd., Chicago, regretting their inability to be present, W. E. Rispin, G.T.R. ticket agent, Chatham, who was prevented from attending owing to illness in his family, wrote respecting his representation of the Association at the American Association of General Passenger and Ticket Agents' meeting in Havana.

Invitations for the holding of the next annual meeting at Charlottetown, P.E.I., and Sault Ste. Marie, Ont.,. were received from the civic and board of trade officials of those places and were referred to the executive committee.

The question of obtaining transportation on U.S. railways for members of the Association who were not wholly engaged in the ticket business was discussed, and it was decided to ask G. A. Cullen, G.P.A., Delaware, Lackawanna & Western Ry.. to take the matter up.

A resolution was passed expressing sympathy with W. Bunton, G.T.R. ticket agent, Peterboro, Ont., who was unable to attend owing to illness.

The following officers, etc., were elected for 1911:—President, J. F. Dolan, Montreal; First Vice President, S. B. Morris, Rodney, Ont.; Second Vice President, J. L. Thomson, Charlottetown, P.E.I.; Third Vice President, A. Philps, Huntingdon, Que.; Secretary-Treasurer, E. de la Hooke, London, Ont.; Auditor, F. M. Hawley, Cobourg, Ont.; Executive Committee, W. Jackson, Clinton, Ont.; M. McNamara, Walkerton, Ont.; W. McIlroy, Peterboro, Ont.; C. E. Horning, Toronto.

The re-election of E. de la Hooke as Secretary-Treasurer for the twenty-fifth year in succession, and the voting of an increase in his salary, produced much enthusiasm.

J. F. Dolan, the President elect for 1911, having thanked the members, the meeting adjourned.

SOCIAL FEATURES.

The Quebec Transportation Club had charge of the outside entertainment features of the programme, which, owing to the liberal co-operation of C. E. A. Carr, General Manager of the Quebec Railway, Light, Heat and Power Co., were carried through most successfully. On the morning of Oct. 5 the ladies of the party were taken on a sight-seeing trip around the city on special electric cars, and in the afternoon they were taken by special electric train to Montmorency Falls and the Kent House. In the evening the Association had a smoking concert at the Chateau Frontenac for the members and men guests, the ladies being entertained at a social in the parlors. On the morning of Oct. 6 the whole party went by special electric train to the Shrine of Ste. Anne de Beaupre, and then had luncheon on the C.P.R. s.s. Empress of Ireland, afterwards going on a trip round the harbor and to the Quebec bridge site, on one of the Quebec and Levis Ferry Co.'s boats. In the evening they went to see vaudeville and motion pictures at the Auditorium Theatre. On Oct. 7 the party went by special electric train to the village of Indian Lorette, where they received a hearty welcome from the Huron tribe. President Hanley was presented with an address and a bouquet, and was made a chief of the tribe, with the euphonious name of Onsedeksendishen. In the evening there was a reception and dance at the Kent House.

In appreciation of courtesies extended, the Association presented handsome cut glass mementoes to C. E. A. Carr, General Manager Quebec Ry., Light, Heat

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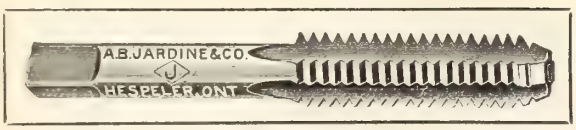

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& Power Co., and Honorary President of the Quebec Transportation Club; also to two members of the club's committee, J. S. Blanchet, of the Quebec Ry., Light and Power Co.'s freight and passenger department, and F. O. Stocking, city passenger and ticket agent, Quebec Central Ry.

Railway Finance, Meetings, Etc.

Alberta Ry. and Irrigation Co.—Approximate net profits from all sources, exclusive of land sales, for Aug., $27,-146, against $39,533 for Aug., 1909. Cumulative net profits for two months ended Aug. 31, $45,881, against $69,536 for same period 1909. Approximate traffic receipts for Sept., $32,007, against $33,567 for Sept., 1909. Cumulative traffic receipts for three months ended Sept. 30, $90,013, against $88,189 for same period 1909.

Alexander Gibson Ry. and Manufacturing Co.—The courts have fixed Feb. 11, 1911, as the date for sale by auction of the properties belonging to this company. The sale comes as the result of an equity suit brought for the foreclosure of mortgages amounting to over $500,000. The company formerly owned the Canada Eastern Ry. and the bridge over the St. John River, which gave the line an entrance into Fredericton, N.B. The Canada Eastern Ry. was bought by the Dominion Government and added to the Intercolonial Ry., and the bridge was taken over by the Dominion Government under the agreement by which the bond issue had been guaranteed. The company's railway interests at present are nominal, consisting of short spurs necessary for connecting its mills and timber limits with the railway systems of the province.

Algoma Central and Hudson Bay Ry.—A cablegram from Paris, France, says:—"La Journale Officiale contains a notice of the Algoma Central and Hudson Bay Railway, incorporated under the Canadian company law, having head offices in Sault Ste. Marie and a capital of $10,000,000, $500,000 of ordinary and $500,000 of preference shares, besides which an issue of $6,750,000 in debentures is authorized. It is proposed to place stock valued at 3,000,000 francs in Paris."

Canada Atlantic Ry.—Following are the officers and directors for the current year:—President, C. M. Hays; Vice President, E. H. Fitzhugh; Secretary-Treasurer, F. Scott; other directors, W. Wainwright, J. W. Loud, W. H. Biggar, R. S. Logan; General Auditor, W. H. Ardley.

Canadian Northern Ry.—The Edmonton and Slave Lake Ry. application for the amalgamation of which with the C. N. Ry. is being applied for, has outstanding $420,000 of 5% bonds. These were bought by the C.N.R. and are deposited as part of the collateral for the C.N.R. 4% perpetual consolidated debentures.

Central Canada Ry.—The second mortgage bonds will be redeemed Nov. 1 on presentation at the Bank of Montreal, or at the C.P.R. Treasurer's office.

Detroit, Grand Haven and Milwaukee Rd.—The State of Michigan has instituted a suit to recover about $3,000,000 alleged arrears of taxes from this railway, which is one of the U.S. lines controlled by the G.T.R. The company under its charter, granted in 1860, pays a tax of 1% on its capital stock. This stock is nominally $2,517,140, but the State contends that it is entitled to tax the capital actually invested in the line as the basis of calculation, instead of the nominal value of the common stock, as shown by the entries in the company's books. This the State authorities estimate at $7,000,000, and seek to collect taxes on this valuation for past years. R. S. Logan, Assistant to the President G.T.R., said in an interview recently, that this was an old claim, and had been successfully resisted on a previous occasion. He could not understand what the present suit meant, in the absence of papers.

The Dominion Atlantic Ry. will apply to the Dominion Parliament to authorize it to enter into an agreement with the C.P.R. for any of the purposes specified under sec. 361 of the Railway Act. At the annual meeting in London, Eng., recently, the President, T. Skinner, who is also a C.P.R. director, stated that almost all of the preference and ordinary stock of the company had been acquired by friends of the C.P.R. in accordance with the terms of the circular issued May 12. The report of the directors for the year ended June 30 was adopted.

Dominion Atlantic Ry.—Gross earnings for Aug., $160,600, against $158,-380 for Aug., 1909. Aggregate gross earnings for two months ended Aug. 31, $308,200, against $301,737 for same period 1909.

Hillcrest Collieries.—A dividend of 1¾% has been declared on the preferred stock, payable to shareholders of record Sept. 30. In addition to its collieries in Alberta, the company owns a coal carrying railway, connecting with the C.P.R.

The Grand Trunk Ry. Co. will ask the Dominion Parliament for all necessary powers, to be exercised subject to approval of the shareholders, in respect of the following matters:—Semi-annual payment of dividends; providing a reserve fund for extensions, renewals, maintenance, repairs, etc.; to acquire, etc., the stocks, bonds or other securities of the Montreal and Southern Counties Ry.; to guarantee interest at 4% upon an issue of first mortgage bonds of the G.T. Western Ry., payable 50 years from date thereof; to issue such additional G.T.R. consolidated debenture stock as may be necessary in the exercise of the powers conferred by this act, and by the G.T. Ry. Act of 1910; and repealing certain inconsistent provisions of former acts.

Intercolonial Ry.—The figures for the traffic on the Intercolonial Ry. for the half year ended Sept. 30, have not yet been given out officially, but it is stated, unofficially, that they show a surplus of about $250,000.

Massawippi Valley Ry.—Following are the officers and directors for the current year:—President, J. G. Foster, Derby Line, Vt.; Vice President, C. W. Cate, Sherbrooke, Que.; other directors, J. W. Dunklee, Boston, Mass.; C. H. Kathan, Rock Island, Que.; F. N. McCrea, C. D. White, E. O. Grundy, Sherbrooke, Que.; H. N. Turner, St. Johnsbury, Vt., and J. H. Williams, Walpole, N.H.

Quebec and Lake St. John Ry.—Total earnings for Sept., $65,721.94, against $56,919.49 for Sept., 1909. Aggregate total earnings for nine months ended Sept. 30, $441,785.19, against $444,750.21 for same period 1909. The average earnings per mile for Sept. were $230.27, against $199.72 for Sept., 1909, and for the nine months ended Sept. 30, $1,-559.33, against $1,567 for the same period in 1909.

Quebec Central Ry.—Gross earnings for July, $124,070.89; expenses, $77,-501.16; net earnings, $46,569.73, against $107,411.36 gross earnings; $67,443.04 expenses; $39,968.32 net earnings for July, 1909.

Quebec Southern Ry. and South Shore Ry.—Application will be made to the Exchequer Court at Ottawa on behalf of the Attorney General for the approval of the settlement of the claims of C. K. Lawton, J. Hesseltine and W. Bloom. The creditors of the company have been called upon to show cause why the settlement shall not be confirmed. This action arises out of the winding up of the affairs of the old companies, which were in the hands of a receiver prior to their acquisition by the Delaware and Hudson Co., by which company they were amalgamated, and are now operated as the Quebec, Montreal and Southern Ry.

Quinze and Blanche River Ry.—Following are the officers and directors for the current year:—President, Hon. E. H. Bronson; Vice President, F. P. Bronson; other directors, W. G. Bronson and H. W. Cole; Secretary-Treasurer L. Crannell.

Temiscouata Railway.—At the annual meeting in Quebec Sept. 27th, the General Manager's report was read by Vice President J. H. Walsh, who presided owing to the unavoidable absence of President F. Grundy, from illness. The gross earnings showed an increase over the preceding year, and operating expenses a decrease. After meeting the fixed charges, 5% on the prior lien bonds, and $10,000 for redemption fund account, a dividend at the rate of 1% per year was declared on the consolidated mortgage income bonds, and an appropriation of $8,000 made from net revenue for permanent betterments to the line, leaving $5,000 to carry forward. Following are the officers and directors for the current year:—President, F. Grundy, Sherbrooke, Que.; Vice President, J. H. Walsh, Sherbrooke; other directors, E. O. Grundy, Sherbrooke; A. K. Cook, K.C., F. Murphy, K.C., A. Laurie, W. N. Campbell, Quebec; Secretary, D. B. Lindsay, Riviere du Loup; General Manager, G. G. Grundy, Riviere du Loup.

White Pass and Yukon Ry.—Gross earnings for Aug., $227,850, against $252,600 for Aug., 1909. Aggregate gross earnings for two months ended Aug. 31, $442,187, against $476,257 for same period 1909.

Railway Commissioners' Traffic Orders.

Other orders under this heading will be found on pg. 917.

CLASSIFICATION RATINGS ON BUILDING MATERIAL

11899. Oct. 7.—The application of C. D. McGregor, of Vonda, Sask., complaining that rate charged by Canadian Northern Ry. on shipment of building material from St. Boniface, Man., to Vonda, was excessive. Upon the report and recommendation of the Chief Traffic Officer of the Board, concurred in by the Canadian Freight Association, it is ordered that the forthcoming new Canadian Classification 15 provide a building material list as follows:—

Building Material	L.C.L.	C.L.
Brick:		
Common	4	10
Fire (not stove lining)	4	10
Hollow	4	10
Terra cotta, fire proofing	4	10
Cement:		
Asbestos	4	10
Common, in sacks or barrels	4	10
Gravel, common	4	10
Lime, common	4	10
Plaster:		
Asbestos	4	10
Calcined	4	10
Elastic pulp, in bags or barrels	4	10
Plaster of Paris, adamant and stucco, in bags or barrels	4	10
Sand:		
Asbestos	4	10
Common	1	1
Stone:		
Artificial	4	10
Dressed, not polished, carved or turned	4	10
Blocks:		
Concrete building	4	10
Blocks, slabs or spires:		
Unwrought	1	1
Carving and dressing	4	10

Intercolonial Railway

Choice of two Intercolonial Trains from Montreal

Ocean Limited

Leaving Montreal 7.30 p.m.

Daylight View of Matapedia Valley

Maritime Express

Leaving Montreal 8.15 a.m.

Panoramic View of Quebec

For tickets, reservation of berths and all further information, apply

INTERCOLONIAL TICKET OFFICE - - - TORONTO

(King Edward Hotel Block)

TATE BIFUNCTIONAL ACCUMULATORS

Are ideal for train lighting. They are 30 per cent. lighter than any other Storage Battery of same rated capacity.

They can be charged more rapidly, and show much higher Watt-hour efficiency on slow or rapid discharge.

They do not require to be washed out for the removal of sediment from the cells, because there is no sediment deposited.

This battery solves the problem of efficient lighting of trains by electricity.

It is important to railway managers that they should investigate the Tate Bi-functional Accumulator.

We also manufacture storage batteries for Automobile engine ignition and lamp lighting, and for all other purposes for which a storage battery can be used.

TATE ACCUMULATOR CO. OF CANADA, LTD.

TORONTO, CANADA

THE

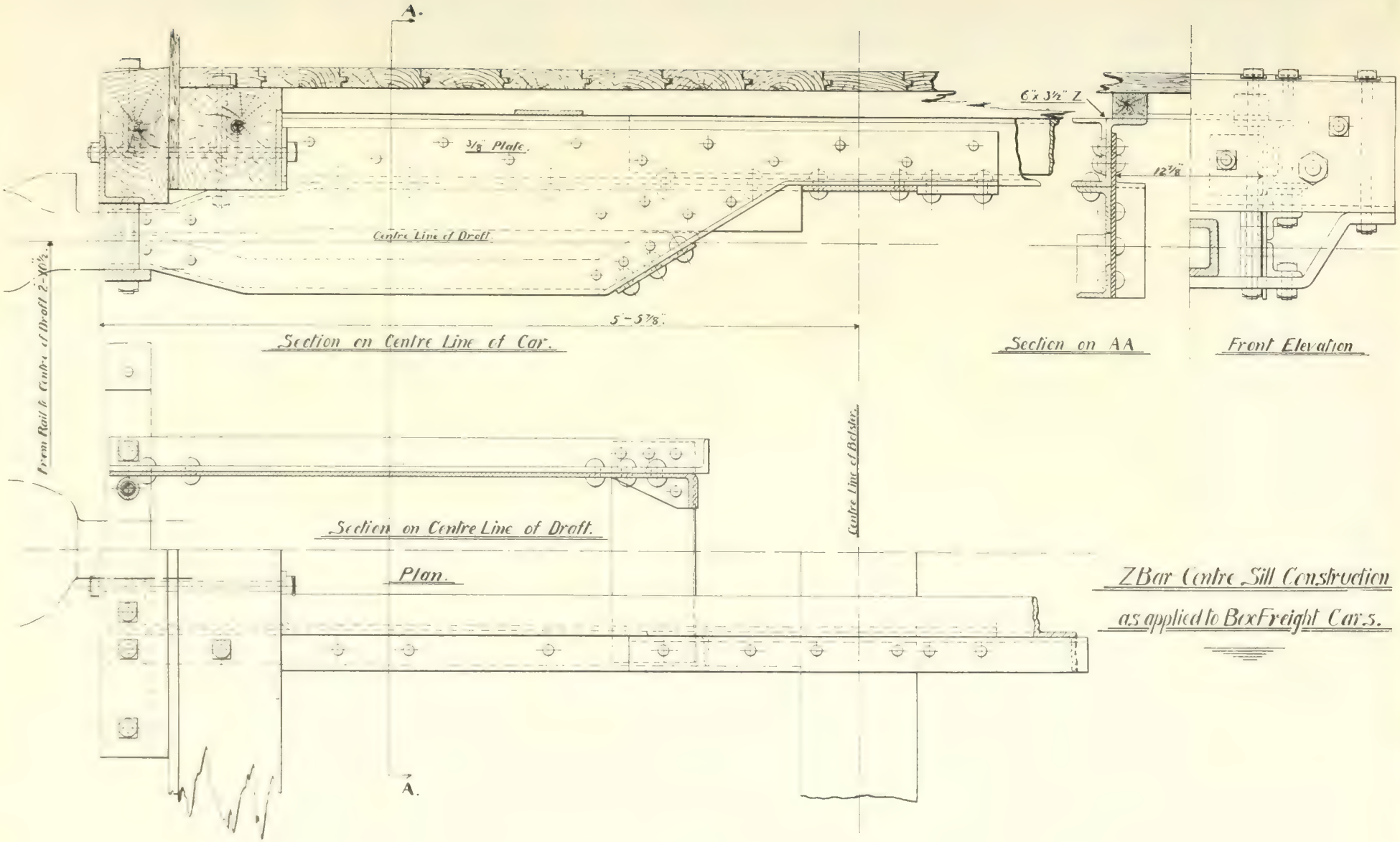
NEW HOTEL BREVOORT CHICAGO

The Twentieth Century Hotel **Absolutely Fireproof**

Centrally located. Near-by cars for all Stations. All rooms are outside rooms. Baths Connecting. Restaurant. Grill Room. Buffet. Unsurpassed in Appointments and Decorations. Table Unexcelled. Prices Moderate.

A. D. HANNAH & D. HOGG,
PROPRIETORS

ARTHUR M. GRANT,
MANAGER



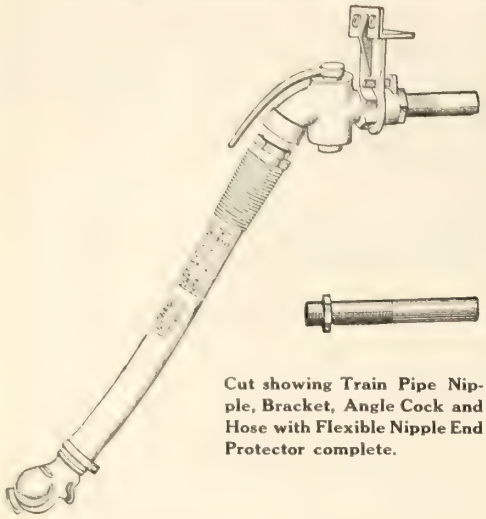
Canadian Pacific Railway Steel Centre Sills.

The plans on this page and illustrations on pg. 951 show the Z bar centre sill construction as applied to C.P.R. cars, with Duplex draft gear attached to the sills.

The C.P.R. is using this type of construction on all the new wooden cars it is building. The arrangement can also be applied to old cars when the wooden centre sills require to be replaced. The arrangement can be adapted to suit any of the standard types of draw gear.

It is claimed that this type of construction will reduce the cost of repairs to draft riggings and save renewals of draft timbers and centre sills, making the car practically as substantial, for draft gear purposes, as a steel car. This should effect a saving, as draft gear repairs are far more numerous than any other repairs to cars.

We are indebted to R. W. Burnett, Genera Master Car Builder C.P.R., for the drawing, photographs and data.



Cut showing Train Pipe Nipple, Bracket, Angle Cock and Hose with Flexible Nipple End Protector complete.

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RAILWAY NECESSITIES

Great Northern Building - Chicago

WOOD'S FLEXIBLE NIPPLE END PROTECTOR

FOR AIR-BRAKE AND SIGNAL HOSE

Prevents chafing and abrasion effecting a saving of from 40 to 50% in maintenance of air-brake hose.

THE MONOGRAM BRACKET

will absolutely stop shifting and leaking of air-brake train pipes. All M.C.B. requirements are obtained and maintained.

P. & W. HOSE PRESERVATIVE

FOR AIR-BRAKE AND PNEUMATIC TOOL HOSE

will prevent cracking of rubber cover and deterioration due to climatic changes. Easily applied.

Canadian Gold Car Heating & Lighting Co. Ltd.

492 ST. PAUL STREET, MONTREAL, QUE.

MANUFACTURERS OF

Electric, Steam and Hot Water Heating Apparatus for Railway Cars

Catalogues and Circulars Cheerfully Furnished. **Improved System of Acetylene Car Lighting.**

Send for Circular of our New Combination Pressure and Vapor Car Heating System

Largest Manufacturers in the World of Car Heating Apparatus

LARGEST DEALERS REBUILT EQUIPMENT IN UNITED STATES

TWO SEPARATE PLANTS

EAST PLANT

Capacity, 25 New Freight Cars per day
10 New Coaches per month

WEST PLANT

Capacity, 10 Heavy Repairs Locomotives per month
Besides Coach and Freight Car Repairs

PROMPT DELIVERY

New Passenger and Freight Equipment

Rebuilt Locomotives, Passenger and Freight Equipment

HICKS LOCOMOTIVE AND CAR WORKS, = Chicago, Ill.

Railway Rolling Stock Notes.

The Standard Chemical Co., Faussett, Que., has purchased one locomotive from the Montreal Locomotive Works.

The Toronto, Hamilton and Buffalo Ry. has received two locomotives from the Montreal Locomotive Works.

The Intercolonial Ry. has received five consolidation locomotives (replace) from the Canadian Locomotive Co., Kingston, Ont.

The G.T.P.R. has received 166 box cars, nos. 312051 to 312216, and 99 refrigerator cars, nos. 340050 to 340148, from the Canadian Car and Foundry Co., Montreal.

By a typographical error the weight of the C.P.R. locomotive, class T2a, was given as 289,000 lbs., instead of 239,000 lbs., in the table showing the counterbalance record, published on pg. 819 of our Oct. issue.

The C.P.R., between Sept. 26 and Oct. 14, received the following additions to rolling stock:—172 box cars, eight vans, 48 refrigerators, 32 flat cars, one first class car, one second class car, and one D. 10 locomotive, from its Angus shops, Montreal.

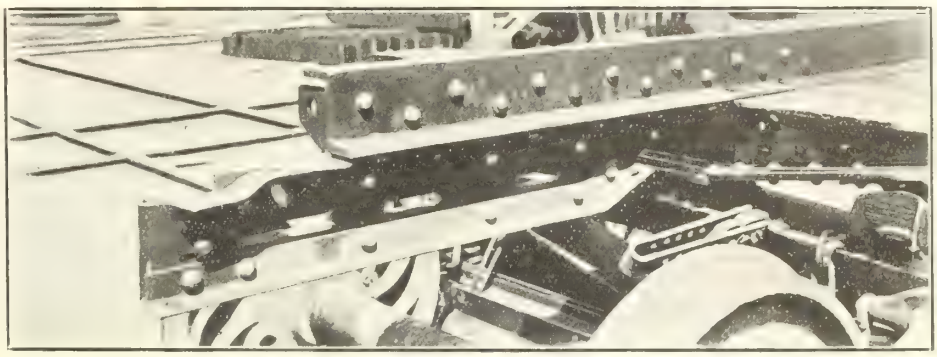
There was shipped from Vancouver, B.C., Oct. 11, a barge load of flat, box and passenger cars for the G.T. Pacific Ry., Prince Rupert, and on another barge, a locomotive, combination passenger car, two box cars and four flat cars for the Portland Canal Short Line Ry., Stewart, B.C.

The Black Lake Asbestos Co. has ordered one four-wheeled locomotive from the Montreal Locomotive Works. Following are the chief details:—

Gauge	3 ft.
Weight in working order	55,500 lbs.
Wheel base	6 ft. 3 in.
Cylinders	13 by 18 ins.
Driving wheel diameter	36 ins.
Boiler, type	Straight top.
Boiler pressure	165 lbs.
Tubes, number and diameter	100; 2 ins.
Tubes, length	10 ft.
Brake	Steam
Capacity, water	1,000 U.S. gals.

The C.P.R. between Aug. 16 and Sept. 27, ordered the following rolling stock:—One D. 10 locomotive, one first class car, one double track plow, five single track plows, two flangers, 228 box cars, six refrigerator cars, 45 stock cars, 61 flat cars, and 12 vans at its Angus shops, Montreal; five steel snow plows, six steel frame flat cars, three steel coal cars, nine ballast cars, and three ore cars, from the Canadian Car and Foundry Co., Montreal, and one 75 ton wrecking crane in the U.S.

The Canadian Northern Ry., between Sept. 15 and Oct. 15, placed orders for the following rolling stock:—20 first class coaches, 10 baggage cars, three dining cars, eight second class coaches, four snow plows and 1,350 box cars with the Canadian Car and Foundry Co., Montreal; 250 box cars with the Silliker Car Co., Halifax; 10 second class coaches with the Crossen Car Mfg. Co., Cobourg, Ont., and two combination second class and baggage coaches and two baggage and mail coaches with the Preston Car and Coach Co., Preston, Ont.



Z Bar Centre Sill on C.P.R. cars, with Farlow draft gear attached.

The Canadian Northern Ry., between Sept. 15 and Oct. 15, received the following additions to rolling stock:—Four first class coaches, two baggage cars and 245 box cars, from the Canadian Car and Foundry Co., Montreal; 15 cabooses and 10 refrigerator cars, from the Crossen Car Manufacturing Co., Cobourg, Ont.; one second class coach, one second class and baggage car, and 35 box cars, from the Silliker Car Co., Halifax, N.S., and four baggage and mail coaches from the Preston Car and Coach Co., Preston, Ont.

Haney, Quinlan and Robertson, contractors, have received two locomotives from the Montreal Locomotive Works, and have ordered one four-wheeled locomotive, of which the following are the chief details:—

Weight in working order	56,000 lbs.
Wheel base	6 ft. 3 ins.
Cylinders	13 by 18 ins.
Driving wheel, diameter	36 ins.
Boiler, type	Straight top.
Boiler pressure	165 lbs.
Tubes, number and diameter	100; 2 ins.
Tubes, length	10 ft.
Brake	Steam.
Capacity, water	1,000 U.S. gals.

The Canadian Northern Ry., between Aug. 15 and Sept. 15 received the following additions to rolling stock:—50 flat cars, six stock cars and 10 cabooses from the Crossen Car Manufacturing Co., Cobourg, Ont.; two dining cars, 360 box cars, one first class coach, and two second class and baggage cars from the Canadian Car and Foundry Co., Montreal; 65 box cars, four second class coaches, and two second class and baggage cars from the Silliker Car Co., Halifax, N.S., and 10 switching and 12 ten wheel locomotives from the Montreal Locomotive Works.

The C.P.R., between Aug. 16 and Sept. 27, received the following additions to rolling stock:—372 wooden box cars, six first class cars, 14 vans, 62 refrigerator cars, one flanger, two baggage and smoking cars, two second class cars, three dining cars, six first class and smoking cars, two first class suburban cars, five baggage cars, three sleeping cars, and nine D. 10 locomotives from its Angus shops, Montreal; 532 steel frame box cars from the Canadian Car and Foundry Co., Montreal, and 23 N. 3 locomotives from the Montreal Locomotive Works.

Following are the chief details of the 25 logging cars which the British Columbia Electric Ry. is having built by the Canadian Car and Foundry Co., Montreal, as mentioned in our last issue:

Capacity	80,000 lbs.
Length over end sills	41′ 0″
Width over side sills	9′ 0″
Width over flooring	9′ 3″
Height, rail to centre of drawbar	2′ 10½″
Height, rail to top of floor	4′ 0″
Couplers	Simplex, side opening
Air brakes	Westinghouse K.C.-812
Wheels	33″ cast iron
Journal boxes	Cast iron
Journal bearings	5″ by 9″ Canadian Bronze Co.
Trucks	Diamond arch bar
Body and truck bolsters	Simplex

Following are chief details of the 50 logging cars which the Fraser River Lumber Co. is having built by the Canadian Car and Foundry Co., Montreal, as mentioned in our last issue:—

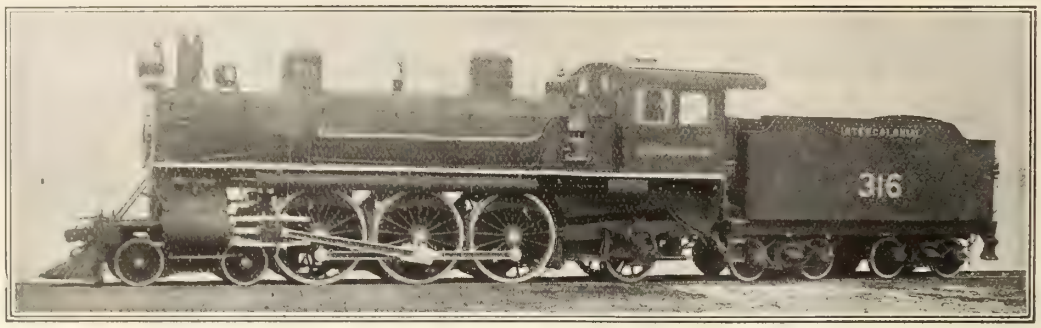
Capacity	80,000 lbs.
Length over end sills	41 ft.
Width over side sills	8½ ft.
Width over flooring	8 ft. 10 ins.
Height, rail to centre of drawbar	2 ft. 10½ ins.
Height, rail to top of flooring	3 ft. 6½ ins.
Body bolsters	Cast steel.
Couplers	Simplex side opening.
Air brakes	Westinghouse KC-812.
Wheels	33-in. cast iron.
Journal boxes	5 by 9 ins.
Journal bearings	Canadian Bronze Co
Truck bolsters	Cast steel.
Trucks	Diamond arch bar.

The C.P.R., between Sept. 26 and Oct. 14, ordered the following additions to rolling stock:—Three D. 10 locomotives, two observation-sleeping cars, 15 sleeping cars, two parlor cars, seven dining cars, 90 suburban cars 65 ft. long, 25 first class cars 65 ft. long, five first class and smoking cars 65 ft. long, five first class and smoking cars, 67 ft. long, five second class cars 65 ft. long, 10 tourist cars, 24 baggage and express cars, 10 baggage and smoking cars, 50 box cars, seven refrigerator cars, 13 stock cars, nine flat cars, and 12 vans, from its Angus shops, Montreal; one ore car and four coal cars from the Canadian Car and Foundry Co., Montreal.

The combination coach and parlor car which the International Ry. of New Brunswick is having built by the Canadian Car and Foundry Co., Montreal, as mentioned in our last issue, is to be fitted with parlor, 29 ft. ¾ in. long, smoking compartment 7½ ft. long, ordinary first class compartment 17 ft. 8 ins. long, and toilet accommodation. Following are the chief details:—

Width over side sills	9′ 10½″
Width over all at eaves	10′
Width between deck sills	5′ 6″

Z Bar Centre Sill on C.P.R. cars, with Farlow draft gear attached.



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KINGSTON, ONT.

Builders of Simple and Compound **LOCOMOTIVES** Adapted to every variety of service

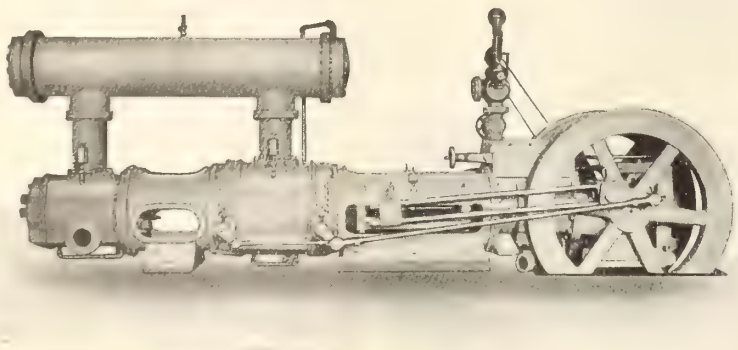
SECOND HAND EQUIPMENT

LOCOMOTIVES, CARS
STEAM SHOVELS, ETC., ETC.
LOCOMOTIVE AND CAR REPAIR PARTS

TAYLOR & ARNOLD, LIMITED

404 St. James St. - - - - MONTREAL

RAND CLASS "C-2" Straight Line Steam Driven Compound Air COMPRESSORS



Two paramount features of this type are ECONOMICAL CONSUMPTION combined with high EFFICIENCY.

A rigid self-contained design requiring the least possible floor space.

GOOD STEAM ECONOMY effected by Automatic Long Range Cut-off, consisting of special internal ports, combining convenience in starting with better steam economy by giving a quick, short, running cut-off.

CORLISS AIR INLET VALVES insuring large, free, quick opening and closing ports giving high volumetric efficiency.

Canadian RAND Co., Limited

COMMERCIAL UNION BUILDING, MONTREAL, QUE.

TORONTO COBALT WINNIPEG ROSSLAND VANCOUVER HALIFAX

Vestibules	None
Hoppers	Duner Co.
Air brake	Westinghouse P. 1412
Lighting	O.l
Trucks	Four wheel
Journals	5 by 9"
Side bearings	Susemihl

The three parlor-cafe cars which the Temiskaming and Northern Ontario Ry. is having built by the Canadian Car and Foundry Co., Montreal, consist of parlor 17 ft. long, smoking room 7 ft., dining room 20 ft. ½ in., with accommodation for 18 persons, with pantry and kitchen 16¾ ft., toilets and other conveniences. Following are the chief dimensions:—

Length over end sills	70' 3½"
Length over platforms	80' 3½"
Width over side frame	9' 9⅜"
Width over side sill angles	9' 8½"
Width over all at eaves	10' 1⅝"
Width between deck sills	5' 6"
Height, top of wood side sill to bottom of side plate	7' 0"
Height over roof boards	14' 1"
Centre to centre of trucks	51' 10"
Framing, underframe	Steel
Framing, balance	Steel and wood
Vestibule	Pullman, wide
Water supply	Air pressure
Heating	Canadian Gold Car Heating Co.
Lighting	Pintsch gas
Air brakes	Westinghouse L.N. 1812
Truck	All steel, 6-wheeled

Following are the chief dimensions and details of the 11 D. 10 locomotives, nos. 2685 to 2697, which the C.P.R. is building at its Angus shops, Montreal:—

Weight on drivers	143,000 lbs.
Weight, total	192,000 lbs.
Cylinders	21 by 28 ins.
Driving wheels, diameter	63 ins.
Boiler, type	Radial stayed, wagon top.
Boiler pressure	200 lbs.
Heating surface, tubes	2,263 sq. ft.
Heating surface, superheater	408 sq. ft.
Heating surface, firebox	190 sq. ft.
Tubes, number and diameter	24 5-in., 240 2-in.
Tubes, length	14½ ft.
Firebox	100⅞ by 69¾ ins.
Grate area	49 sq. ft.
Capacity, water	5,000 gals.
Capacity, coal	10 tons.
Air brakes	Westinghouse ET. 6.
Brake shoes	C.P.R. standard.
Brake beams	Simplex diamond, inside hung.
Couplers	Tower.
Headlight	Pyle National Electric.
Journal bearings	C.P.R. standard.
Lubricators	Detroit 5 feed.
Springs	C.P.R. crucible steel.
Wheel centres	Cast steel.
Tractive effort	34,400 lbs.

The steam motor car which the G.T.R. is building at its Point St. Charles shops, Montreal, for service over the International Bridge at Buffalo, N.Y., as mentioned in our July issue, will have a pair of driving wheels and a two-wheeled radial truck in front, and a four-wheeled passenger car truck at back. It will be equipped with headlight at each end, and Westinghouse air brakes on driving wheels, and four-wheeled truck with train air connections front and back, and air signal apparatus, with 8 inch air pump. Following are the chief dimensions and details:—

Weight, total	104,000 lbs.
Cylinders	11 by 16 ins.
Boiler, type	Straight top.
Tubes, number and diameter	144, 1½ ins.
Tubes, length	66½ ins.
Firebox	36 3-16 by 38¼ by 50 ins.
Heating surface, total	360 sq. ft.
Grate area	9.6 sq. ft.
Couplers	M.C.B. automatic.
Heating	Gold system.
Length over end sills	60 ft.
Length over drawbar	68 ft. 4 ins.
Width of body at lower deck crown moulding	10 ft.
Width of upper deck	6 ft. 1½ ins.
Height from rail to top of roof	13 ft. 10 ins.
Height from rail to top, over all	14 ft. 10 ins.
Height from rail to centre of coupler	2 ft. 11 ins.
Wheel base, one truck	8 ft.
Wheel base, total	52 ft.
Smoking compartment	11 ft. 7 ins.
Passenger compartment	31 ft. 6 in.
Length inside, total	58 ft. 2 ins.
Width inside	8 ft. 9 ins.
Height from floor to underside deck rails,	7¾ ft.
Engine room	16 ft.
Wheels	34 ins. steel tired
Journals	4½ by 8 ins.
Lighting	Oil
Seating capacity, body	12
Seating capacity, smoker	16

MAINLY ABOUT PEOPLE.

D'Arcy Tate, Solicitor Grand Trunk Pacific Ry., Winnipeg, has been admitted to the Manitoba bar.

Mrs. Camp, mother of W. J. Camp, Electrical Engineer C.P.R. Telegraphs, died in Montreal Oct. 15.

C. D. Jameson, formerly Master Mechanic G.T.R. Western Division, Battle Creek, Mich., died at Montreal, Oct. 10.

Jno. Moffatt, of the Canadian Northern Ontario Ry. survey staff, was married recently to Miss Eva Lancaster, of Havelock, Ont.

N. Curry, President of the Canadian Car and Foundry Co., has been elected a director of the Travellers Life Insurance Co. of Canada.

Mrs. A. McDonald, sister of Jas. Leitch, K.C., Chairman of the Ontario Railway and Municipal Board, died at Chicago, Ill., Oct. 8.

G. A. Sharp, Superintendent Prince Edward Island Ry., Charlottetown, P.E.I., was married at Sussex, N.B., Oct. 4, to Mrs. Henry Bosworth.

Miss M. L. McHattie, daughter of T. McHattie, Superintendent of Motive Power, Central Vermont Ry., was married Sept. 22, to B. S. Dixon.

H. Davidson, for 36 years in the service of the Quebec Central Ry., latterly as station agent at Sherbrooke, Que., died there Sept. 29, aged 58.

Sir Thos. G. Shaughnessy, President C.P.R., has contributed $5,000 to the Notre Dame Hospital, Montreal, fund, which now amounts to over $200,000.

C. E. E. Ussher was entertained to dinner by Winnipeg railway men before leaving for Montreal to assume the duties of Passenger Traffic Manager C.P.R.

F. Barlow Cumberland, Port Hope, Vice President Niagara Navigation Co., has been re-elected a member of Senate of Toronto University, to represent Trinity College.

W. R. Haldane, General Freight Agent C.P.R. Kootenay and Boundary District, Nelson, B.C., went to the Halcyon Hot Springs, B.C., recently for the benefit of his health.

C. H. Gilroy and A. Allen, civil engineers engaged on the G.T. Pacific Ry., were drowned in Woodworth Lake, near Prince Rupert, B.C., Oct. 6, owing to the upsetting of their canoe.

J. W. Pyke, Montreal, has been elected President of the Keewatin Flour Mills Co., in succession to the late Jas. Crathern. Mr. Pyke has retired from Lake of the Woods Milling Co.'s directorate.

M. J. Heney, a native of Pembroke, who has carried out a number of large contracts on the C.P.R., and who built part of the White Pass and Yukon Ry., died in San Francisco, Cal., Oct. 11.

Miss Doris Allan, youngest daughter of A. A. Allan, of H. and A. Allan, Ltd., and President of the Shipping Federation of Canada, was married to R. Cowans, of Winnipeg, at Montreal, recently.

R. Potts, formerly Master Car Builder M.C.R. at St. Thomas, Ont., died there, Oct. 10, aged 75. He held that position for about 25 years, and was superannuated in 1904.

Miss E. C. Jones, elder daughter of L. K. Jones, I.S.O., Secretary of the Department of Railways and Canals, Ottawa, was married there recently to W. G. Richardson, of the Bank of Montreal, Winnipeg.

Miss Elizabeth Irving, elder daughter of Capt. Jno. Irving, formerly manager of the Canadian Pacific Navigation Co., was married at Victoria, B.C., recently, to A. F. West, R.N. on H.M.S. Shearwater.

H. C. Jell, of the C.P.R. accounting department, was presented with a case of pipes by the C.P.R. official staff at Moose Jaw, Sask., on his leaving the service recently. He has gone to live in California.

C. S. L. Hertzberg, second son of A. L. Hertzberg, Division Engineer C.P.R., Toronto, was married there Oct. 12, to Miss J. T. Todd, granddaughter of J. S. Playfair, President Muskoka Lakes Navigation and Hotel Co.

N. Monsarrat, President of the Kanawha and Michigan Rd., who died suddenly in New York, Sept. 30, was a native of London, Ont., but had been engaged in railway work in the U.S. for nearly 50 years.

A. W. Smithers, Chairman of the Board, G.T.R., left Montreal recently for New York en route for England, after having completed his inspection of the G.T.R., the G.T. Pacific Ry. and the National Transcontinental Ry.

The International Accident Underwriters' Association has awarded the George E. McNeill medal to T. Reynolds, the C.P.R. conductor who distinguished himself in the accident at Spanish River early in the year.

Lucius Tuttle who recently retired from the Presidency of the Boston and Maine Rd., has been elected Chairman of the Board, a new office. He was, between 1887 and 1889, Passenger Traffic Manager, C.P.R., Montreal.

M. J. Butler, Second Vice President and General Manager Dominion Steel Corporation, and formerly Deputy Minister of Railways and Canals, delivered an address to the Canadian Club at St. John, N.B., recently, on transportation.

Lieut.-Col. H. H. McLean, K.C., M.P., President and General Manager New Brunswick Southern Ry., and connected with other transportation enterprises in New Brunswick, has been elected President of the New Brunswick Rifle Association.

R. W. Leonard, C.E., formerly engaged in railway construction work, was the principal guest at a dinner given recently by the graduates of the engineering department of Toronto University, in honor of his appointment to the University Board.

Thos. Skinner, director C.P.R. and member of the Hudson's Bay Co.'s board and H. Burbidge, Commissioner of Shops for the Hudson's Bay Co., arrived in Montreal, from England, Oct. 14 and proceeded to Winnipeg, on Hudson's Bay Co.'s business.

J. Hendry, President of the Vancouver, Westminster and Yukon Ry., returned to Vancouver, B.C., recently from a six months trip to Europe, for the annual meeting of the Canadian Manufacturers Association, of which he was President, recently held in Vancouver.

T. D. Kevin, Train Dispatcher Alberta Ry. and Irrigation Co., Lethbridge, Alta., returned to duty Sept. 30, after some weeks absence on account of ill health, but had a relapse on the following day, and is likely to be off duty again for some considerable period.

Col. Sir Henry M. Pellatt, of Toronto, who is associated with various electric railway and other transportation enterprises, was gazetted to the 3rd class of the Royal Victorian Order, in connection with the recent trip of the Queen's Own Rifles of Toronto to England.

B. W. Yates, who committed suicide in Cleveland, Ohio, recently, formerly resided in Brantford, Ont. He was a son of the late H. Yates, railway contractor, Brantford, and had himself been engaged in railway contracting, and [illegible] time [illegible] interested [illegible] the Pere Marquette Rd.

A. B. McDougall, who died in Lan-

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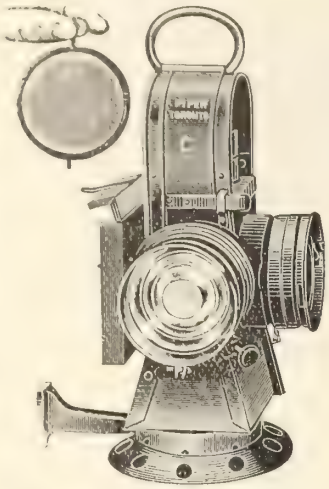

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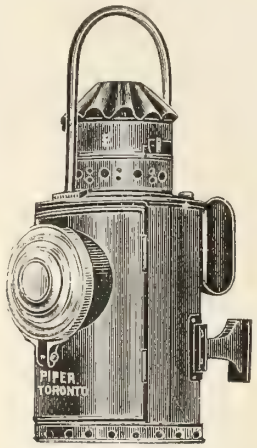

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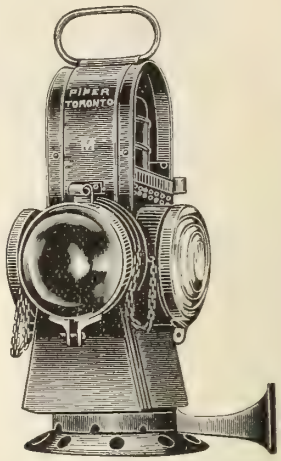

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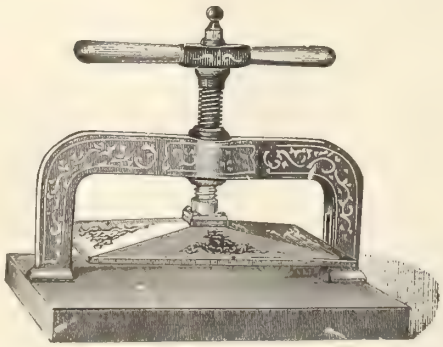

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caster tp., Glengarry county, Ont., Sept. 28, aged 84, spent a number of years as foreman and contractor on railway construction in Canada and the U.S. He is said to have been the first man to use nitro-glycerine in tunnel work, on the Hoosac tunnel.

A. E. Killam, Inspector of Bridges and Buildings I.C.R., Moncton, N.B., was married there, Oct. 11, to Miss J. H. Elliott. The wedding trip in the United States was arranged to include the convention of the American Railway Bridge and Building Association at Denver, Col., of which he is Third Vice President.

W. E. Lovelock who was recently appointed city ticket agent, C.P.R., Saskatoon, Sask., was born in London, Eng., July 1, 1870, and was from 1884 to 1903, in the Passenger Department of the old Metropolitan Ry. there. He came to Canada in 1904, since when he has been, to 1906, in Passenger Department C.P.R. Calgary Alta.; 1906 to Aug. 1910, ticket agent, C.P.R., Calgary, Alta.

A. Gauthier, North Bay, Ont., engaged on the Temiskaming and North Bay Ry. . engineering staff, lost his way while out on a survey near Redwater. He climbed a tree to get his bearings, but fell 40 ft. to the ground. When discovered by a search party he was found to have received serious injuries, including a fractured thigh. He was taken to the North Bay hospital, Oct. 9.

H. H. Adams, who has been appointed General Manager Toronto, Hamilton and Buffalo Ry., Hamilton, Ont., was born at Detroit, Mich., Aug. 13, 1876, and entered railway service, July, 1899, as draughtsman on the M.C.R. After serving in various capacities in the engineering department, he was appointed Assistant Chief Engineer, Mar., 1902; secretary to the General Superintendent, Nov., 1902; Assistant Superintendent Canadian Division, Jan., 1904, and General Superintendent T.H. & B.R., Oct., 1909.

Garrett Vliet, who has been appointed Master Mechanic Western Division, G.T.R., Battle Creek, Mich., was born at Milwaukee, Wis., in 1856, and entered railway service in 1877, since when he has been, to 1879, draughtsman St. Louis and San Francisco Rd., Kansas City, Mo., Feb. 1879 to 1889, draughtsman Wabash Rd.; 1889 to July 1898, General Foreman Wabash Rd.; Oct. 1898 to Apr. 1899, General Foreman G.T.R., Battle Creek, Mich.; Apr. 1899 to Oct. 1910, Assistant Master Mechanic District 1, G. T.R. at Portland, Me.

R. L. Fairbairn, who has been appointed District Passenger Agent Canadian Northern Ry., Saskatoon, Sask., was born at Stillwater, Minn., Nov. 24, 1880, his parentage being Canadian, and entered railway service July 1899, since when, he has been, to Mar. 1904, in office of Auditor of Passenger Receipts, G.N.R.; Mar. 1904, to May 1, 1906, in Passenger Traffic Manager"s office, G.N. R.; May 1, to Dec. 1, 1906, assistant rate clerk, G.N.R. Passenger Department; Dec. 1, 1906 to June 1, 1908, chief rate clerk G..N.R. Passenger Department; June 15, 1908 to Oct. 1910, chief clerk Passenger Department, Canadian Northern Ry., Winnipeg.

C. Murphy, who has been appointed General Superintendent of Transportation C.P.R. Eastern lines, Montreal, was born at Prescott, Ont., Nov. 20, 1865, and entered C.P.R. service in 1888, since when he has been, to 1885, operator; 1885 to 1890, chief operator and dispatcher; 1890 to 1899, Chief Dispatcher, Ottawa; 1899 to June, 1900, acting Superintendent, and June, 1900, to 1902, Superintendent at Chapleau, Ont.; 1902 to Nov., 1903, Superintendent, North Bay, Ont.; Nov., 1903, to Feb., 1908, Superintendent District 2, Ontario Division; Feb. to June, 1908, relieving General Superintendent at North Bay, and at Montreal; June, 1908, to Sept. 30, 1910, General Superintendent Eastern Division, Montreal.

G. A. Montgomery, whose appointment as Superintendent Michipicoten Division Algoma Central and Hudson Bay Ry., Michipicoten Harbor, Ont., was announced in our last issue, was born at Bradford, Ont., Feb. 11, 1871, and entered transportation service Sept. 1, 1886, since when he has been, to Sept., 1887, assistant to agent Northern Ry., Newmarket, Ont.; Sept., 1887, to Mar., 1889, agent G.T.R., Powassan, Ont.; Mar., 1889, to Mar., 1890, freight clerk C.P.R., North Bay, Ont.; Mar., 1890, to June, 1893, chief clerk C.P.R. freight office, Sudbury, Ont.; June to Aug. 31, 1893, relieving agent, C.P.R. North Bay Division; Aug. 31, 1893, to June, 1900, chief clerk to Superintendent District 1, Lake Superior Division, North Bay, Ont.; June, 1900, to Aug. 28, 1902, chief clerk to General Superintendent Algoma Central & Hudson Bay Ry., Sault Ste. Marie, Ont.; Aug. 28, 1902, to Aug. 15, 1910, Superintendent Manitoulin and North Shore Ry., Sudbury, Ont.

Jas. Black, who was recently appointed Freight Claim Agent, Saskatchewan Division C.P.R., at Moose Jaw, was born near Seaforth, Ont., Apr. 19, 1858, and entered railway service June 1, 1880, since when he has been, to July, 1881, assistant in freight office, Great Western Ry., St. Thomas, Ont.; July to Oct., 1881, assistant in freight and ticket office, same road, St. Catharines, Ont.; Oct. to Dec., 1881, freight checker, C.P.R., Winnipeg; Dec., 1881, to May, 1882, clerk in freight office, C.P.R., Winnipeg; from May, 1882, to May, 1886, he was not in railway service; May to Nov., 1886, freight checker Northern Pacific Rd., Duluth, Minn.; Nov., 1886, to Mar. 1889, he was not in railway service; Apr. to Aug., 1889, clerk to freight shed foreman, C.P.R., Vancouver, B.C.; Aug.., 1889, to Aug., 1890, claim clerk, C.P.R., Vancouver, B.C.; Aug., 1890, to Apr., 1899, chief clerk and cashier, C.P.R., New Westminster, B.C.; Dec., 1899, to Feb., 1900, acting agent C.P.R., Nelson, B.C.; Feb., to Apr., 1900, chief clerk and cashier, C.P.R., Nelson, B.C.; Apr., 1900, to Apr., 1901, clerk in Claims Office, C.P.R., Winnipeg; Apr., 1901, to Dec., 1904, claim clerk, C.P.R., Winnipeg; Jan. to Dec., 1905, chief claim clerk, C.P.R., Winnipeg; Jan. to Dec., 1906, chief clerk Claims Office, C.P.R., Winnipeg; Jan., 1907, to Aug., 1910, Assistant Freight Claim Agent C.P.R., Winnipeg.

Chas. Macdonald, who has been appointed a member of the Quebec Bridge Board of Engineers, in place of M. Fitzmaurice, C.M.G., London, Eng., resigned, was born at Gananoque, Ont., Jan. 27, 1837, educated at Queen's University, Kingston, Ont., and graduated from the Rensse'aer Polytechnic Institute, Troy, N.J., in 1857. His first engineering work was on G.T.R. construction in Michigan, where he remained until the completion of the line. From 1863 to 1868 he was engaged on the Philadelphia and Reading Rd., and in 1868 commenced private practice as consulting engineer in New York City, and undertook the construction of a number of bridges on the Delaware, Lackawanna and Western, Delaware and Hudson, Pennsylvania and other important railways. In 1884 he became a member of the Union Bridge Co., and later senior partner. In this connection he designed some of the largest bridges in the U.S. built by his company, amongst which are the Poughkeepsie bridge over the Hudson River, the Merchants bridge at St. Louis, over the Mississippi River; the Leavenworth bridge, the bridge over the Ohio River at Cairo, Ill; the Sixth St. bridge at Pittsburg, Pa., and the Hawkesburg bridge in New South Wales, Australia, the construction of which he superintended in 1887. He was elected Vice President of the American Bridge Co., an amalgamation of companies in 1900, and remained in that capacity until that company was absorbed by the U.S. Steel Corporation, when he retired from active work. He has been a member of the American Society of Civil Engineers since 1869, and was Vice President in 1873-74, and President in 1908. He is also a member of the Canadian Society of Civil Engineers, member of the Institute of Mining Engineers, Trustee of the Renssalaer Polytechnic Institute, Troy, N.J., and was formerly a Trustee of the Stevens Institute and of the East River Bridge, New York. In 1894 Queen's University, Kingston, conferred the degree of LL.D. on him.

TRANSPORTATION APPOINTMENTS.

The information under this head, which is almost entirely gathered from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian Northern Quebec Ry.—J. J. Sunderland, heretofore Assistant Superintendent Quebec and Lake St. John Ry., Quebec, has been appointed Assistant Superintendent C.N.Q.R., vice R. S. Richardson, resigned. Office, Joliette, Que.

Canadian Northern Ry.—J. Moore, heretofore car foreman at Rainy River, Ont., has been appointed freight repair foreman, Winnipeg, vice T. Musgrove, appointed coach yard foreman, at Winnipeg. The position of car foreman at Rainy River has been abolished.

O. C. Bishop, heretofore Inspector, has been appointed Assistant Superintendent Sleeping, Dining and Cafe Parlor Car Department. Office, Winnipeg.

M. L. Flett has been appointed Inspector Sleeping, Dining and Parlor Cafe Parlor Car Department, vice O. C. Bishop, promoted. Office, Winnipeg.

R. L. Fairbairn, heretofore chief clerk Passenger Department, Winnipeg, has been appointed District Passenger Agent. Office, Saskatoon, Sask.

J. S. McKay has been appointed Dining Car Agent, at Prince Albert, Sask

Canadian Pacific Ry.—C. Murphy, heretofore General Superintendent Eastern Division, has been appointed General Superintendent of Transportation, Eastern Lines. Office, Montreal.

J. M. R. Fairbairn, heretofore Principal Assistant Engineer, has been appointed Engineer Maintenance of Way Eastern Lines. Office, Montreal.

M. G. Murphy, heretofore General Travelling Passenger Agent Western Lines, with headquarters at Winnipeg, has been appointed General Travelling Passenger Agent all lines, with headquarters at Montreal.

J. A. Canavan has been appointed agent at Windsor St. station, Montreal, vice R. Miller, who has been appointed passenger trainmaster in charge of all passenger train movements, and with special charge of all immigrants' trains and connections there.

T. Whalen, heretofore head ticket examiner Windsor St. station, Montreal, has been appointed station master in charge of constables, gatekeepers and light porters there.

W. J. Brown, heretofore locomotive foreman at Toronto, has been appointed locomotive foreman at Havelock, Ont., vice D. S. Taylor, transferred to London, Ont.

E. J. Murphy, heretofore assistant locomotive foreman at Toronto, has been appointed locomotive foreman at [illegible] vice W. J. Brown, transferred.

C. Wheeler, heretofore night locomotive foreman at London, Ont., has been appointed assistant locomotive foreman at Toronto, vice E. J. Murphy, promoted.

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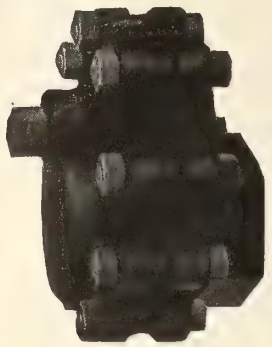

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D. S. Taylor, heretofore locomotive foreman at Havelock, Ont., has been appointed night locomotive foreman at London, Ont., vice C. Wheeler, transferred.

P. Coakley, roadmaster Guelph and Goderich sub-division, district 2, Ontario Division, Guelph, is reported to have been transferred to the Windsor subdivision.

L. B. Copeland, heretofore Roadmaster at White River, Ont., has been appointed roadmaster Sudbury subdivision, vice D. H. Ford, transferred. Office, Parry Sound, Ont.

J. O'Meara has been appointed chief dispatcher at North Bay, Ont., vice A. W. Hodgson, who has been appointed track dispatcher there.

D. H. Ford, heretofore roadmaster at Parry Sound, Ont., has been appointed roadmaster at White River, Ont., vice L. B. Copeland, transferred to Parry Sound, Ont.

T. Doust has been appointed Resident Electrician at Fort William, Ont., vice M. O. Robinson, resigned.

S. C. Wilcox, heretofore transit man at Brandon, Man., has been appointed Resident Engineer District 1, Manitoba Division. Office, Kenora, Ont.

C. E. McPherson, heretofore General Passenger Agent Western Lines, has been appointed Assistant Passenger Traffic Manager Western Lines. Office, Winnipeg, Man.

The office of General Passenger Agent Western Lines, heretofore held by C. E. McPherson, has been abolished.

C. B. Foster, heretofore Assistant General Passenger Agent, Vancouver, B.C., has been appointed General Passenger Agent Western Lines, Revelstoke and east. Office, Winnipeg, Man.

The office of General Agent C.P.R. Atlantic Steamships, Winnipeg (J. S. Carter) has been removed to 450 Main St.

R. M. Binney, heretofore roadmaster La Riviere, Gretna and Emerson subdivisions, has been appointed roadmaster Winnipeg Beach and Teulon subdivisions, vice C. J. Panser, deceased. Office, Winnipeg.

E. Larson has been appointed roadmaster La Riviere, Gretna and Emerson sub-divisions, vice R. M. Binney, transferred. Office, Winnipeg.

G. Motta has been appointed locomotive foreman at Moose Jaw, Sask., vice R. Ivers, resigned on account of ill health.

J. D. Muir has been appointed acting locomotive foreman at Red Deer, Alta., vice J. G. Norquay, on leave of absence.

H. W. Brodie, heretofore Assistant General Passenger Agent, Winnipeg, has been appointed General Passenger Agent Western Lines, west of Revelstoke. Office, Vancouver, B.C.

Government Railways Managing Board.—Towards the end of Sept. it was reported from Quebec that A. J. Corriveau, K.C., of that city, had been appointed a member of the Government Railways Managing Board, with headquarters at Moncton, N.B. On Oct. 12 we were officially advised that no appointment had been made up to that date "as contemplated from the province of Quebec in connection with the Managing Board."

Grand Trunk Pacific Ry. The headquarters of the Division Engineer, C. C. Van Arsdol, have been removed from Prince Rupert to Hazleton, B.C.

P. H. McFadden, Superintendent Prairie Division, Melville, Sask., has resigned.

The following agents have been appointed:—Rivers, Man., F. W. Buggy; Uno, Man., R. E. Patterson; Raymore, Sask., A. M. Demings; Bradwell, Sask., T. J. Shields; Edson, Alta., B. A. Latta.

Grand Trunk Ry.—Jas. Gibson, heretofore locomotive foreman at Belleville, Ont., has been appointed Assistant Master Mechanic at Deering, Portland, Me., vice G. Vliet, promoted.

J. W. Farrell, heretofore chief dispatcher Districts 1 and 2 Eastern Division, Island Pond, Vt., has been appointed trainmaster District 3, Richmond, Que., vice P. G. Flaherty, resigned.

E. S, Cooper, heretofore dispatcher, has been appointed chief dispatcher districts 1 and 2 Eastern Division, Island Pond, Vt., vice J. W. Farrell, promoted.

A. Beausoleil has been appointed acting roadmaster Montreal Terminals, vice G. Beckingham, appointed General Roadmaster Eastern Division.

J. W. Wright, heretofore chief clerk dining and parlor car service, office Toronto, has been appointed Assistant Superintendent of the same service. Office, Toronto.

G. Vliet, heretofore Assistant Master Mechanic at Deering, Portland, Me., has been appointed Master Mechanic Western Division, vice W. Hamilton, resigned. Office, Battle Creek, Mich.

The office of trainmaster district 25 (main line) and district 26, at Battle Creek, Mich., heretofore held by T. G. Akers, has been abolished. All reports heretofore made to him are now made to the Assistant Superintendent.

The following agents have been appointed:—Oshawa Jct., Ont., W. Cross; Glen Huron and Nottawa, Ont., G. McMann; Suspension Bridge, N.Y. (Pass.), E. O. Foster; Winona, Ont., J. H. Brooks; Kippen, Ont., R. H. Reynolds; Belgrave, Ont., S. F. Babier; Aubrey, Que., J. O. Prefontaine.

Ha Ha Bay Ry.—J. E. Robitaille, heretofore Assistant Auditor Bay of Quinte Ry., Deseronto, Ont., has been appointed Accountant and Auditor. Office, Chicoutimi, Que.

Intercolonial Railway.—We are officially advised that G. R. Joughins, Superintendent of Motive Power, has tendered his resignation to the Government Railways Managing Board, and that it will be considered at the next regular meeting of the Board during the second week of November.

Quebec and Lake St. John Ry.—J. H. Davidson, heretofore chief dispatcher, has been appointed Assistant Superintendent, vice J. J. Sunderland, transferred to C.N.Q.R. service. Office, Quebec, Que.

J. E. Hamel has been appointed chief dispatcher at Quebec, vice J. H. Davidson, promoted.

Toronto, Hamilton and Buffalo Ry. H. H. Adams, heretofore General Superintendent, has been appointed General Manager. Office, Hamilton, Ont.

C.P.R. Directors' Inspection.—Sir Thos. G. Shaughnessy, President, accompanied by R. B. Angus and C. R. Hosmer, directors, left Montreal Oct. 5, by special train, for the purpose of making the annual inspection of the line. Reaching Toronto Oct. 7, the party proceeded west over the Toronto-Sudbury line, arrived in Port Arthur Oct. 9, Winnipeg Oct. 11, Vancouver Oct. 16, and Victoria on the following day. On Vancouver Island the party went over the recently completed extension of the Esquimalt and Nanaimo Ry. from Wellington to Cameron Lake, and started on the way east Oct. 20.

A Montreal dispatch says that under the reorganization plan, raising the capital to $5,000,000, the Pay-as-you-enter Car Co. is offering 7% preferred shares at par, redeemable at 110 after June, 1912. Each share carries the right to acquire common stock at $25 a share. According to the brokers selling the stock, the company earned 8% on the common last year.

Alberta and Great Waterways Ry.

The statement of defence of W. R. Clarke, President, in the action brought by A. Hawes, Toronto, claiming one-sixth interest in the Athabasca Ry., the A. and G.W Ry., and the Canada West Construction Co., or in the alternative $250,000 damages, was filed Oct. 17. President Clarke denies all the allegations made by the plaintiff. The report of the Royal Commission which investigated the circumstances attending the formation of the company and the granting of the charter, is in the hands of the Alberta Government, but will not be made public until the meeting of the Legislature, Nov. 10.

The Quebec Central Ry. Co.'s annual meeting was held in London, Eng., Oct. 20. A cable says:—Reports submitted showed gross earnings for year ending June 30, $1,105,867; working expenses, $759,556; net operating revenue, $346,311; interest earned on investments, $5,675. The net income was $351,986, compared with $305,940 the previous year. Added to the net income for the year the amount brought forward from June 30, 1909, was $46,232, making a total net revenue of $398,218. The full interest on the 4% debenture stock, 3% debenture stock and 7% income bonds was paid, and a dividend of 10s. per share on the share capital, the par value of which is £25, was declared. During the fiscal year £75,000 of 4% debenture stock was issued for capital purposes.

C.P.R. Office Building in Toronto.—It was reported in Toronto, Oct. 20, that arrangements had been completed by which the C.P.R. had secured all the land necessary at the corner of King and Yonge Streets, Toronto, for the erection of a large office building. The site includes that of the building at present occupied by the company as a ticket office, and office for the District Passenger Agent, and the next two properties fronting on King St. In the new building there will be centralized, according to the report, the business of the traffic departments of both rail and water lines, the telegraph department, and the Dominion Express Co.

D. Allan Earle, a St. John, N.B., solicitor, who died there Oct. 24, aged 60, was a brother of W. Z. Earle, formerly Manager of the St. John, N.B., railway, and now resident engineer of the Dominion Public Works Department at Winnipeg.

A Victoria, B.C., dispatch of Oct. 21 said Sir Thos. Shaughnessy had taken up with Premier McBride the question of the construction of a scenic line to be built by the C.P.R. from Banff, Alta., to Windermere, through the upper Columbia valley.

Kingston, Ont., Standard:—"Now that J. P. Hanley local agent of the G.T.R. of this city, and President of the Canadian Ticket Agents' Association, has been made a full-fledged Indian Chief, may we meekly ask if this gives him the right to scalp tickets."

The G.T.R. has given notice of appliion to Parliament for the repeal of the section of the original charter which provides that the fare for each third class passenger on the line between Montreal and Toronto shall not exceed one penny for each mile travelled, and that at least one train having third class carriages shall run each way every day throughout the length of the said line. For some time the G.T.R. has had a third class car attached to one train running each way each day, but the third class accommodation has not been much sought after by the general public.

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Booth Water Softeners are being built to justify your confidence—you owe it to yourself to examine the Booth—as soon as you can conveniently do so—In the meantime—write for booklet, "Hard Water Made Soft"—It will give you further evidence in support of our claims—We invite you to send for it to-day.

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Railway Signalling

By C. L. Huckett.

Railway signaling naturally divides itself into three general heads. Namely, interlocking, block signals and miscellaneous signals.

The primary reason for the use of signals on a railway is to convey information to the engine driver as to what action he is to take, and when to act. The difference between driving a locomotive and driving a horse and carriage is a question of momentum. In the case of the locomotive, a weight of several hundred or thousand tons is moving at high velocity, in the case of the carriage, a weight of a few hundred pounds is moving at low velocity, the control of the one is only approximate except through the lapse of a considerable interval of time, while the other is practically under instant control. Signaling has developed two types of signals, which are known as, a home signal and a distant signal. A home signal is a signal located along side of the track marking a definite point beyond which the engine driver must not proceed, unless the signal indicates that he can do so. As noted above, it is physically impossible to stop a train moving at any considerable speed instantly, therefore if the train is to be stopped before it passes the home signal, some preliminary information must be conveyed to the driver, as to what indication will be presented to him by the home signal. The means employed is the distant signal, which is set in advance of the home, a distance depending on the braking distance of the highest speed trains, and is simply a repeater of the home. When the driver finds a distant signal indicating that the home signal is at the stop position, he can apply brakes and bring his train to a stop before he reaches the home signal. If the distant signal is indicating clear the home signal must also be indicating clear.

In modern signaling the semaphore has come into general favor, as giving the best results with unfavorable weather conditions, and changing back grounds. The indications are given by the arm of the semaphore, the stop indication by the arm in the horizontal position, and the proceed indication by the arm inclined. Until recently the distant signal arm was distinguished from the home by having a V-shaped notch cut out of the end. The indications of the distant signal were the same as the home, that is the horizontal position of the distant arm indicated caution (that the home signal arm was at stop), the inclined position of the distant arm indicated that the home signal arm indicated clear. There is a confusion here quite apparent, as with the home arm horizontal an indication is given that the engineer must not proceed beyond the signal, whereas the horizontal position of the distant blade indicated caution, "proceed but be prepared to stop at the home signal," and the only distinguishing mark for the distant arm is the V-shaped notch, which is not distinguishable at any distance nor in all weathers, consequently there are serious objections to this horizontal indication having two possible meanings. The latest practice is to have each arm capable of giving three unmistakable indications, i.e., horizontal, meaning stop, inclined at an angle of 45 degrees, caution, and vertical, meaning proceed. This is more consistent, and it is impossible to mistake the indication.

The fundamental principle underlying the construction of signals, is that a failure in any part should cause the arm of the semaphore to assume the horizontal position, indicating stop. The common practice in America has been to give the indication by moving the arm from the horizontal to an inclined position below the point of support. This necessitates the use of a heavy counterweight to bring the arm back to the horizontal should any part of the signal break; naturally the accumulation of ice and snow on the arm itself would tend to offset this counterweight, and there are cases where such accumulation has been sufficient to hold the signal clear, when it should have returned to the horizontal. The German practice has always been to move the arm above the point of support, thus doing away with the heavy counter weight, and with this still further advantage that any accumulation of snow or ice on the blade tends to bring it back to the horizontal. This practice has found favor among the American signal engineers, and also is being used on the western lines of the C.P.R. and C.N.R. This is unquestionably a move in the right direction, and has everything to commend it.

While the day indications of a signal are given by position, the night indications are given by colors. Red has always position, but for the other indications, practice has differed on different roads. The different colors are obtained by means of shutters of colored glass which are moved in front of an oil lamp attached to the signal mast. These colored glasses are fastened into the same casting to which the arm giving the day indications is attached, each indication of the arm has then a corresponding color indication. It is essential if the principle of signal construction above referred to, is to be carried out, that the day indications and the night indications should be given by the same mechanism; that is, it should not be possible to give an indication for "proceed" with the arm, without at the same time, and by the same means giving this proceed indication with the proper color. There are a good many signals in use in Canada to-day which do not conform to this requirement. The night indication in these, is given by rotating the lamp on its vertical axis, while by means of a pinion gear the arm is made to move. It is under these circumstances easy to conceive of a condition where the night indication would be one thing and the day indication the opposite. This becomes particularly dangerous when we realize that at night, when the engineer gets close up to the signal, the head light of his engine would illuminate the arm, and there are very few engineers who finding the arm indicating clear, would not accept this as sufficient authority to proceed, even though the light on the signal as he approached showed red.

With regard to the question of the proper colors to use for the night indications, as stated above, practice has differed in this respect. Some roads use white for the clear indication (white in this case meaning that the lamp flame is not covered by any colored glass), and green for the caution indication of the distant signal. On the other hand, some roads use green for the clear or proceed indication, and orange for the caution. If we bear in mind again the principle of construction, it is not difficult to arrive at the conclusion that all night indications should be given by some distinctive color, and in no case should the flame itself be used, except as a stop indication. For if the white indication is used, a broken colored glass would give this indication. Up to the present the only colors with sufficient range to be used as night indications are the red, green and orange.

Another essential point to be remembered in connection with signalling is that it must be made impossible for any of the indications except the stop indication, to be displayed except by an authorized means. That is if the signal is operated by means of levers, then by means of the lever only can any indication be made. This necessitates the use of a rigid connection between lever and signal, or if wire is used there must be a back and front wire, if only a single wire is used to pull the signal clear, any unauthorized person could clear the signal which is manifestly an unsafe condition.

The Standard Code definition of interlocking is as follows:—"An arrangement of switch, lock and signal appliances so interconnected that their movements must succeed each other in a predetermined order." Interlocking in Canada up to the present has been confined to a great extent to the protection of the crossing of two railways at grade. This is by no means its only possible application, and indeed is probably the least important of its uses. It finds its greatest economy in terminals, junctions, and at points where a great many switches are grouped together, at such points all the switches can be handled from a central point by one or two towermen, with absolute safety to the trains, and with the greatest amount of expedition.

Under the law in Canada, all trains approaching a grade crossing with another railway, are required to come to a stop before proceeding over the crossing, unless the crossing is protected by interlocking. Aside from the safety afforded by interlocking the crossing, it can be shown that there is an actual saving in operating expense when the trains reach a certain number. Henderson, in his "Cost of Locomotive Operation," estimates that it costs in the neighborhood of 65c. to stop a train and again accelerate it to its original speed.

(Continued in next issue.)

Temiskaming & Northern Ontario Ry.—It is said that some arrangements are being discussed between the Ontario and the Manitoba Governments, by which, with the approval of the Dominion Government, there will be a remarking of the boundaries of the two provinces on Hudson Bay, and the district of Keewatin, which was recently divided up. The idea is that Ontario's territory fronting on Hudson Bay, shall be extended to Port Nelson, so as to allow of the extension of the T. and N.O.R. to a deep water port, and that in exchange for a waterfront useless for the development of a port, Manitoba will receive a portion of the inland territory originally granted to Ontario. It is said the question will be brought up at the next sessions of the Ontario and Manitoba Legislatures.

The G. T. R. is appealing against an increase of the assessment on its waterfront properties between John St. and Spadina Ave. Toronto, from $3,000 to $15,000 an acre.

J. K. Griffin, of Toronto, who died at Seattle, Wash., recently, was father of F. T. Griffin, C.P.R. Land Commissioner, Winnipeg, and of A. D. Griffin, Consulting Engineer, Galt, Ont. The late Mr. Griffin was the inventor of a form of railway ticket for the old Great Western Ry. which is said to have been afterwards copied by every railway in Canada and the United States, and is still in general use.

H. P. Bell, C.E., who died at Victoria, B.C., Oct. 19, aged 69, was one of the assistant engineers on the Intercolonial Ry. construction in 1870 and 1871. He went to British Columbia and afterwards to Chili, where he spent some years in contracting, returning to B.C. he practiced there for some years, and some two or three years ago received an appointment on the Trent canal construction at Campbellford, but which he had to relinquish on account of failing health.

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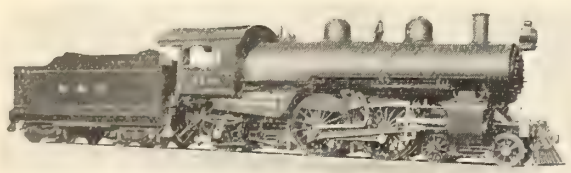

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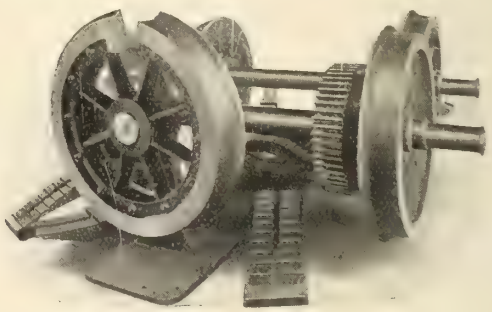

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The Canadian Northern Ex. Co. has closed its offices at Grays, Milton and Lena, Man.

H. McMorran, heretofore acting agent Canadian Ex. Co. at Port Hope, Ont., has been appointed agent there.

The Canadian Northern Ex. Co. has opened offices at Kenville, Man., and Fairlight and Langbank, Sask.

G. H. Waterhouse, heretofore route agent at Montreal, and latterly acting agent at Kingston, Ont., has been appointed agent Canadian Ex. Co. at Kingston, Ont.

Owing to the numerous claims made in respect of shipments of raw furs, express agents have been instructed to refuse all such shipments, unless the material is boxed.

The Canadian Ex. Co., operating over the G.T.P.R., has opened an office at 115 Second Ave., Saskatoon, Sask., and has appointed A. F. Lenon, heretofore general manager Saskatoon Forwarding and Storage Co., as agent.

S. B. Buller, city agent Canadian Northern Ex. Co., Toronto, died there Oct. 9, aged 29. Prior to his appointment to the Canadian Northern Ex. Co. he was in the Canadian Ex. Co.'s Toronto office.

The British Columbia Ex. Co. is increasing its facilities for handling business during the coming year, and is reported to have arranged for the purchase of three or four large automobiles, and for the starting of additional horse stages.

J. H. Parr, heretofore route agent at St. John, N.B., has been appointed route agent Canadian Ex. Co., in charge of routes 1, 2 (east of Point St. Charles), 7, 8, 11, 52, 53, 54, 89 and 110, with headquarters at Montreal, vice H. M. Gain, resigned.

W. G. Balfour has been appointed route agent Canadian Ex. Co., in charge of routes 3 (River Beaudette to Kingston), 4 (Kingston to Port Union, inclusive), 21, 25, 77, 78, 79, 80, 81, 82, 83 and 109, with headquarters at Montreal, vice G. H. Waterhouse, transferred.

Express companies are calling the special attention of their agents to shipments for the U.S., and instructing that, for such, they must secure guarantees, in duplicate, covering duties and all other charges, one copy of which must accompany the shipment, the other being retained.

Instructions have been issued by express companies, relative to the handling of the newspaper business, stating that as the companies derive revenue from this business, it is incumbent on their messengers to give the same attention to newspaper traffic as to other merchandise, as strong complaints have been made that parcels are frequently over-carried and otherwise carelessly handled.

The Customs authorities have announced that horses entering Canada from the U.S. for 24 hrs. or less, may be admitted without inspection, or without being dealt with by the veterinary inspector in any way, and Canadian horses returning from the U.S., after being there for over 24 hrs., are subject to veterinary inspection without fee, but when returning after having been there for 24 hrs. or less, are not subject to veterinary inspection.

By the terms of a bill of lading, or agreement with a consignor, a common carrier, or express company, is absolved from liability for damage due to "the act of God," but a recent U.S. decision holds that a carrier will not be excused from liability for consequences of unusual delay in transportation, caused by "the act of God," where the disability is known to the carrier at the time the property is received for shipment, and he fails to advise the consignor of the existing conditions, such as floods.

Grain Elevator Notes.

The Anchor Elevator Co. has built an elevator at Invermay, Sask.

The Tavistock Milling Co. has erected an elevator at Canfield, Ont.

The Alberta Grain Co.'s elevator at Fort Saskatchewan, Alta., is reported to have been sold to the Prairie Elevator Co.

The Vancouver Grain and Milling Co. is reported to have recovered $9,000 as damages from the Alberta Pacific Elevator and Grain Co., for failure to deliver grain contracted for.

The construction of the Goderich Elevator and Transit Co.'s elevator, and the Western Canada Flour Mills Co.'s elevator at Goderich, Ont., is proceeding rapidly, the walls of the latter structure being near completion.

Alberta-British Columbia Grain and Supply Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $20,000, to carry on a general grain dealing business, and in connection therewith to build, own and operate grain elevators, steam and other vessels, and other transportation facilities.

The Calgary Grain and Supply Co., Ltd., incorporated under the North West Territories Companies Ordinance, with office at Calgary, Alta., and power, among other things, to own and operate grain elevators, etc., has been licensed to carry on its business in British Columbia, with C. B. McAllister, Vancouver, as its attorney.

The C.P.R. elevator at Victoria Harbor, Ont., which was opened for business Oct. 11, has a capacity for 2,000,000 bush., which, according to a statement attributed to J. Oborne, General Superintendent Ontario Division, can be increased to 12,000,000 bush., without adding to the power equipment at present installed.

A report from Fort William, Ont., Oct. 14, states that the city has decided to tax the G.T.P. Elevator Co.'s elevator there. Under an agreement, the G.T.P.R. terminal property in the city, including its elevator, is exempt from taxation for 20 years. The city claims that the elevator is the property of the railway company in name only, and is owned and operated by a distinct company.

The Alberta-British Columbia Grain and Supply Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $20,000, to take over the business carried on by D. A. Allan and A. G. D. Kittson, under the name of the Alberta-British Columbia Grain and Supply Co., to deal in grain, and in connection therewith to own and operate grain elevators, steam and other vessels, and other transportation facilities.

J. Richardson and Sons, Ltd., Kingston, Ont., has leased the grain elevator on the Louise Embankment, Que., owned by the Quebec Harbor Commission, and formerly operated by the C.P.R. It is stated that the lease is for 10 years, and that the lessees will spend about $15,000 on repairs and new machinery. There is capacity for about 1,000,000 bush., and it is expected to have it in operation early in November.

The Manitoba Elevator Commission has taken over 170 elevators, situated in different districts of the province, since it commenced operations. A member of the commission is reported to have stated that while the elevator system under Government control has scarcely had a chance to show what its benefits will be, the fact that they have been used so extensively by the farmers, goes to show that they are satisfied, and very few complaints have been received as to their operation.

The Winnipeg Grain Exchange has declared the G.T.P. elevator at Fort William, Ont., a regular house, prepared to receive vessels at any time. Press reports stated that early in Oct., a vessel was unable to reach the elevator without taking heavy risk, owing to the dredging of the Mission River not having been completed. The Great Lakes Dredging Co., the contractor, is reported to have stated that the 10 days extension granted for the completion of the work was insufficient.

The report of the council of the Winnipeg Grain Exchange, presented at the recent annual meeting, said that the investigation by the Commission appointed by the Department of Trade and Commerce, of the terminal elevator system, had injured confidence in the method of handling grain through them. It was also announced that the Exchange had introduced the system of terminal warehouse receipts registration, and the Lake Shippers' Clearance Association had been appointed official registrar of warehouse receipts for the Exchange, the registry offices being at Fort William and Port Arthur. All terminal elevators at Fort William and Port Arthur are eligible to receive contract grain, under the rules which govern the members of the Exchange, each company operating them having agreed to abide by the regulations asked for. On the question of storage on grain at the terminals, it was stated that there had been some trouble between grain men and the C.P.R. for some time, and a committee was appointed to go further into the matter with the company.

THE Grand Trunk Railway Company of Canada will apply to the Parliament of Canada, at the next session thereof, for an Act conferring upon the said Company all necessary powers, to be exercised subject to the approval of the proprietors, in respect of the following matters:—

(a) Semi-annual payment of dividends.

(b) Providing a reserve fund for extensions, renewals, maintenance, repairs, etc.

(c) The form of transfer of the various classes of stock.

(d) To acquire, hold, guarantee, pledge and sell, or otherwise dispose of stocks, bonds or other securities of the Montreal and Southern Counties Railway Company.

(e) To guarantee interest at four per cent. upon an issue of first mortgage bonds of the Grand Trunk Western Railway Company, payable fifty years from date thereof.

(f) To issue such additional Grand Trunk consolidated debenture stock as may be necessary in the exercise of the powers conferred upon the Company by the Act now applied for and by the Grand Trunk Act, 1910.

(g) Repealing certain inconsistent provisions of former Acts.

(h) Repealing so much of section 3 of 16 Victoria, chapter 37, as provides that the fare or charge for each third class passenger by any train on that portion of the company's railway between Montreal and Toronto shall not exceed one penny for each mile travelled and that at least one train having in it third class carriages shall run every day throughout the length of the said line.

W. H. BIGGAR,
Solicitor for the applicants.

Dated at Montreal, the 6th day of October, A.D. 1910.

CANADIAN PACIFIC RAILWAY COMPANY.

NOTICE.—The Canadian Pacific Railway Company will apply to the Parliament of Canada at its next session for an Act authorizing it to construct the following lines of railway:—

1. (a) From a point at or near Conquest on the Company's Moose Jaw Branch to a point at or near Asquith or Dunfermline, Saskatchewan, on the Company's Pheasant Hills Branch, or between those two places.
   (b) From a point at or near Wilkie on the Company's Pheasant Hills Branch in a southerly direction to a junction with the Company's Moose Jaw Branch in Twps. 31, 32 or 33, Ranges 18 or 19, W. 3 M., Saskatchewan.
   (c) From a point at or near Wilkie in a southwesterly and southerly direction to a junction with the Company's Moose Jaw Branch in Twp. 32, 33 or 34, Ranges 22 or 23, W. 3 M., Saskatchewan
   (d) From a point at or near Boissevain on the Manitoba and South Western Col. Ry. to a point at or near Lauder, Manitoba.
   (e) From a point on the Crow's Nest Branch in Sec. 12, Tp. 9, Range 26, W. 4 M., thence westerly along the north side of the Old Man River, to a point in Sec. 36, Tp. 7, Range 4, W. 4 M., a distance of about 55 miles.

2. Extending the time within which it may construct the following lines of railway:—
   (a) From Lanigan to Prince Albert.
   (b) From Wilkie northerly and westerly towards the Battle River, thence southerly to a junction with the Lacombe Branch of the Calgary and Edmonton Ry. Co.
   (c) From Outlook to a junction with the Lacombe Branch of the Calgary & Edmonton Railway Company.
   (d) From Estevan northwesterly, with power to terminate at or near Forward on the Company's Weyburn Branch.
   (e) From a point in Twp. 6, 7, 8 or 9, Range 30, W. 2 M., westerly, with power to terminate at Lethbridge.
   (f) From a point north of Teulon to a point between Marsh Point and the north boundary of Twp. 25, Manitoba.

3. Authorizing it to make the terminus of its Lauder Branch at or near Weyburn.

4. Increasing its bonding powers in respect of its Toronto-Sudbury Branch; and for other purposes.

Dated at Montreal, the 10th October, 1910.

W. R. BAKER,
Secretary.

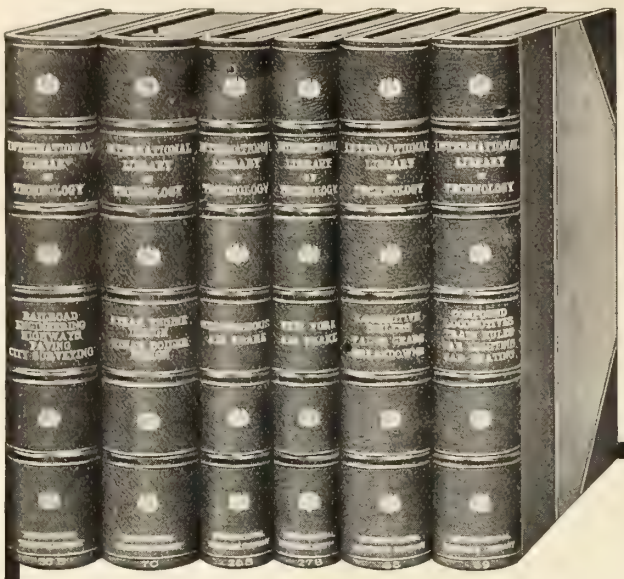
Andrew T. Thompson,
Ottawa, Agent.

NOTICE.—The Dominion Atlantic Railway Company will apply to the Parliament of Canada, at its next session, for an Act authorizing it to enter into an agreement with the Canadian Pacific Railway Company for any of the purposes specified under section 361 of The Railway Act.

Dated at London, on the 10th day of October, A.D. 1910.

G. F. WALFORD, Secretary,
Threadneedle House,
Bishopsgate Street Within, London.

Andrew T. Thompson,
Ottawa, Agent.



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ASSISTANT SECRETARY, Aubrey Acton Burrows, Secretary and Business Manager Railway and Marine World.

OFFICIAL ORGAN, THE RAILWAY AND MARINE WORLD.

Toronto Eastern Railway.

Application was made to the Minister of Railways Oct. 4 for the approval of the route plan of this proposed electric railway from Cherrywood station, on the Canadian Northern Ry.'s Toronto-Ottawa line in Pickering township, about 20 miles east of Toronto, to Cobourg, with branches to Lindsay and Port Perry, Ont. C.P.R. representatives objected on the ground that this line would interfere with the proposed Campbellford, Lake Ontario and Western Ry., the route plans of which were approved by the Minister in Nov., 1906. The C.L.O. & W.R. Co.'s charter, which is controlled by the C.P.R., provides for the building of a line from the C.P.R. between Blairton and Ivanhoe, Ont., southwesterly through the counties of Peterboro, Hastings and Northumberland to Cobourg, thence northwesterly through the counties of Northumberland, Durham, Ontario and York to the C.P.R. between Locust Hill and Leaside Jct., passing through or near Campbellford, Warkworth, Cobourg, Port Hope, Newcastle, Bowmanville, Oshawa and Whitby. The hearing was adjourned until Oct. 12 for the purpose of giving the Toronto and Eastern Ry. and the C.P.R. the opportunity of coming to an agreement. In the meantime the Board of Railway Commissioners approved of the Campbellford, Lake Ontario and Western Ry.'s location. At the adjourned hearing on Oct. 12 the Minister of Railways approved the Toronto Eastern Ry.'s route plan and said that unless construction of the Campbellford, Lake Ontario & Western Ry. was started within 18 months, he would consult with the Board of Railway Commissioners with a view of having their approval of its location plans, rescinded. The Toronto Eastern Ry. has not yet applied to the Board of Railway Commissioners for the approval of its location plans, but will probably do so at an early date.

Surveys for the T.E.R. have been made from Cherrywood to east of Bowmanville, E. W. Oliver, of Mackenzie, Mann & Co.'s engineering staff, being in charge. It is expected that construction will be started next spring. From Cherrywood the line runs southwesterly, approaching the Kingston Road at Pickering, and from there east it practically parallels the Kingston Road on the north side, touching it at several points. The T.E.R. will be a high grade electric line on private right of way, built for fast traffic. It is said that the company's cars will run between Toronto and Cherrywood over the Canadian Northern Ontario Ry., thus obviating the necessity of obtaining a separate entrance to Toronto. It is reported that a connection will also be made with the Toronto & York Radial Ry.'s Scarboro division, but this is hardly probable.

The Toronto Eastern Ry. Co. was incorporated by the Dominion Parliament last session, to build a railway from Toronto to Cobourg, passing through or near Whitby, Oshawa and Bowmanville, with branches as follows:—From Cobourg or Port Hope to Peterboro; from Scarboro tp. to Markham, Stouffville or Uxbridge; from Oshawa via Lake Scugog to Lindsay, and from Oshawa southerly to Lake Ontario. The provisional directors named in the charter are W. F. Cowan, R. McLaughlin, T. E. Kaiser, F. W. Robson, Oshawa; J. H. Downey, Whitby; R. R. Mowbray, Kinsale, Ont. The capital stock is fixed at $1,000,000, and the head office in Oshawa. The charter is now owned by the Mackenzie, Mann & Co. interests. J. E. Rothery has been appointed Manager, and G. H. Bertram is Secretary, with office at 12 Wellington St. East, Toronto.

Projects, Construction, Betterments, Etc.

Barkerville to Fort George, B.C.—A recent press report stated that a survey party had been dispatched by Gore and Gregory, Victoria, B.C., to make a survey for an electric railway from Barkerville, along the valley of the Willow River, to Fort George, B.C., about 120 miles. (See Cariboo, Barkerville and Willow River Ry., May, pg. 349.)

British Columbia Electric Ry.—The line along the Fraser Valley from New Westminster to Chilliwack, B.C., 63.8 miles, was opened for traffic Oct. 3.

The question of building a second track on the Eburne line is under consideration by the directors in London, Eng., and the proposition to build a line from New Westminster to Ladner, is under consideration by the city council. Plans were submitted to the Point Grey municipal council Sept. 29, for the proposed electric railway. (Oct., pg. 873.)

Calgary Street Ry.—The Alberta Legislature last session confirmed certain bylaws passed by the Calgary city council. These included one providing for the raising of $226,000 by means of 30 year 4½% debentures for the purposes of electric railway construction, and a second providing for the issue of $40,000 of 30 year 4½% debentures for extensions of the city's electric railway. (June, pg. 495.)

Chatham, Wallaceburg and Lake Erie Ry.—The Board of Railway Commissioners has authorized the opening for traffic of the branch line to Pain Court, Ont. (July, pg. 584.)

Edmonton Electric Ry.—Among the bylaws of the city of Edmonton confirmed by the Alberta Legislature last session was one providing for the issue of $92,000 of debentures, the estimated share payable by the municipal street railway department of the city, of a street railway deck and attachments in connection with the high level bridge to be erected by the Calgary and Edmonton Ry. (C.P.R.), over the North Saskatchewan River. (Jan., pg. 57.)

Edmonton Interurban Ry.—Application will be made to the Alberta Legislature to incorporate a company with this title for the purpose of building the following electric railways:—From Edmonton to St. Albert or Morinville, or both; from Edmonton or from a point on the last mentioned line to Athabasca Landing; from Edmonton or Strathcona to Fort Saskatchewan; from Edmonton or Strathcona, or a point on the last mentioned line to Beaver Lake; from Edmonton or Strathcona, or a point on the last mentioned line to Camrose; from Edmonton or Strathcona, or a point on the last mentioned line to Wetaskiwin; from Edmonton or Strathcona, or a point on the last mentioned line to Pigeon Lake; from Edmonton to Mewassin; from Edmonton to such last mentioned lines to Lac Ste. Anne; from Edmonton or a point on the first or last mentioned lines to Fort Assiniboine, on the Athabasca River; and from any one of the said points to any other of the said points. Power is asked to carry any of the lines along such road allowances or public highway as may be convenient. Short, Woods, Biggar and Collisson, Edmonton, Alta., are solicitors for applicants.

Halifax Electric Tramway.—The new double track from Spring Garden to Cobourg Road, Halifax, N.S., has been completed, and the regular car service has been operated over it since Sept. 20. (July, pg. 584.)

Hamilton Street Ry.—An arrangement is being considered with a view of a line being laid on Pictou or Ferrie St., Hamilton, Ont. The route favored by the city council is James and Ferrie Streets to Emerald, to Mars, and from there to Wentworth and Gilkinson streets. (June, pg. 495.)

Kincardine to Orillia, Ont.—The Mayor of Owen Sound has issued a circular letter to municipalities between Kincardine and Orillia, stating that negotiations were in progress with a Cleveland, Ohio, syndicate for building a line from Owen Sound to Meaford, and suggesting that Kincardine, Port Elgin, Southampton, Owen Sound, Meaford, Thornbury, Collingwood and Orillia should join with the intervening rural municipalities in a guarantee of bonds for a line from Kincardine or Goderich to the C.P.R. Georgian Bay and Seaboard Ry. The title given to the line proposed is the Air Line Electric Ry. to Montreal. The total distance to Montreal from Kincardine is 417 miles, and the distance from Kincardine to Orillia, where a junction could be made with the Georgian Bay and Seaboard Ry., is 137 miles. The Kincardine people favor the line, but say they cannot promise municipal aid further than the amount already guaranteed the Ontario West Shore Ry., for the Goderich-Kincardine line.

London and North Western Ry.—Those interested in the building of this projected railway from London to Sarnia, and other points in western Ontario, have been showing some activity of late, but we are advised that nothing definite has been decided upon, although arrangements are being made with a view to construction.

The company was incorporated in 1909 by the Dominion Parliament, with D. A. Stewart, T. E. Pound, J. Hall, London; D. Milne, Sarnia; T. G. Turnbull, Komoka; A. J. Stoner, Fernhill; J. C. Knapton, Parkhill, as provisional directors. The lines authorized to be built are from London to Sarnia, and from London to Grand Bend; the company was given power to make agreements with municipalities for the operation of its lines over or along highways; to generate electricity for motive power, and to sell its surplus power.

During 1909 D. A. Stewart entered into negotiations with several of the municipalities in the vicinity of London for the building of an electric railway, and some surveys were made by W. G. Swan, London. (Oct., pg. 875.)

London Electric Railway Terminal.—Local reports state that a project is on foot for the erection of a terminal station for electric railways in London, Ont. Some property at the south-east corner of Bathurst and Richmond streets has lately changed hands, and it is said that the purchasers are interested in one or other of the existing or projected electric railways. Those interested in the London and Western Counties Ry. refuse to say anything at all, and officers of the London and Lake Erie Ry. and Transportation Co. say that while it is their intention to have a station nearer the heart of the city,

NOTICE is hereby given that application will be made to the Parliament of Canada during the next session thereof, for an Act to incorporate a Railway Company under the name of The British Columbia & Dawson Railway Company, with power to lay out, construct, equip, and operate a line of railway, telegraph and telephone lines, from a point at or near Lytton in the Province of British Columbia running along the Fraser River to Fort George to a crossing of the Nechaco River at the mouth of the Stewart River, following the same by way of Stewart Lake, Thatcher River, Trembleur Lake, Middle River, North Tacla Lake, Driftwood River, Bear Lake, passing through Fort Conley, thence along the valley of the Skeena River to a summit between the Skeena and the Stickine Rivers, down the Stickine to Telegraph Creek, and thence up Telegraph Creek to the head waters of Teslin River, following the same to the northern boundary of British Columbia and from there on by the most practicable route to the City of Dawson in the Yukon Territory, also from Ashcroft in the said Province of British Columbia, to the Fraser River at or near a point where Big Creek enters the said River; also from a point at or near Lillooet along the south side of Seaton and Anderson Lakes and via Lillooet Lake and River, and Harrison Lake, thence to the City of Vancouver.

And to purchase or lease from, sell or lease, or to amalgamate with the British Columbia and Alaska Railway Company.

ANDREW T. THOMPSON,
Solicitors for applicants.

Dated at Ottawa, this 7th day of October, A.D. 1910.

NOTICE.—The British Columbia Southern Railway Company will apply to the Parliament of Canada, at its next session, for an Act extending the time within which it may construct the following lines of railway:—

(a) From a point at or near Michel to a point at or near Kananaskis.
(b) From the Elk River and the Upper Kootenay River to the 49th parallel and the Tobacco Plains.
(c) From a point on the Lower Kootenay River to New Westminster and Burrard Inlet, with a branch to Nelson via Salmon River.
(d) From Michel Creek to Martin Creek.
(e) From a point on its main line about 36 miles west of the eastern boundary of British Columbia, southerly and easterly, not exceeding 10 miles, and such branch lines from its main line, and from the line between Fort Steele and Golden, as may be authorized by the Governor General in Council;

and for other purposes.

Dated at Montreal, the 10th October, 1910.

H. C. OSWALD,
Secretary.

Andrew T. Thompson,
Ottawa Agent.

NOTICE.—The Georgian Bay and Seaboard Railway Company will apply to the Parliament of Canada, at its next session, for an Act increasing the company's bonding powers, and authorizing the company to connect with the Ontario and Quebec Railway between Burketon Junction and Havelock.

Dated at Toronto, the 10th October, 1910.

GEORGE A. WALKER,
Secretary.

Andrew T. Thompson,
Ottawa Agent.

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they have not done anything in the way of securing a site.

Monarch Radial Ry.—W. H. Price, Toronto, the company's solicitor, appeared before the town council of Barrie, Ont., Oct. 6, in connection with the proposed franchise for the line in that town. He stated that the company was ready to begin construction just as soon as the town granted a franchise. An application to the Toronto board of control, with respect to an entrance into the city, was referred to the City Engineer and City Solicitor, Oct. 15. (Aug., pg. 682.)

Montreal and Southern Counties Ry.—A Montreal dispatch says that arrangements are in progress under which the M. & S.C.R. will pass formally under G.T.R. control. The G.T.R. has decided to apply to Parliament for power to acquire the electric system, which, since its initiation, has become a popular medium of communication between Montreal and the south shore, and is certain, as its further expansions continue, to prove a profitable aid to the G.T.R.

Niagara, St. Catharines and Toronto Ry.—The villages of Fenwick and Ridgeway, Ont., are negotiating with the company in order to secure a branch line being built, to give them connection with Welland and the company's system. (Oct., pg. 877.)

Niagara, Welland and Lake Erie Ry.—Application will be made to the Dominion Parliament for the incorporation of a company with this title, to build an electric railway from Niagara Falls, N.Y., to Lake Erie, between Fort Erie and Port Dover, by way of Niagara Falls, Welland and Port Colborne, Ont. Power is also desired to generate electricity and to dispose of the surplus; to erect and operate telegraph and telephone lines, amusement parks, etc., with other customary powers. Griffiths and Upper, Niagara Falls, Ont., are solicitors for applicants.

Ontario West Shore Ry.—Track has been laid as far as Prince Albert, Ont., where a bridge is being built. This bridge was expected to be completed Nov. 1, when tracklaying was to be resumed. It is hoped to have the line from Goderich to Kincardine, Ont., completed this year. (Oct., pg. 877.)

Ottawa Electric Ry.—The President and other officers met the street railway committee of the Ottawa city council Oct. 12, and discussed the question of the extension of the lines in the city. The three extensions discussed were, to the cemeteries, to Ottawa South and to Dow's Lake. The result of the deliberations will be reported to the city council. (Oct., pg. 877.)

People's Ry.—A bylaw was passed Sept. 26 by the taxpayers of Guelph, Ont., subscribing for $85,000 of preference stock in the company, and granting a franchise within the city. The line will connect Guelph with Berlin and Stratford, and radiating from Guelph lines will be built to Puslinch Lake, Hespeler, Elora, Fergus and Arthur. W. A. Bugg, the Secretary, is reported to have stated subsequently to voting that grading on the line from Guelph to New Germany would be started immediately. The line between Berlin and New Germany is under construction, and is expected to be completed by Dec. 31.

Following are the directors for the current year:—G. Clare, President; J. G. Reiner, Wellesley; J. C. Hallman, New Dundee; Dr. Groves, A. Steele, and —. McClellan, Fergus; —. Kimmel, G. Wanless, W. J. Moody, D. Moody, W. Pieper and W. A. Bugg, Berlin. (Oct., pg. 877.)

Quebec Ry., Light and Power Co.—The upper level line to Kent House, as recently projected, will not be gone on with, but a new route has been decided upon. This will leave the existing line at Beauport, about two miles from Quebec, gradually ascend the hill and then on to Kent House, a distance of about three miles. The maximum gradient will be about 4%, and the average gradient over the whole line about 2%. The company is acquiring the right of way.

The new line to Sillery has been completed and has been in operation since the end of Sept. (Sept., pg. 783.)

Quebec Ry. Light, Heat and Power Co.—Application will be made to the Dominion Parliament to amend the company's charter so as to give it the right of constructing, maintaining and operating railways in the Dominion. The company owns the Quebec Ry., Light and Power Co.'s lines.

Raymond, Alta.—The Alberta Legislature last session gave the town of Raymond power to acquire or construct public utilities, among which are particularly specified, street railways or tramways. All the powers usually given to companies in respect of these matters are vested in the town, to be exercised through its council, and it is provided that any profits arising out of the operation of these utilities shall, after providing for a sinking fund, be transferred to the general funds, and applied as directed by the council.

Regina, Sask.—The first section of the municipal electric railway is under construction, and is expected to be completed by Nov. 1. The piece of line being built is on Albert St. from Dewdney to Eleventh Ave., and through the subway. The contract was given to R. S. Blome and Co. for the laying of ties and rails ready for the paving at actual cost, plus 15%, to place the extra concrete required at $8.50 a cubic yard, and the balance of the paving at $3 a square yard. (Aug., pg. 683.)

Rural Ry. of Manitoba.—A proposition was submitted to the St. Vital, Man., township council, Sept. 26, on behalf of this company, offering, if given a franchise, to build a line of five miles from the southerly limits of either Winnipeg or St. Boniface, as far as the dividing line between the municipalities of St. Vital and Ritchot, by Nov. 1, 1912. The council received the proposal favorably, and referred the terms of the franchise to its legal adviser for consideration. The matter will be further considered at a meeting of the council Nov. 5. The municipal council of Ritchot passed a bylaw Oct. 4 granting the company a franchise in that municipality.

The Rural Ry. of Manitoba was inporated by the Manitoba Legislature last session, and is authorized to build a line on St. Mary's road, through St. Vital and other municipalities abutting on the Red River southward as far as the International boundary. The company's officers are:—C. E. Lewis, Minneapons, Minn., W. Z. Peatman, and J. Bernier, M.L.A. (Feb., pg. 111.) (See also St. Vital, Feb., 1908. pg. 121.)

Saskatoon, Sask.—The Moose Jaw Electric Ry., which is incorporated under the British Columbia Companies Act to build electric railways in Saskatchewan and British Columbia, is in treaty with the Saskatoon city council for a franchise in that city. The council desires to submit the question to a vote as to whether the line should be built as a municipal enterprise or by a company. (Aug., pg. 685.)

Sherbrooke Ry. and Power Co.—Track has been laid on the extension of the line on Frontenac St., and work on the other new lines is reported to be well advanced. The new power house is expected to be completed by Nov. 1. (Oct., pg. 877.)

Stratford Ry.—The bylaw granting a franchise for an electric railway in Stratford, Ont., was finally passed by the city council at a special meeting Sept. 30. (Oct., pg. 877.)

Taber, Alta.—The town of Taber was given by the Alberta Legislature last session similar powers as to the building of street railways and tramways as were granted to the town of Raymond, and mentioned under the head of "Raymond" above.

Three Valley and Vernon Tramway Co.—Application will be made to the B.C. Legislature for the incorporation of a company with this title to build tramways and telegraph and telephone lines between Three Valley and Vernon, from the south boundary of the C.P.R. right of way, near the west end of Three Valley Lake, southerly along Frog Creek valley to the north end of Mabel Lake, along the shore to the south end, and following the Shuswap River to Bisset Creek, along Bisset Creek to Lumby, thence westerly through White Valley and Coldstream to Vernon. S. A. Mundy, A. McRae and W. E. Hodges are the applicants.

Toronto and York Radial Ry.—The Grand Jury of the county of York, Oct. 12, returned a true bill against the company for maintaining a common nuisance on its Metropolitan Division. The indictment sets out that the rails are "kept at an injurious height above the ground," thereby impeding ordinary traffic, and that the company neglects "to make proper repairs" to its line, thereby causing great inconvenience to the public. The hearing of the case was adjourned until the next Quarter Sessions.

The Chairman of the Ontario Railway and Municipal Board expressed the opinion, Oct. 7, that the only remedy for the present alleged inadequate service on the Metropolitan Division is to build a second track from the C.P.R. crossing through to Glen Grove and the golf grounds. If the Board had power to order it to be done, such an order would be issued.

Toronto tp. council has approved of an agreement made with the T. and Y.R. Ry., settling the question of damages arising from the company's failure to extend its line from Port Credit to the western limits of the township, on the payment of $1,500 cash and a further $1,000 if the line is not so extended within two years. (Oct., pg. 877.)

Toronto, Niagara and Western Ry.—The Board of Railway Commissioners devoted considerable time Oct. 11 and 12 at Hamilton, to a consideration of the company's application for approval of the proposed route along the north shore of the bay, reaching the city by a bridge from Carroll's point over the Desjardines canal. The city solicitor, representatives from Dundas, the Hamilton Ferry Co., and individual property owners appeared in opposition. The Board's Chief Engineer has made an inspection of the proposed route, but his report has not been made, consequently the Board's decision will not be announced for some time. (Aug., pg. 685.)

Winnipeg Electric Ry.—A plan has been filed for an extension of the line on Notre Dame Ave., from Arlington St. to the C.P.R. crossing, and it is stated that the line will be built this fall. (Oct., pg. 877.)

H. E. Smith, Comptroller Montreal St. Ry., has been elected Third Vice President American Street Railway Accountants' Association for the current year.

NOTICE.—The Alberta Railway and Irrigation Company will apply to the Parliament of Canada, at its next session, for an Act extending the time within which it may construct the following lines of railway:—

(a) From Cardston to a point in Range 1, W. 5.

(b) From a point between Spring Coulee and Mountain View westerly to a point on the C.P.R. between Range 2, W. 5 and Range 27, W. 4.

(c) From Stirling easterly to a point in Range 4, W. 4, between the line of the C.P.R. and the International Boundary.

(d) From a point between Lethbridge and Stirling to some point on the International Boundary between Ranges 24 and 30, W. 4;

and for other purposes.

Dated at London, the 10th October, 1910.

DAVID AMBY,
Secretary.

Andrew T. Thompson,
Ottawa Agent.

NOTICE.—The Campbellford, Lake Ontario & Western Railway Company will apply to the Parliament of Canada, at its next session, for an Act authorizing it to construct a line of railway from a point on the railway operated by the C.P.R. between Smith's Falls and Sharbot Lake, thence southwesterly to a point at or near Cobourg, thence westerly and northwesterly to a point between Locust Hill and Leaside Junction, instead of the railway authorized by section 8, of chapter 54 of the Statutes of 1904, and authorizing the company to increase its bonding powers.

Dated at Montreal, the 10th October, 1910.

H. C. OSWALD,
Secretary.

Andrew T. Thompson,
Ottawa, Agent.

NOTICE.—The Guelph and Goderich Railway Company will apply to the Parliament of Canada, at its next session, for an Act extending the time within which it may construct the branches which it has been authorized to construct by S. 7 of chapter 81 of the Statutes of Canada, 1904, and for other purposes.

Dated at Guelph, the 10th October, 1910.

A. H. MACDONALD,
Secretary.

Andrew T. Thompson,
Ottawa Agent.

NOTICE.—The Kootenay & Arrowhead Railway Company will apply to the Parliament of Canada, at its next session, for an Act extending the time within which it may construct the railway from Gerrard to Arrowhead, and for other purposes.

Dated at Montreal, the 10th October, 1910.

H. C. OSWALD,
Secretary.

Andrew T. Thompson,
Ottawa Agent.

NOTICE.—The South Ontario Pacific Railway Company will apply to the Parliament of Canada, at its next session, for an Act authorizing it to construct a railway from a point at or near Guelph Junction to a point at or near Hamilton, and for other purposes.

Dated at Montreal, 10th October, 1910.

H. C. OSWALD,
Secretary.

Andrew T. Thompson,
Ottawa, Agent.

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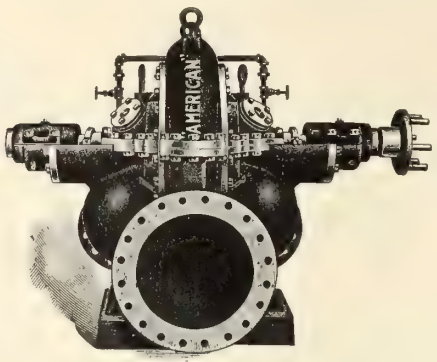

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Electric Ry., Finance, Meetings, Etc.

British Columbia Electric Ry.—Gross earnings for Aug., $302,121; working expenses, $170,083; net operating earnings, $132,038; renewal funds, $22,626; net earnings, $109,412; approximate income from investments, $22,000; net income, $131,412, against $242,016 gross earnings; $128,442 working expenses; $113,574 net operating earnings;; $16,394 renewal funds; $97,180 net earnings; $16,500 approximate income from investments; $113,680 net income for Aug., 1909. Aggregate gross earnings for two months ended Aug. 31, $585,656; net earnings, including approximate income from investments, $239,277, against $462,681 gross and $211,698 net for same period 1909.

An issue of £600,000 additional stock has been placed on the London market to finance the building of new lines, the provision of new equipment, and work on the power development plant at Jones Lake.

Calgary St. Ry.—Passenger earnings for Sept., $19,003.10; miscellaneous earnings, $290.66; total earnings, $19,293.76; operating expenses, $474.06; maintenance and equipment, $1,978; transportation, $7,302.03; general expenses, $1,250.28; total expenses, $10,104.37; net operating earnings, $9,189.39. Passengers carried, 464,543; mileage, 60,666 miles; earnings per mile, $31.32; expenses per cent. of revenue, 52.371.

Halifax Electric Tramway.—Receipts for Sept., $21,141.04, and for two weeks ended Oct. 14, $10,407.87, against $21,020.91, and $9,389.61 for same periods 1909.

London St. Ry.—Gross earnings for Sept., $26,045.64; expenses, $15,470.80; net earnings, $10,574.84; deductions, $2,363.05; net income, $8,211.79, against $24,937.83 gross earnings; $14,633 expenses; $10,274.83 net earnings; $2,363.05 deductions; $7,911.78 net income for Sept., 1909. Aggregate gross earnings for nine months ended Sept. 30, $190,724.73; expenses, $134,856.98; net earnings, $55,867.75; deductions, $21,503.45; net income, $34,364.30, against $183,382.10 gross earnings; $126,338.33 expenses; $57,043.77 net earnings; $21,619.13 deductions; $35,424.64 net income for same period 1909.

Montreal and Southern Counties Ry.—Following are the officers for the current year: President, S. T. Willett; First Vice President, T. Craig; Second Vice President and General Manager, W. B. Powell; Secretary-Treasurer, H. W. Cooper.

Application will be made by the G.T.R. to Dominion Parliament for power, among other things, to acquire, hold, guarantee, pledge and sell or otherwise dispose of M. and S.C. Ry. stocks, bonds or other securities.

Montreal Park and Island Ry.—Following are the officers and directors for the current year:—President, Hon. L. J. Forget; Vice President, K. W. Blackwell; Managing Director, W. G. Ross; other directors, Sir H. M. Allan, P. Galibert, D. McDonald, T. A. Trenholme; Secretary, P. Dubee.

Montreal St. Ry.—The city treasurer, Oct. 8, received a cheque for $276,618, being the amount due from the company as percentage on the receipts of the line within the city.

Montreal Terminal Ry.—Following are the officers and directors for the current year:—President C. H. Catelli; Vice President, C. S. Campbell; other directors, R. Forget, J. G. Ross, F. E. Meredith, W. W. Skinner, J. L. Peron; Secretary-Treasurer, L. G. Morin.

The city treasurer, Oct. 8, received a cheque for $1,299, being the amount due from the company for percentage on its receipts within the city for the last financial year.

Nipissing Central Ry.—A meeting of the shareholders has been called for Nov. 7 for the purpose of ratifying and confirming what has been done by the acting directors and officials; approving and confirming the building of the line, and the acquisition of various franchises, rights and properties; confirming the financial arrangements made, and the giving of such further directions respecting the future management of the company as may be advisable. S. A. Jones is acting Secretary.

Quebec Ry., Light, Heat and Power Co.—The executive of the Bourse of Paris, France, has granted the company's application to have its stock listed.

St. Thomas Street Ry.—Earnings for Aug., $1,948.42; expenditures, $2,203.41, against receipts of $2,110,467 and expenditures of $2.608.39 for Aug., 1909.

Toronto Ry.—Gross earnings for Sept., $428,580.07; expenses, $199,502.60; net earnings, $229,077.38, against $379,981.08 gross earnings; $180,834.11 expenses; $199,146.97 net earnings for Sept., 1909. Aggregate gross earnings for nine months ended Sept. 30, $3,195,938.01; expenses, $1,634,760.20; net earnings, $1,561,177.81, against $2,857,291.30 aggregate gross earnings; $1,449,636.09 expenses; $1,407,655.21 net earnings for same period 1909.

Winnipeg Electric Ry.—Gross earnings for Aug., $247,046; working expenses, $124,719; net earnings, $122,327, against $197,817 gross earnings; $100,726 working expenses; $97,091 net earnings for Aug., 1909. Aggregate gross earnings for eight months ended Aug. 31, $2,031,256; net earnings, $1,009,468, against $1,622,809 gross earnings, and $812,544 net earnings for same period, 1909.

Electric Railway Notes.

G. E. Moffatt, consulting engineer British Columbia Electric Ry., is reported to have resigned.

The Winnipeg Electric Ry. has recently tested an automatic fender invented by J. Milford Moorhouse, of Winnipeg.

J. F. Argue, for over 25 years in the Toronto Ry.'s service, latterly as a divisional superintendent, died in Toronto, Oct. 6.

The Montreal Board of Control has arrived at an agreement with the Montreal Street Ry. for a new method of snow removal in the city.

The Montreal Street Ry. has entered suit against the Montreal Star, claiming $100,000 as damages, and charging defamatory libel in articles published.

A. Gaboury, Superintendent Montreal St. Ry., has been elected a member of the executive committee American Street and Interurban Railway Association for the current year.

The Toronto Ry. is said to have about 50 new cars of the latest model, completed or in course of completion, to be put in operation as soon as the extensions now under construction are completed.

W.. G. Ross, Managing Director Montreal Street Ry., was elected Vice President of the American Street and Interurban Ry. Association, at the annual convention at Atlantic City, N.J., early in October.

R. J. Clark, for the past six years Assistant Comptroller of the Toronto Ry., and Comptroller of the Toronto and York Radial Ry., has been appointed Comptroller of the Kansas City Electric Street Ry., Power and Light Co.

O. J. Cherry, Superintendent upper steel arch, Lewiston and Queenston Bridges, has also been appointed Division Superintendent, Park and River Division, International Ry. E. H. Henning, Division Superintendent, continues in charge of the Buffalo & Niagara Falls local lines.

By a judgment of the Quebec courts rendered June 30, 1909, the Montreal Street Ry. was ordered to remove certain tracks laid on the property of the Harbor Commission within two months. Notice of appeal was given, and this was argued before the Court of Appeal, Sept. 20, and judgment reserved.

The fiftieth anniversary of the running of the first tram car in England was celebrated recently. The first car was run at Birkenhead by the late G. F. Train, who had as an office boy C. Robinson, who has been for years the moving spirit in connection with the tramways and light railway building in Great Britain.

The Quebec Public Utilities Commission received a report from Commissioner Laberge on recent fatal accidents on the Montreal Street Ry., and discussed it at a private sitting in Quebec Oct. 5. The Commissioners decided to hold a special session in Montreal for the investigation of the accidents, but at the time of writing no date had been announced for the session.

The Toronto board of control has instructed the city counsel to find out if the city has a case against the Metropolitan Ry. (Toronto and York Radial Ry.) for not keeping Yonge St. in a proper state of repair, and if so to prefer an indictment against the company. A report for a similar purpose is being prepared on the T. & Y.R. Ry., Mimico division.

The British Columbia Electric Ry. has received two 34 ft. passenger cars from the Preston Car and Coach Co., Preston, Ont., each 44 ft. over vestibules and 45 ft. over bumpers. They are arranged with a smoking compartment at one end with a corridor extending from the rear vestibule into the main compartment, and are finished in Honduras mahogany, with semi-empire ceilings, the seats, which are of the walkover pattern, being upholstered in rattan.

In the British Columbia Electric Ry.'s new wages schedule, which went into effect July 1, the increase of pay granted was given on the understanding that the bonus scheme, under which the employes have heretofore shared in the company's profits, will cease after the next payment of the bonus, which will take place probably in November, and will relate to the year ended June 30. The profit sharing scheme has been terminated at the men's request, they preferring an increased rate of pay to an annual bonus.

The Galt, Preston and Hespeler St. Ry. has received two 55 ft. passenger cars from the Preston Car and Coach Co., Preston, Ont. They are 43 ft. 5 ins. over bodies, 53 ft. 7 ins. over vestibules, 55 ft. over bumpers, and 9 ft. wide over sheathing, and are painted Pullman color on the outside, with semi-elliptic transom sash over the side windows and in the deck, glazed with leaded art glass. A smoking compartment is provided at one end, and a motorman's cab at each end. The trucks are equipped with Westinghouse 93 motors, 75 h.p., and multiple unit control.

J. E. Rothery, who has been appointed Manager Toronto Eastern Ry., was Superintendent of the Niagara Falls, Park and River Ry. from 1893 until its absorption by the International Ry., when he was appointed Superintendent of the Buffalo & Niagara Falls division, including the lines in Canada. In 1906 he was appointed General Manager of the Ohio Valley Scenic Route at East

NOTICE.—The Manitoba & Northwestern Railway Company of Canada, will apply to the Parliament of Canada, at its next session, for an Act extending the time within which it may construct the following lines of railway:

(a) From Yorkton to a point at or near Prince Albert.

(b) From Russell to the northern or western boundary of Manitoba.

(c) From some point between Portage la Prairie and Arden to the northern or western boundary of Manitoba.

(d) From some point between Westbourne and Beautiful Plains northwesterly in the direction of Lake Dauphin or Duck Mountains.

(e) From a point between Theodore and Insinger to a point in Township 32, Range 18 or 19, W. 2nd M., with power to terminate at a point in Range 16 or 17.

(f) From Bredenbury to Kamsack; and for other purposes.

Dated at Montreal, the 10th October, 1910.

H. C. OSWALD,
Secretary.

Andrew T. Thompson,
Ottawa Agent.

THE VANCOUVER AND LULU ISLAND RAILWAY COMPANY.

NOTICE.—The Vancouver and Lulu Island Railway Company will apply to the Parliament of Canada at its next session, for an Act extending the time within which it may construct branch lines, under the provisions of section 3, chapter 86 of the Statutes of 1901, and for other purposes.

Dated at Montreal, the 10th October, 1910.

H. C. OSWALD,
Secretary.

Andrew T. Thompson,
Ottawa, Agent.

NOTICE.—The Ottawa Northern & Western Railway Company will apply to the Parliament of Canada, at its next session, for an Act extending the time within which it may construct the extension of its main line from Maniwaki to a point at or near James Bay and the extension to Lake Temiskamingue, and for other purposes.

Dated at Montreal, the 10th October, 1910.

H. C. OSWALD,
Secretary.

Andrew T. Thompson,
Ottawa Agent.

NOTICE.—The Walkerton & Lucknow Railway Company will apply to the Parliament of Canada, at its next session, for an Act extending the time within which it may construct the railway from a point at or near Walkerton to a point at or near Lucknow, via Teeswater, and for other purposes.

Dated at Toronto, the 10th October, 1910.

GEORGE A. WALKER,
Secretary.

Andrew T. Thompson,
Ottawa Agent.

New Brunswick and Canada Rd.—Following are the officers and directors for the current year:—President, F. Todd, St. Stephen, N.B.; Vice President, J. C. Murphy, Calais, Me.; other directors, J. E. Ganong, J. T. Whitlock, G. W. Ganong, St. Stephen, N.B.; W. A. Murchie, Calais, Me., and A. W. Madigan, Houlton, Me.

The Kingston & Pembroke Ry. Co., according to a London cable, is about to make an issue of securities in England for the operation of its iron properties.

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Liverpool, Ohio, including the East Liverpool Traction & Light Co., the Ohio Valley Ry. Co., and the Stubenville and East Liverpool Ry. & Light Co. He resigned that position in May, 1910, and has been living in Toronto since.

Toronto Electric Railway Matters.

The City Engineer and the City Solicitor presented a joint report to the Toronto board of control recently on a system of civic car lines for the recently annexed districts. The plans show 9.7 miles of lines to serve East Toronto, North Rosedale and West Toronto, at an estimated cost of $570,000, exclusive of car barns and power plant, which would bring the cost up to $750,000. Upon consideration of the report the board directed the City Solicitor to report on the advisability of the city acquiring the suburban lines, and the Secretary was instructed to arrange for a conference with the Toronto Ry. management with a view of seeing if an arrangement could be made for acquiring the lines of that company. This conference was held Oct. 10, and at its close the Mayor stated that President Mackenzie had said he was prepared to recommend the shareholders to sell as soon as the city had power to buy, the price to be one mutually to be agreed upon, or to be settled by arbitration. Nothing was said about the matter at the meeting of the council held the same day, but it was understood that it would be reported on at a later meeting. The council, however, affirmed the principle of building, equipping and operating the lines proposed for the suburban districts by a commission, and the board of control was requested to draw up a constitution for such a commission, so that the necessary authority could be asked at the next session of the Legislature.

The question of the position of the suburban lines is mixed up with that of the lines in the suburban districts. The franchise of the section of the Mimico line within the city expires Dec. 31, 1911, and it was decided Oct. 8, to give notice of the intention of the city to take it over then. The piece of line is 1.1 miles long, and is assessed at $990 for land, and $3,550 for rails, ties, etc.

Government Regulation of Railways or Government Operation.—The Oxford University Press, London and Toronto, has issued a book written by C. S. Vrooman, of Oxford, Eng., entitled "American Railway Problems in the Light of European Experience, or Government Regulation v. Government Ownership of Railways." The subject is dealt with in 15 chapters, and five appendices are added. The suspended sentence of nationalization is the heading of the introductory paper, and the subject matter in the different chapters are:—Railway regulation by the several States, present status of federal regulation, proposed reforms in federal regulation, varieties in railway regulation, government ownership not confiscatory, three chapters on the result of government ownership in different countries; can Americans afford safety in railway travel? the ultimate issue involved in railway accidents, European railway corruption, American railway corruption, the spoils system and state railways, the industrial state, final considerations. The appendices contain Lamartine's Warning, the Swiss federal laws on accounting, acquisition, operation and organization, and the law as to the state operation of Italian railways. The book can be obtained through the Railway and Marine World Book Department.

The Empire Hotel, Winnipeg, is reported to have been sold by R. J. Mackenzie, of Mackenzie, Mann & Co., to T. Donley, of Simcoe, Ont., for $250,000.

Telegraph and Cable Matters.

The Canadian Northern Telegraph Co. has opened offices at Kenville, Man., and Fairlight and Langbank, Sask.

The Marconi Wireless Telegraph Co. is now receiving messages for transmission to the European continent. Hitherto the service has been to Great Britain and Ireland only.

Contradictory reports as to the state of G. Marconi's health have appeared recently in the Canadian and British press. Statements that he is in a serious condition have been denied and reiterated.

A Government wireless telegraph station is in course of erection near Skidegate, in connection with the Queen Charlotte Islands telephone line. The station is expected to be ready for operation during November.

Operators have been placed along the G.T.P.R. and the National Transcontinental Ry. between Fort William, Ont., and Winnipeg, in connection with the operation of the railway for the moving of the wheat crop to the head of the lakes.

A. B. Smith, Manager G.T.P. Telegraph Co., announced, Oct. 14, that the telegraph line between Fort William, Ont., and Edmonton, Alta., about 1,200 miles, was open for service. About 20 new stations have been equipped between Fort William and Winnipeg.

The Dominion telegraph line, which is being erected through Northern Alberta, reached Peace River Crossing Oct. 6, and erection was proceeded with for 16 miles to the Shaftsbury settlement, where, it is stated, telephone communication will be opened up this winter.

The Great North Western Telegraph Co. has announced that after Nov. 30 it will discontinue its news service, as it believes that since telegraph companies are now classed, by law, as common carriers, the collection and dissemination of news is not properly in their province.

The cable operators at the cable station at North Sydney, N.S., were recently granted a bonus of one month's salary, in recognition of loyal service, when both of the Canso-Penzance cables were out of service. During this suspension over 3,500,000 messages were relayed at North Sydney.

The board of conciliation, consisting of J. E. Duval, chairman, H. W. Ashley and F. J. Reynolds, appointed to enquire into the grievances of the G.T.R. telegraphers, arrived at a decision, Oct. 5, which gives the operators a new schedule of rules regulating the hours for service and conditions of promotion, and increases of pay amounting to about 4%.

W. J. Camp, Electrical Engineer C.P.R. Telegraphs, is a member of the committee of the Association of Railway Telegraph Superintendents, which has in hand the erection of a monument, to be erected at Turner, N.Y., to commemorate the sending of the first telegraphic train order on the continent. The Old Time Telegraphers and Historical Association, at its recent reunion, decided to contribute not less than $10 to the fund.

The C.P.R. has opened telegraph offices at Lake Louise Chalet, Alta.; Summit Lake, B.C.; Hallsboro, Niversville, and Shawanan, Man.; Adelard, Islington, Komoka and Point au Baril, Ont.; Ivry and Woodlands, Que.; Cross, Drake, Dysart, Jansen, Markinch and Marquis, Sask., and has closed its telegraph offices at Natal, B.C.; Firdale, Man.; Beaucage, Bismark, Bissett, Eauclair, Garden, MacLennan, Melrose and Moffat, Ont.

The cable steamship Colonia has completed the laying of a cable between New York and Penzance, Eng., via Newfoundland, in what is claimed to be record time. She commenced laying the cable at Bay Roberts, Nfld., July 18, and reached Penzance in nine days, and on Sept. 14 returned to Bay Roberts and laid the cable to Coney Island. On this last section the cable parted in deep water, the end being recovered in 24 hours.

The material for the erection of Marconi wireless telegraph stations at Macovic and Cape Harrison, Labrador, has been landed at the respective points, and the work has commenced. The erection will be completed this year, but it is not anticipated that the stations will be fully equipped, as they will be of little use until next year, when, it is stated, other stations will be erected, forming a chain from Cape Chidley, through Hudson Bay to Fort Churchill.

The annual general meeting of the G.N.W. Telegraph Co. was held in Toronto, Sept. 28. Following are the officers and directors for the current year: President, H. P. Dwight; Vice President, A. Brown; Vice President and General Manager, I. McMichael; other directors, H. N. Baird, J. Hedley, Hon. J. K. Kerr, W. C. Matthews, Toronto; R. C. Clowry, J. B. Van Every, New York; Secretary-Treasurer, G. D. Perry; Auditor, A. C. McConnell; Assistant General Manager, S. B. McMichael.

The Maritime Telegraph and Telephone Co. has laid a cable across Northumberland Strait, between Nova Scotia and Prince Edward Island. The cable leaves Nova Scotia at Waterside, near Cariboo Island, nine miles from Pictou, and reaches Prince Edward Island, at the Woad islands, about 35 miles from Charlottetown. It is stated to be the intention to establish telephone communication by means of the cable, and press reports from Pictou state that as telegraph instruments have been sent there, the telegraph may be used, in the event of failure, with the telephone.

The Western Union Telegraph Co.'s annual report shows an increase of 7,081,966 messages and 504 stations over the previous years, while 2,847 miles of pole and cable, and 46,549 miles of wire, of which 30,515 miles were copper, were added during the year. The total mileage of wire is now 1,429,049, of which 530,517 miles are copper. The total earnings were $32,754,111.13; operating expenses, repairs, etc., $26,614,302.88; other income, $1,135,091.80; interest and dividends, $4,677,526.23; balance, $2,597,373.82. The assets of the company, which have been re-valued, amount to $307,737,262.07.

A St. John, N.B., dispatch of Oct. 19 says:—"J. Kent, Manager C.P.R. Telegraphs, foreshadows an extension of the company's lines along the Dominion Atlantic Ry. When asked how the acquisition of control of the railway by the C.P.R. would affect the telegraph company, he remarked that it was the usual C.P.R. policy to have its own telegraph wires over all its lines of railway. Mr. Kent said the C.P.R. is now operating 1,400 miles of single-track railway by telephone, and finds it more satisfactory than telegraph. The system is to be extended to 2,100 miles this season."

The Montreal Street Ry. Co. has entered an action for libel against the Montreal Star, claiming $100,000 as damages suffered by it on account of statements by the newspaper at various times. The M.S.R. Co. alleges that for some months the paper has conducted a systematic campaign against it by printing unfair headings, distorting facts and giving incorrect reports of accidents or legal proceedings in which the company was involved.—Montreal Press Dispatch.

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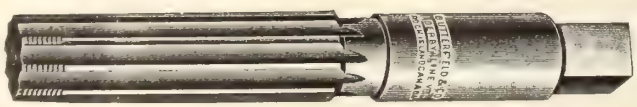

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International Water Lines Passenger Association.

PRESIDENT, W. M. Lowrie, New York.
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The Shipping Federation of Canada.

PRESIDENT, A. A. Allan, Montreal; MANAGER, AND SECRETARY, T. Robb, 526 Board of Trade, Montreal.

Ship Masters' Association of Canada.

GRAND MASTER, Capt. J. H. McMaugh, Toronto, Ont.; GRAND SECRETARY-TREASURER, Capt. H. O. Jackson, 376 Huron St., Toronto.

Buoy Steamboat for the St. Lawrence.

The steamboat which the Department of Marine contemplates building, and for which provision has been made in this year's estimates for the buoy service on the River St. Lawrence between Montreal and Quebec has been designed with the view of meeting the increased demands and requirements of this important branch of marine work, and replacing the C. G. S. Shamrock, which is now considered quite inadequate and unsuited for the service. The principal dimensions of the new vessel are:—Length, 170 ft.; breadth, 31½ ft.; depth, 15½ ft.; displacement about 1,000 tons; speed on service, 11 knots.

The general accommodation is placed at the forward and after ends, the machinery being also placed aft in order to provide a large clear well and hold forward for the special work connected with the lifting and lowering of buoys and their attendant gear. The well, which is about 66 ft. long, is traversed by two derricks, one capable of lifting 10 ton weights, and the other of lifting five ton weights, the larger lift being for the handling of buoys and the smaller lift for manipulating the cables and anchors. These derricks are operated by a specially designed winch, which is situated abreast the fore mast. The general structure of the ship is largely above Lloyds requirements, special consideration having been given to those parts directly in way of the well. The structure forward and aft and along the load water line is also largely in excess of the usual requirements, in order to provide sufficient strength for working in floating ice about 12 inches thick. The vessel is divided into eight water-tight compartments, and large steam pumps of high power, and smaller hand pumps are provided for the pumping and flooding arrangements. The main and lower decks are of steel, wood sheathed, and the forecastle, bridge and boat decks are partially plated and wood sheathed; a double bottom is fitted under the fore hold and engine room. The accommodation is ample and roomy. Under the forecastle deck, provision is made for the housing of the seamen and firemen with their respective water-closets and wash houses adjoining. On the main deck aft abreast the e. and b. casings are placed the cabins for the officers, bathroom and water-closet, ward room, galley and pantry, and a special mess room is also provided there for the crew and firemen. On the bridge deck are situated the staff officers' quarters, two staterooms, wireless telegraph office, dining saloon, bathroom and water-closet, and chart room. The latter, which is for the staff officers' use, is placed at the fore end of the deckhouse and commands the working well. On the boat deck, in a teak deck-house, is the navigating position, with captain's cabin adjoining, these being surmounted by a sighting platform for the superintending engineer.

The vessel is provided with a complete installation of electric light, and also a powerful searchlight of about 16,000 candle power. The power is derived from two dynamos situated in the engine room, driven by two compound engines of the enclosed type. A set of accumulators is also provided for the running of certain lights. As is usual in the service a system of wireless telegraphy will be installed. A very efficient system of ventilation is provided for and precaution has been taken to provide fresh air to all parts of the living quarters, holds, stokeholds and engine room. The steam steering engine will be placed in a recess in the engine room, controlled from the navigating position in the wheel house, and the usual hand gear is provided in a neat teak case aft.

Three boats are fitted under davits on the boat deck, viz.:—A gasoline launch, 26 ft.; a lifeboat. 26 ft.; and 1 dinghy, 15 ft. These are all under direct control by steam power, a boat-hoisting engine being provided adjoining.

The water service arrangements are very complete. All the compartments are supplied, and also the decks, the pumps for the respective purposes being situated in the engine room. The bunkers will have a capacity capable of providing a steaming radius of 1500 knots, and a large reserve can be provided for. In order to provide a steadier platform when lifting heavy weights, rolling keels are fitted on the bilges.

The vessel will be fitted with twin screw triple expansion engines, working at about 130 revolutions a minute. Steam will be derived from two single ended cylindrical boilers, each fitted with two Morison's patent withdrawable furnaces, and having a working pressure of 180 lbs. per square inch. All the usual auxiliaries will be installed in the engine room, viz.:—Circulating pumps, air pumps, feed pumps, bilge pumps, injector pump, general service donkey, ballast pumps, fresh water pump, sanitary pump, etc., etc., and special provision has been made at the sea inlets for the prevention of ice formation. The piping arrangements will be very complete, and in several instances will be duplicated in order that should one connection become choked, an alternative connection may be used. Each of the boilers will be fitted with an installation of a temperature balance which has given great satisfaction on the C. G. S. Earl Grey. The propellers will be of the built up type, of special mixture steel, and will be of heavy construction and specially designed for the work. The contract for this new addition to the marine fleet will be awarded shortly, as it is intended to have the vessel placed on her service as early as possible.

The name of the schooner A. K. Woodward has been changed by order-in-council to H. S. M.

An item which was running through the press, during Oct., purporting to be a "special" from Washington, D. C., regarding the number and tonnage of Canada's shipping, quotes grand totals, totals by provinces etc. and also of new tonnage, which is given as having been added "during the curent year." All the figures mentioned in the "special," refer to the year ended Dec. 31 1909 and were included in the annual summary of Canadian shipping, published in our July issue.

The Canada West Indies Route.

The report of the Imperial Royal Commission appointed to enquire into trade connections between Canada and the West Indies, states that as a market from the West Indies point of view, Canada is at some disadvantage, geographically, as compared with the U.S., and that there is little hope of counteracting these disadvantages unless a good form of through communication is established, between the West Indies and Canada, as far west as Toronto, and perhaps even Winnipeg. A subsidy of £27,000 annually is paid for a fortnightly service, between St. John and Halifax alternately, and the West Indies, the agreement in this case, expiring this year. The subsidy is paid equally, by the Canadian and British Governments. The report continues: 'In the course of our enquiry, it has been continually urged upon us that the present service has not been satisfactory and in both countries it was repeatedly urged that the development of mutual trade depended largely on the improvement in the means of transportation. The principal causes of complaint in Canada were the unpunctuality of the steamers and their slow speed; the inadequacy of accommodation, both for passengers and freight; the lack of care in transit, and the delay at Halifax involved to shipments from St. John. In the West Indies, the special causes of complaint brought to our notice were the inferiority of the steamers employed; the high rates for certain classes of cargo, and the uncertainty of finding space when the steamers arrived at the northern islands, although accommodation might have been reserved in advance. There was a very general opinion among the witnesses in Canada, that a weekly service was desirable, that the steamers should maintain a speed of 12 knots an hour, at least; while in the West Indies, the general opinion was that fortnightly steamers would be adequate though a few favored a more frequent service. We are of the opinion that the most efficient service might be obtained by dividing the service into two parts. In summer there should be one fortnightly sailing from Halifax, and another fortnightly sailing from Montreal, calling at Quebec and St. John. The services should be so arranged that the departures from Halifax and St. John should take place on the same day of alternate weeks, thus forming a weekly service from Canada, giving to Halifax and St. John the direct connection with the West Indies which they desire and giving Montreal and Quebec the opportunity to send their goods direct to the West Indies entirely by water, during the season of open navigation. In the winter the sailings would be from Halifax and St. John only, and in the summer it should be laid down that the steamers on the St. John route should start from Montreal a specified number of days before the due date of departure from St. John. As it is desirable that there should be no delay through the calling of the steamers for coal on the voyage, it should be stipulated that the Montreal-St. John steamers should be fully coaled at Montreal, and the Halifax steamers fully coaled at Halifax for the outward voyage, and that if additional coal were required for the homeward voyage, the arrangements should be such as to involve the least possible delay. ..... Having regard to the importance of retaining and extending as far as possible, the market which Canada offers for West Indies products, we would represent that the maintenance and improvement of the steamship service is in the highest degree essential. We cannot fail to recognize that the withdrawal of the existing service would very seriously hamper and in

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A. A. HEARD, G.P.A., Albany, N.Y.

some cases entirely extinguish, the trade which is now growing up. It is possible, that if the subsidy were withdrawn, a fairly frequent, though irregular service might be maintained between Canada and the larger ports, but we cannot doubt, that in such event, the smaller islands would cease to be visited. The selection of a firm to undertake the contract for this service falls mainly with Canada, where the headquarters must necessarily be established. We have no doubt that every opportunity will be given to any responsible firm to tender for the service, if it should be decided to continue it.

"The preceding recommendations were made with a view to the establishment of an adequate cargo and passenger service between Canada and the West Indies and at the time of their preparation we had not given special consideration to the possibility of including a fast mail service. Since the conclusion of our enquiry, a new situation has arisen through the expiration of the mail contracts between England and the West Indies, and in consequence a way has been opened for the acceleration of the service between Canada and the West Indies, so as to provide an all British route for mails between the United Kingdom and the West Indies by way of Canada. We have discussed this matter with representatives of the General Post Office and have given our assistance in preparing a scheme for a service between Canada and the West Indies, on the same general lines as the preceding, but with vessels steaming at 15 knots an hour, leaving Halifax or St. John, immediately on the arrival of the weekly mails from Liverpool, and which, in the summer, would be landed at Rimouski and conveyed by rail to Halifax or St. John."

Stranding of the s. s. Craigendoran.

Following the enquiry into the causes of the stranding of the s.s. Craigendoran at Anticosti Island, late in August, referred to in our last issue, Capt. L. A. Demers, Wreck Commissioner, delivered the following judgment, Oct. 5, which was concurred in by Jas. Bain and J. A. Band, Assessors:—

The court, having carefully weighed the evidence adduced, finds that the captain and officers, being strangers to the Gulf St. Lawrence, failed to exercise adequate precaution in equipping themselves with necessary information concerning the prevailing winds, tides and currents, which may be found in the sailing directions, which could have been procured with facility in either Montreal or Quebec. From the time Fame Point was passed the vessel seems to have been steered in a seamanlike manner, and a course was taken intending to pass three or four miles off South Point, Anticosti, in order to make the East Point lightship. An hour prior to the stranding, when land was sighted, the master, in estimating his distance therefrom, relied absolutely on his visional observance, whereas the vessel, being equipped with a deep sounding machine, supposedly in good order, a cast of the lead could have been taken without interruption to the ship's speed, thus determining the distance and allaying doubts regarding the master's uncertain estimate. The captain accordingly proceeded on that unauthenticated course, which, however, was altered half a point prior to the accident, the necessity for which seems somewhat vague and would appear uncalled for if the master's estimate of the vessel being 5 or 6 miles off, is to be accepted, but the fact that the stranding occurred almost immediately following the alteration, indicates conclusively that she must have been well inshore. Following the stranding, the engines were stopped, but no attempt was made to impede the vessel's headway by reversing, and in the court's opinion some definite action should have been taken to ascertain the exact location of the stranding, which, however, was omitted, and consequently the ship, carrying the impetus imparted by her former speed of nine knots, must have traversed a distance approximating three-quarters of a mile before attaining a dead stop, at which time the cast of the lead was taken, which recorded 20 fathoms. The lighthouse was in full view, and if the possibility of a cross bearing were precluded, the exact position could nevertheless be ascertained by the measurement of the height of the lighthouse.

In view of the facts adduced, the court can arrive at no other conclusion than that the necessary precautions for the safety of the vessel were not exercised by the master and second officer, which neglect on their part is the more emphasized by the fact that they were navigating strange waters and had at all times the means available to verify the position of their vessel, the atmosphere being penetrable to a distance of six or seven miles, and even admitting that objects were not sufficiently defined for observation purposes, soundings should have been taken to authenticate the observation made by naked eye by the master and the second officer.

One of the witnesses intimated that the wreck, which has been lodged in that vicinity for 15 years, is further removed from shore than the chart indicates, but even admitting that the derelict be further out than shown by the chart, by one and a half miles, the court nevertheless contends that it would not constitute an impediment to the safe navigation of vessels whose courses are taken to make certain points or enter the Straits of Belle Isle. In view of the above, the court has arrived at the conclusion that the master has been guilty of carelessness in neglecting to supply himself with the sailing directions, and for his failure to take proper observations to ascertain the vessel's distance from the land, and the implicit reliance which he placed on his visional observation, without attempt at verification, the court holds was by no means seamanlike. Owing, however, to the fact that the vessel escaped serious damage in consequence of the said carelessness, the court will not deal with the master's certificate, but finds it incumbent upon it to severely censure him, and to also reprimand the second officer for failure in calling the master's attention, and not taking necessary bearings and soundings when land was seen.

Montreal Harbor Traffic Statistics.

Following are details of the Montreal harbor receipts from the commencement of the St. Lawrence navigation season to Sept. 30, as compared with those for the same period 1909:—

	1910.	1909.
Imports	$181,500.00	$141,500.00
Exports	59,000.00	58,000.00
Local traffic	43,665.11	35,715.50
Totals	$284,165.11	$238,215.50

The number of vessel arrivals during the period was 571, of a total tonnage of 1,688,294, against 513 vessels and 1,441,514 tons in 1909. The previous record was in 1908, whe nthere were 579 vessel arrivals, having a tonnage of 1,514,829. The depth of water in the ship channel, on Oct. 1, was 29¼ ft., a decrease of 2½ ft., as compared with the depth on Oct. 1, 1909.

The name of the steamboat City of Windsor, registered at Sault Ste. Marie, Ont., has been changed by order-in-council to **Michipicoten.**

C. P. R. Steamboat for Arrow Lakes.

The C.P.R. is having built for service on the Arrow Lakes, B.C., a stern wheel steamboat with the following general dimensions:—

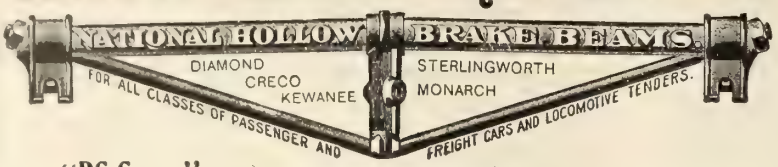
Length over all	228 ft.
Length between perpendiculars	200 ft.
Beam moulded	38 ft.
Beam over guards	44 ft.
Depth, moulded	7½ ft.

The hull proper is entirely of steel, strongly braced longitudinally by diagonal framing and bulkheads. The vessel is, by seven transverse bulkheads and the longitudinal bulkheads, divided into 20 watertight compartments, thereby ensuring greatest safety from sinking through the puncturing of any part. The shell plating forward is doubled in the bottom to further minimize the danger of damage from grounding. There are four large rudders with tillers connected to and operated by the one steering gear. The hull, which, as well as the machinery and boilers, has been constructed by Polson Iron Works, Ltd., at Toronto, in remarkably short time, has been shipped in knock down shape to its destination, there to be re-erected and riveted up complete for launching. The shipment consisted of 19 cars. On the completion of the steel work, the carpenter and joiner work will be done under the direction of J. C. Gore, Superintendent B. C. Lake and River Service, C.P.R.

The steamboat is intended for both passenger and freight service, the main deck being reserved for freight, engine and boiler room, kitchen, pantry, refrigerator and rooms for cooks, stewards, etc. The passenger accommodation, consisting of 67 state rooms, will be located in deck houses on three separate decks, first and second saloon deck and upper deck. Besides there will be a first saloon deck, smoking room, lavatories, dining room, pantry and ladies' cabin, and on second saloon deck, observation rooms fore and aft. The captain's and officers' rooms will be located on upper deck forward and above these will be the pilot house. The accommodation and public rooms will be handsomely fitted out and furnished.

The double tandem compound engines, which were designed by Polson Iron Works, and have recently been completed and tested under steam at their yard in Toronto, are said to be the first of this type to be built in Canada, and the largest stern wheel engines in the Dominion, the over all length being 75 ft. The engines were designed to give a little over 1,000 h.p. when running at 25 revolutions a minute, and cutting off at half stroke, and with 200 lbs. steam pressure at the boiler. The high pressure cylinders are 16 ins. diameter, and the low pressure 35 ins. diameter, with a stroke of 8 ft. The high pressure cylinders are placed forward of the low pressure, with a cast steel distance piece between them, which also forms the cylinder covers, and is firmly bolted to the cylinder beams. The cylinders have brackets cast on at each end, which also rest on the cylinder beams, and are bolted to them, but the holes are made oval to allow for the expansion of the cylinders, which is considerable owing to their great length. The cylinder beams which form the bedplate or frame of the engine, are box girders built up of plates and angle bars, and carry the cylinders, the guide bars, main bearings and brackets for the valve gear. The main valves on the high pressure cylinders are hollow piston valves fitted with spring rings. The low pressure valves are balanced slide valves. The high and low pressure valves on each engine are connected to one spindle, which is worked by a valve motion with a stationary link which gives the same lead to the valve in whatever position the block is placed.

CHICAGO RAILWAY EQUIPMENT CO.



Our "PC Creco" Brake Beams are for use on new heavy steel passenger equipment and withstand a load of **40,000** lbs. with 1-16 in. deflection. Greater capacity if desired, without increase in Diamond Special depth of strut or change of adjustable brake head.

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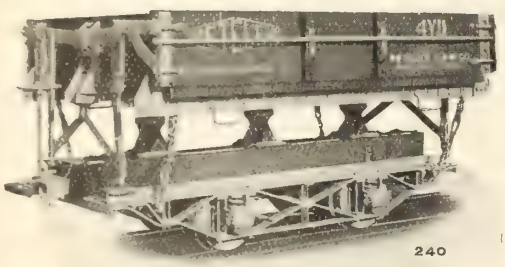

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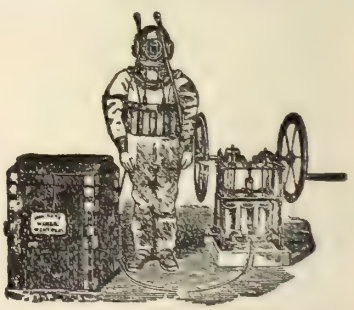

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The point of cut-off is altered or the gear reversed by moving the block in the link. A radius rod connects the block and the valve stem. The gear is actuated by a steam reversing gear of the direct type. The high pressure cylinder is fitted with a separate cut-off valve working inside the main piston valve and worked by a separate eccentric. The travel of this valve is regulated by the position of a block in a separate curved link similar to the main link, except that the link is pivoted at one end instead of at the centre. The piston rods and valve stems are fitted with special metallic packing manufactured by Polson Iron Works. The after low pressure covers are made in halves to facilitate removal for inspection of the low pressure piston. The connecting rods, which are 32 ft. long from centre to centre, are built up of steel plates, channels and tee bars, with solid forged steel ends, fitted with bronze bearings secured by straps, with gibs, cotters and bolts. The crank shaft is a hollow forging of nickel steel fitted with solid forged steel webs, and weighs over ten tons. The engine has been designed throughout with very ample bearing surfaces, and a large factor of safety, as the nature of the service it is built for requires that there shall be no possibility of a break down, the boat having to be as regular in its trips as an express train.

The boiler is of the locomotive type, and is said to be the largest boiler of this type which has been built in Canada, being 90 ft. in dia. and 28 ft. 4 ins. long, with a grate area of over 75 sq. ft. and heating surface of 2,750 sq. ft. The boiler is built for a working pressure of 200 lbs. per sq. in., and is designed to burn up 3,800 lbs. of coal per hour under forced draft, air being supplied by a fan driven by a slow speed turbine.

Salving the s. s. Princess May.

The recent salving of the Canadian Pacific s.s. Princess May, which was wrecked on Sentinel Island, while bound from Skagway, Alaska, to Seattle, Wash., Aug. 5, is of peculiar interest, owing to the position of the vessel after the disaster, and the difficulties encountered in releasing her.

About two hours after leaving Skagway, neither hearing the fog whistle on the one hand, nor seeing the lighthouse on the other until too late, the Princess May bore at full speed on to a reef just north of Sentinel Island. She was running at 12 knots and went on the rocks with an impetus that drove her up high and dry, raising the bow into the air. The position was a peculiar one. She was held on either side so that she could not slip over. At high tide, the hold filled with water. At low tide, the hull was all quite dry. The sides of the reef fall away abruptly 50 ft. and anything happening to loosen the boat would have sunk her at once, for in grinding over the rocks a long jagged tear was made in the single bottom, and it was found that 120 plates were damaged. The crew handled their work quickly, quietly and well, and order prevailed. The passengers were taken ashore, suffering nothing more than some discomfort. . Signals of distress were promptly answered and the salving tug Santa Cruz, of Seattle, was hastened to the scene of the accident.

The salvage feat, as difficult as it was unique, was accomplished by Capt. W. H. Logan, special agent of the London Salvage Association. The first work was to calculate the weight of the vessel to ascertain what sliding ways were required. It was decided to construct ways with a capacity of 11 tons per sq. ft., which was later reduced to 5 tons per foot. Much of the rock had to be blasted with dynamite. The tug Santa Cruz arrived at noon, Aug. 13, and two 10-in. and one 4-in. pumps were placed on board, and anchors laid astern. A 5-ton anchor was laid obliquely from the port side aft, with 250 fathoms, part cable and part wire. Two additional anchors were laid to starboard on a single 250-fathom line. The Santa Cruz made an attempt to pull her off, but did not move her. Before making the attempt, the hull was carefully patched. There was a hole about 50 ft. long and about 18 in. wide on the starboard bow and other holes on the port side about 4 ft. long. Both bilges were stove and there were holes under the engines and boilers. A large number of holes were made amidships by the steamer settling on the rocks at every tide. The majority of the holes were

LIST OF STEAM VESSELS REGISTERED IN CANADA DURING SEPTEMBER, 1910.

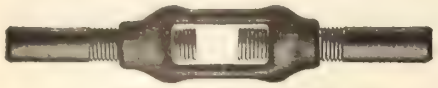
Name	No.	Where and When Built.	Engines, etc.	Length	Breadth	Depth	Gross Tons	Reg. Tons	Port of Registry	Owners
Adine	126,759	Bath, Me., 1909	Screw 5 n. h. p.	32.0	8.3	5.2	5	3	Montreal	C. H. Lewis, Montreal
Ailsa	126,764	Chiswick, Eng., 1909	" 1 "	21.2	5.6	2.4	2	1	"	F. I. Spielman and Alex. Solomon, J. O., Montreal
Amelia Mac	130,271	Winnipeg, Man., 1910	" 16 "	66.0	17.0	7.0	65	44	Winnipeg	Arctic Ice Co., Winnipeg, Man.
C.A.B.	126,922	St. Joseph de Levis, Q., 1909	" 5 "	55.6	15.0	6.7	30	12	Quebec	A. Bernier, St. Joseph de Levis, Que.
C. W. Moore	126,864	Allegan, Mich., 1881	" 19 "	124.0	24.0	9.4	428	259	Sault Ste. Marie, Ont.	Dominion Fish Co., Toronto
Canso	126,803	Yarmouth, N.S., 1910	" 46 "	91.6	22.0	11.7	225	47	Yarmouth, N.S.	Minister of Public Works, Ottawa
Chilcotin	126,945	Soda Creek, B.C., 1910	Paddle 21 "	134.5	23.5	4.5	435	274	Victoria, B.C.	Fort George Lumber & Navig'n Co., Vancouver, B.C.
F. H. Phippen	130,292	North Vancouver, B.C., 1910	Screw 7 "	54.4	12.3	6.0	26	17	Vancouver, B.C.	Canadian Fish & Cold Storage Co., Pr. Rupert, B.C.
Forest B	126,449	Rainy River, 1895, 1910	" 4 "	75.0	17.0	6.0	88	60	Kenora, Ont.	Rat Portage Lumber Co., St. Boniface, Man.
Fort Fraser	126,944	Soda Creek, B. C., 1910	Paddle 2 "	56.0	11.8	2.9	33	21	Victoria, B.C.	Fort George Lumber & Navig'n Co., Vancouver, B.C
Gerald R.	126,769	Montreal, 1910	Screw 6 "	56.0	14.7	6.8	51	20	Montreal	M. J. Haney, et al, J.O., Toronto
Hopkins	130,294	Howe Sound, B.C., 1910	" 14 "	61.6	17.6	8.0	62	42	Vancouver, B.C.	G. S. Hopkins, et al, J.O., Vancouver, B.C.
Klahowya	126,946	Golden, B. C., 1910	Paddle 3 "	92.0	19.0	3.5	175	111	Victoria, B.C.	Columbia River Lumber Co., Golden, B.C.
Rluhane	126,942	Victoria, B.C., 1910	Screw 1 "	55.0	13.3	2.5	19	7	"	I. Taylor and W. S. Drury, J.O., White Horse, Yukon
Little Verdun	126,767	Verdun, Que., 1910	" 1 "	30.0	8.8	2.7	10	6	Montreal	E. Paul, Lower Lachine, Que.
Lyon C.	126,758	Cornwall, Ont., 1909	" 6 "	53.3	14.8	6.6	40	19	"	L. Cohen, Montreal
Napanee	130,352	Tancock, N. S., 1909	" 9 "	37.4	10.4	4.3	10	10	Arichat, N.S.	W. Severance, Fourchu, N.S.
Newona	125,470	Wallsend, Eng., 1909	" 205 "	250.3	43.0	22.5	2179	1401	Montreal	Canada Atlantic Transit Co., Montreal
Ray Stanton	130,231	Collingwood, Ont., 1910	" 8 "	61.0	13.5	6.3	34	20	Port Stanley, Ont.	C. F. Stanton & P. L. Glover, J.O., Port Stanley, Ont
Sogenada	126,766	Rutherglen, Scotland, 1909	" 29 "	75.4	15.6	8.2	65	6	Montreal	Canadian General Development Co., Montreal
Tanina	126,765	Montreal, 1907	" 3 "	33.0	8.0	6.4	11	8	"	H. L. Henderson, Montreal
Velo	126,763	Brockville, Ont., 1910	" 1 "	25.3	4.8	2.5	2	1	"	A. Decary, Montreal
Wanderer of the North	126,762	Montreal, 1910	" 9 "	65.5	16.3	6.2	53	36	"	W. M. Birks, Montreal
Wasp B.	126,902	Mahone Bay, N.S., 1907	" 3 "	43.0	12.4	4.6	17	11	Halifax, N.S.	Halifax Graving Dock Co., London, Eng.

LIST OF SAILING VESSELS AND BARGES REGISTERED IN CANADA DURING SEPTEMBER, 1910.

Name	No.	Where and When Built	Rig	Length	Breadth	Depth	Reg. Tons	Port of Registry	Owners
C.W. 5	130,291	Vancouver, B.C., 1909	Scow	69.0	28.6	7.2	134	Vancouver, B.C.	W. W. White, Vancouver, B.C.
Cecil F. (1)	126,507	St. Pierre, Miq., 1899	Schr.	65.5	20.6	7.9	62	Sydney, N.S.	S. Fiander North Sydney, N.S.
Crescendo	126,596	Port Greville, N.S., 1910	"	114.9	30.0	9.9	196	Parrsboro, N.S.	G. M. Cochrane, M.O. Fox River, N.S.
Dorothy Louise	126,662	Allendale, N.S., 1910	"	106.9	27.0	10.0	125	Shelburne, N.S.	G. C. Harris, M.O. Grand Bank, Nfld.
Fenelon	126,728	Peterboro, Ont., 1903	Scow	71.0	26.0	4.6	146	Peterboro, Ont.	Minister of Railways & Canals, Ottawa.
Frank Fairen	126,727	"	"	40.4	16.4	2.0	20	"	"
H. S. M (2)	122,037	Ellsworth, Me., 1869	Schr.	92.0	25.5	8.3	139	Weymouth, N.S.	H. S. Mallett, Gilbert's Cove, N.S.
Hilda R	126,904	Lahave, N.S., 1910	"	104.8	26.0	10.6	100	Halifax, N.S.	Canada Sealing Co., Halifax, N.S.
N. Lafleur	126,761	St. Antoine, Que., 1901	Sloop	63.3	21.7	5.2	38	Montreal, Que.	N. Lafleur, St. Antoine de Tilly, Que.
Paradis	126,760	Lotbiniere, Que., 1907	"	75.0	17.9	4.3	42	"	J. de Villers, Lotbiniere, Que.
Regine C.	122,048	Meteghan River, N.S., 1910	Schr.	56.0	17.8	7.0	37	Weymouth, N.S.	A. H. Comeau, Meteghan River, N.S.
Relief (3)	81,842	Mystic, Conn., 1865	Barge	118.0	29.2	8.9	196	Quebec, Que.	A. Bernier, Levis, Que.
Tenderfoot	126,943	Victoria, B.C., 1910	Schr.	33.0	10.5	5.8	9	Victoria, B.C.	H. Bird, Victoria, B.C.
True Darling	130,353	Port Felix, N.S., 1910	"	39.4	11.9	5.6	18	Arichat, N.S.	J. Belfountain, Port Felix, N.S.
V. T. B. 8	130,293	Vancouver, B.C., 1910	"	82.0	30.1	8.0	178	Vancouver, B.C.	Vancouver Tug & Barge Co., Vancouver, B.C
Vennie May	130,351	Charlos' Cove, N.S. 1910	"	38.8	11.4	5.2	17	Arichat, N.S.	T. L. Richard, Charlos' Cove, N.S.
Ysabel May	126,901	Lunenburg, N.S., 1910	"	98.5	25.3	10.0	96	Halifax, N.S.	J. A. Bechtel, Victoria, B.C.
Zelah	126,903	Dartmouth, N.S., 1910	Sloop	41.5	10.8	5.7	13	"	H. M. Wylde, M.O., Halifax, N.S.

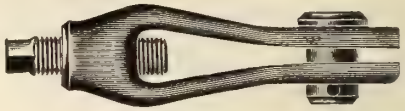
(1) Formerly, Helene. (2) Formerly, A. K. Woodward. (3) Formerly a steamer.

TURNBUCKLES



FORGINGS
OF ALL KINDS

CLEVIS NUTS



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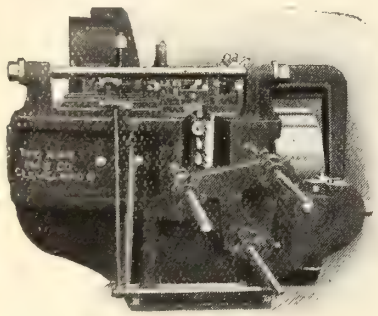

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comparatively small, but of irregular shape.

When the patching was complete, it was found that the anchors and hawsers were not heavy enough and that the tug could not move the vessel. The British Columbia Salvage Co.'s tug William Joliffe was accordingly sent for. Heavier anchors were laid out and when the sliding ways were ready the tugs made another attempt to pull the ship off, which was ineffectual, and a third pull was taken at midnight, Sept. 2, when the tide was highest, and the steamer moved about 60 ft., and at noon the following day another haul was made and she slid into deep water, the pumps keeping her afloat. The wreck was towed to Juneau and thence to Esquimalt, making but little water during the long tow from the north. Within 30 hours after the wreck was floated, one of the heaviest gales of the season occurred and had she been out on the reef at the time it would probably have pounded her to pieces. That there was no break in the hull speaks well for her construction. The floating was the thirty-second successful salvage job completed by Capt. Logan.—Marine Review.

Vessels Removed from the Register.

The following vessels were removed from the register, during Aug. and Sept. for the reasons assigned:—Steam,—Dama Quebec 37 tons, broken up; J. L. Murphy, Ottawa, 109 tons, broken up; Platea, St. John, N.B., 2,044 tons, sold to foreigners; Pydna, St. John, N. B., 1,854 tons, sold to foreigners; Relief, Quebec, 193 tons, converted into a sailing vessel; Two Brothers, Quebec, 9 tons, broken up. Sailing,—Barcelona, Lunenburg, N.S., 99 tons, stranded; Bear River, Digby, N.S., 38 tons, lost at sea; Brilliant Star, Sydney, N.S., 32 tons, broken up; Calcium, Parrsboro, N. S., 687 tons, abandoned at sea; Electric Light, Digby, N.S., 34 tons, broken up; Fanny, Digby, N.S., 7 tons, broken up; Franklin King, Charlottetown, P.E.I., 27 tons, wrecked; G. M. Dutcher, Digby, N. S., 32 tons, sold to foreigners; La France, Lunenburg, N.S., 89 tons, stranded; Lizzie Jane, Digby, N.S. 18 tons, broken up; Lumen Diei Arichat, N. S., 20 tons, broken up; Mabel T., Weymouth, N.S., 13 tons, stranded; Marie Clarisse, Quebec, 21 tons, out of existence; Marie du Sacre Cœur, Quebec, 46 tons, out of existence; Morelight, Halifax, N.S., 52 tons, broken up; Nonpareil, Lunenburg, N.S., 88 tons, wrecked; Norman B., Digby, N.S., 20 tons, broken up; Ponhook, Liverpool, N.S., 199 tons, transferred to Barbadoes; T. W. S. Greser, Digby, N.S., 30 tons, out of existence; Twilight, Digby, N. S. 14 tons, lost; Union, Arichat, N.S., 77 tons, lost; W. D. Bickford, Digby, N.S., 44 tons, out of existence; Wave, Digby, N.S., 11 tons, broken up.

Notices to Mariners.

The Department of Marine has issued the following:—

96. Sept. 21.—255. Quebec, Gulf of St. Lawrence, Harrington islands, Harrington harbor, buoys established. 256. Quebec, River St. Lawrence, survey steamer at work in vicinity of Father Point and Bicquette island, caution.

97. Sept. 22.—257. New Brunswick, south coast, Bay of Fundy, Bliss island, position of lighthouse. 258. Nova Scotia, Cape Breton island, south coast, off entrance to Louisburg harbor, change in sounding of submarine bell eastward of Harbor shoal. 259. Prince Edward Island, north coast, Cascumpecque harbor, Alberton range lights, additional information. 260. Newfoundland, east coast, Trinity bay, Old Perlican island, lighthouse established. 261. Newfoundland, Bay of Exploits, Grassy island, and Lower Sandy point, lights established.

98. Sept. 23.—262. Ontario, Georgian Bay, east side, Waubaushene, range lights established. 263. Manitoba, Lake Winnipeg, mouth of Red River, front range lighthouse destroyed by storm, temporary light established.

99. Sept. 26.—264. Quebec, Gulf of St. Lawrence, Great Mekattina island, Treble Hill island, Flat island, and Murr islands and rocks, corrected positions. 265. Quebec, River St. Lawrence, Beaujeu bank, gas buoy moved on account of dredging operations. 266. Quebec, River St. Lawrence, ship channel off St. Thomas de Montmagny, gas buoy moved. 267. Quebec, River St. Lawrence, above St. Thomas de Montmagny, gas buoys used for dredging purposes moved. 268. Quebec, River St. Lawrence, ship channel between Quebec and Montreal, below Cap Charles, Grande Pointe shoal, buoy discontinued.

100. Sept. 29.—269. New Brunswick, Bay of Fundy, Passamaquoddy bay, Cherry island, characteristic of fog bell. 270. New Brunswick, east coast, Miramichi bay, Preston beach, life-saving station established. 271. Prince Edward Island, south coast, Hillsborough bay, Charlottetown harbor, position of Brighton beach range lights. 272. St. Pierre Island, Galantry head, fog signal reported irregular.

101. Oct. 1.—273. Nova Scotia, south coast, Port Mouton, channel dredged to public wharf in harbor, buoys established.

102. Oct. 4.—274. Quebec, Ottawa River, Way shoal light discontinued. 275. Ontario, Lake Ontario, off mouth of Niagara River, gas and bell buoy adrift. 276. Ontario, River St. Mary, Sault Ste. Marie Canadian canal, daymarks at upper entrance range lighthouses.

103. Oct. 11.—277. Quebec, Gulf of St. Lawrence, Magdalen islands, Grand Entry harbor, range light established. 278. Newfoundland, southwest coast, Port Basque, Channel head, characteristic of fog alarm. 279. Newfoundland, west coast, St. John bay, shoals discovered.

104. Oct. 13.—280. British Columbia, Burrard Inlet, English bay, False Creek, lights established. 281. British Columbia, Burrard Inlet, Second narrows, beacon destroyed.

Atlantic and Pacific Ocean Marine.

The Canada Atlantic and Plant Line s.s. A. W. Perry, became disabled during a storm off Halifax Harbor, Oct. 2, and had to put back to Halifax, where she was overhauled.

The Quebec Steamship Co. and the Royal Mail Steam Packet Co. have agreed on a joint service between New York and Bermuda.

Capt. Dugge, of the Canada Line's s.s. Prinz Adalbert, was fined $20 on each of six charges, to which he had pleaded guilty of neglecting to report cases of sickness on board his vessel at Quebec.

The Minister of Marine, accompanied by a number of shipowners and those interested in the navigation of the St. Lawrence, inspected the improvements and works in progress in the river, Oct. 6.

The Thomson Line is reported to have decided to make a number of improvements in its steamship service between Canada and Europe, next year. It is stated that the passenger accommodation on its vessels will be increased, and a more frequent service with Italy will be given.

Furness Withy and Co.'s s.s. Ulunda, which has been calling at St. John's, Nfld., for some years, is reported to have been sold to a Greek firm for operation in the Mediterranean. The s.s. Durango has taken the place of the Ulunda, and will run between St. John's, Halifax, and Liverpool, Eng.

Officials of the White Star-Dominion Line were reported to have visited Halifax early in Sept., for the inspection of the railway terminal facilities there in connection with the arrangement, whereby the steamships Laurentic and Megantic are to call there weekly for two months and fortnightly thereafter during the winter season.

The C.P.R. s.s. Montcalm, which was in collision with the s.s. Kronprinz Olav recently, was arrested at the instance of J. Bryde, owner of the Kronprinz Olav, which is chartered to the Dominion Coal Co., on a claim of $15,000 for damage sustained. A bond was given for the amount and the Montcalm sailed for Avonmouth, Eng.

Press reports from Ottawa state that the Government will probably, at an early date, call for tenders on an increased subsidy, for an improved service with the West Indies, to implement the recent report of the Royal Commission on trade relations between Canada and the West Indies. It is also stated that with a faster service than at present, the West Indies mail to Great Britain will probably come through Canada.

It is reported that the Department of Marine has decided not to hold an enquiry into the causes of the recent grounding of the s.s. Manchester Engineer on the south shore of Belle Isle, as there is no question of an officer of the vessel having shown carelessness in navigation. In the act regulating these enquiries, it is provided that only when there is ground for believing that carelessness on the part of an officer of the ship has been the cause of a disaster shall it be incumbent on the Department to hold an enquiry.

The Dominion Government subsidy of $15,000, granted to the C.P.R. for the winter service between St. John, N.B., and London, Eng., has been renewed for a year.

Maritime Provinces and Newfoundland.

The St. John, N.B., ferry committee is negotiating for the purchase of a second hand ferry boat in New York.

G. S. Mayes, of St. John, N.B., has recovered from the Dominion Government $9,750 under several dredging contracts.

The Department of Public Works received tenders during Oct. for the construction of a breakwater at Great Salmon River, N.B.; a wharf at Barrington Cove, N.S., and a breakwater at New Edinburgh, N.S.

The Newcastle Steamboat Co., Ltd., has been incorporated under the New Brunswick Companies Act, with a capital of $19,000, and office at Newcastle, to carry on a general steamboat and coal business. The provisional directors are P. Hennessy, D. Morrison, J. Ferguson, G. Stables, P. W. Dixon and others.

The Red Cross Line's s.s. Rosalind, which has been operated by the Black Diamond Steamship Co., between St. John's and Montreal during the summer months, has returned to the Halifax and New York route, making fortnightly trips, alternately with the s.s. Florizel.

Writs have been issued against the Dominion Coal Co.'s s.s. Bonavista, by the owners of the barges Ernest and Aurora Boreale, for $280 and $150, respectively, for damages alleged to have been sustained, by the Bonavista colliding with them when entering her berth at Montreal.

An Imperial order-in-council has been issued declaring that certificates of competency granted by Newfoundland to persons intending to act as engineers on British ships, in addition to those granted to masters and mates, shall be on the same force as if they had been granted under the Merchant Shipping Act.

The Menzies Construction Co., Ltd., has been incorporated under the New Brunswick Companies Act, with a capital of $49,000 and office at Prince of Wales, Musquash co., to carry on a general construction business, and to build, own and operate steam and other vessels. The provisional directors are G. C Carman, C. Nevins, H. M. Hopper, C.

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The Fishermen's and Sailors' Home Joint Stock Co., has been authorized to dispose of its property, to pay its liabilities, and to hand over the residue to the Royal National Mission to Deep Sea Fishermen, or other organization carrying on a fishermen's or sailors' home in St. John's, Nfld.

Press reports from Sydney, N.S., state that a daily service between Sydney and Port aux Basques, Nfld., will be inaugurated next season by the Reid Newfoundland Co., and also that Bowring Bros. have decided to have a vessel built for the St. John's-Sydney-Montreal service, to run with the Rosalind and Bonavista on a weekly schedule.

The Inglewood Pulp and Paper Co.'s steam tug Help which has been utilized for some time in connection with dredging near St. John, N.B., was driven ashore at Fort Dufferin breakwater during a gale, Oct. 4, and became a total loss. She was a wooden vessel, built at Liverpool, N.S., in 1903, and equipped with engine of 29 n.h.p. driving a screw Her dimensions were:—Length, 76 ft., breadth, 27.7 ft.; depth, 8.4 ft.; tonnage, 146 gross, 78 register.

Harvey and Co.'s s.s. Regulus, against which damages were assessed amounting to $155,000, in connection with the collision with the s.s. Karema, and which was sold by auction in New York recently, was bought in by the owners, who had her repaired in New York, loaded with cargo for St. John's, Nfld. Under the U.S. laws it is provided that no vessel adjudged responsible for an accident shall be compelled to pay damages amounting to more than her value. It is stated that this provision has been of considerable advantage to the owners. The Regulus was reported, Oct. 24, to have been totally wrecked, and 19 of her crew drowned while on her way to Sydney, N.S..

Bowring Bros'. sealing steamer Goneril, which is under construction at Glasgow, Scotland, is expected to be finished in Jan., 1911. She is stated to be the largest sealing steamer built for the Newfoundland trade, her dimensions being:—Length, 330 ft.; breadth, 48 ft.; depth, 31 ft., with a computed tonnage of 3,700. She is being fitted with accommodation for 200 saloon and 100 steerage passengers and equipped with the latest improvements, for a speed of 14 knots an hour. She will be run on the St. John's, Nfld., Halifax and New York route, in conjunction with the s.s. Florizel.

The steam tug Canso, recently completed at Yarmouth, N.S., is built under Lloyds survey to class 100 A1, and has dimensions:—Length over all, 97½ ft.; breadth, 22 ft.; depth, 8½ ft. The construction is on the frame and reverse frame system, spaced 2 ins. apart throughout her length; steel deck sheathed with hard wood; deckhouse, consisting of chief engineer's room, refrigerator room, bath, and store rooms, on the main deck; captain's quarters and wheel house on the upper deck. The men's quarters and mess room are located forward and the officers' mess room, etc., aft of the engine room. The engines are of the triple expansion type, with cylinders 12, 19 and 20 ins. diar. by 20 ins. stroke, developing about 400 h.p., making 160 revs. per minute.

J. Constant, of London, Eng., has submitted a proposal to the Sydney, N. S., city council, for the establishment of a shipbuilding yard, floating dock and repair plant, salvage plant, etc., and asks for a bonus, to be paid on such terms as the council may decide. The offer, it is stated, is subject also to Dominion and Provincial subsidies being granted. It is proposed to have the shipbuilding yard of sufficient capacity to build vessels up to 300 ft. long; to have the floating dock capable of dealing with vessels of 6,000 tons dead weight capacity, and to have the salvage equipment include one steam tug of the most modern type, and two seagoing salvage lighters of about 1,000 tons capacity. The matter was discussed by the council Oct. 10, and a committee appointed to go into the details and report.

Province of Quebec Marine.

The Dominion Dry Dock Co. has deposited plans with the Public Works Department for the construction of a first class dry dock at Levis, to cost about $4,000,000.

The Public Works Department received tenders during Oct. for the construction of wharves at Bic, St. Andre and Aylmer, a breakwater at Paspebiac, and piers at L'Assomption, Riviere des Prairies and St. Joseph de Sorel.

Press reports from Quebec state that the Government will have built at Quebec during the winter a vessel to be used as a transport between Quebec and Levis, in connection with the National Transcontinental Ry. It is stated that the cost will be between $400,000 and $500,000.

The ferry committee of the Quebec city council recently recommended that a letter be sent to the Levis Ferries, Ltd., informing it, on legal advice, that it had a contract with the city which spoke for itself and must be followed. The city council later resolved, by 16 votes to 14, to hold back the letter.

The captain of the steamboat Senator Derbyshire was recently fined $20 and costs at Quebec for employing unlicensed pilots, and a man whom he employed was fined $5 and costs for acting as a pilot without a license. The Quebec Corporation of Pilots, which brought the case, also recovered an amount for unpaid pilotage dues.

The Department of Marine has communicated with the Montreal board of control on the question of the overcrowding of ferry steamers, and states that it is expected that next spring the board will station men at the boats to see that they are not overcrowded, and in order to carry this out in a proper manner, automatic gates should be provided.

The Richelieu and Ontario Navigation Co.'s steamboat Rapids Prince, which has been built at Toronto, arrived at Montreal at the end of September, a number of the company's officials and directors meeting her at Lachine and completing the journey on board. She is to be berthed at Sorel for the winter, and not placed in service until the reopening of navigation.

The board appointed to enquire into the shipliners' grievances against shipowners at Montreal, has reported to the Department of Labor. The report is unanimous on the question of hours and the arrangement of work, but the companies' representative dissented from the recommendation as to wages, viz., 25c. an hour for day work and 32c. for night.

The Chateau Quinte, Ltd., has been incorporated under the Quebec Companies Act, with a capital of $20,000, and office at Ste. Marguerite du Lac Masson, to acquire and operate the hotel Bellevue there, and in connection therewith to own and operate steam and other vessels, cars and other vehicles propelled by any motive power. The provisional directors are S. G. Hyman, L. L. Pepin, C. B. Godwin, W. M. Parsons, and A. L. Rinfret, Montreal.

The Richelieu and Ontario Navigation Co. is being sued for damages for not carrying checked baggage on the same vessel as the passenger. The company claims that it is not compelled to carry it on the same vessel as the passenger, and that delay in delivery is not good ground for damages. The point was taken under consideration by Justice Charbonneau, of the Superior Court, Quebec, Oct. 3.

The Levis Ferry, Ltd., is having two ice breaking ferry steamboats built by G. T. Davie and Sons, of Levis, for the service between Levis and Quebec. The vessels, which are being built to Lloyds' specification class 100 A1, will be named Laval and Plessis, and will be of the following dimensions:—Length, 127 ft.; beam, 32 ft.; depth of hold, 17¾ ft.

The Canadian General Development Co.'s steamboat Sogenada, which recently arrived at Montreal from Great Britain, under her own steam, and which is stated to have been the smallest steamboat to cross the ocean, was built at Rutherglen, Scotland, in 1909, and is a screw driven vessel with engine of 29 n.h.p. Her dimensions are:—Length, 75.4 ft.; breadth, 15.6 ft.; depth, 8.2 ft.; tonnage, 65 gross, 6 register.

The Montreal city council and the Montreal Harbor Commission again discussed the question of the building of a landing stage on St. Helen's Island, Oct. 14. The city desires that either the Government or the Harbor Commission erect the stage, without any charge on the city, while the Commission states that the island, being under control of the Commission, the Government has no authority to do any work there, and as the money for the work would have to be raised by loan, it could not carry it out without charge, and offers to erect the landing stage and maintain it, for the city, for 6% per annum of the cost.

The report of the ferry committee of the Quebec city council, calling upon the council to advise the Levis Ferry, Ltd., that it must conform to the contract in connection with the ferry service between Quebec and Levis, and which was referred back to committee, was again sent to the council, Oct. 12, with the legal opinion that any decision which the city council might make in the ferry matter, would in no way affect or have any influence whatever on the cases pending before the courts, which were rather on matters of right than matters of fact, and that the city had no right to grant any delay to the company.

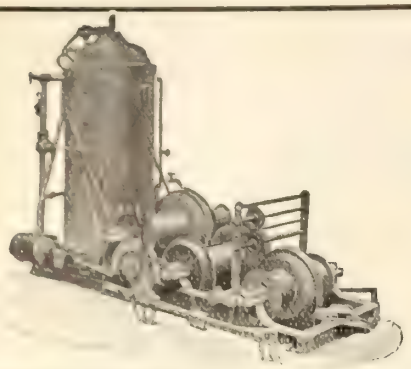
The Canada Atlantic Transit Co. has purchased the s.s. Newona, which was brought from England last fall, and of which we gave some details in our Nov., 1909 issue. She was built at Wallsend-on-Tyne, in 1909, and was specially designed for the Canadian lake and canal traffic. The machinery consists of tri-compound screw engines, with cylinders, 21½, 34 and 55 ins. diar. by 36 ins. stroke, supplied with steam at 190 lbs. pressure. There are six cargo hatchways, each 12 by 29 ft., and the hull is divided into three cargo holds by steel bulkheads. Her dimensions are:—Length, 250.3 ft.; breadth, 43 ft.; depth, 22.5 ft.; tonnage, 2,179 gross, 1,401 register.

Ontario and the Great Lakes.

Capt. J. A. M[illegible], who was connected with lake navigation for 50 years, and commanded [illegible] for about 40 years, died at K[illegible] recently, aged 74.

The Great Lakes Dredging Co.'s dredge, which sank recently outside Port Arthur, has been towed, under water, to Port Arthur, and floated for examination.

The Dominion Public Works Department will receive tenders to Nov. 7 for



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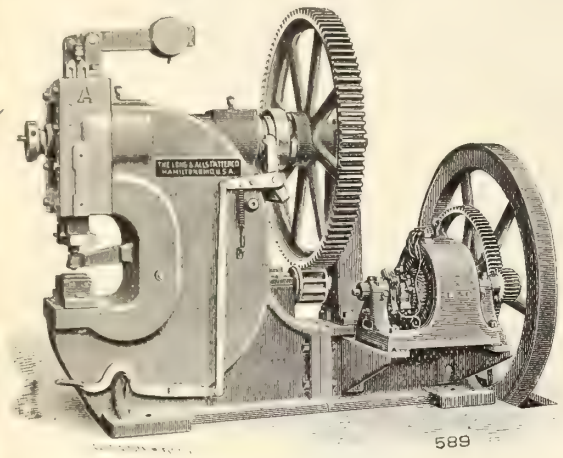

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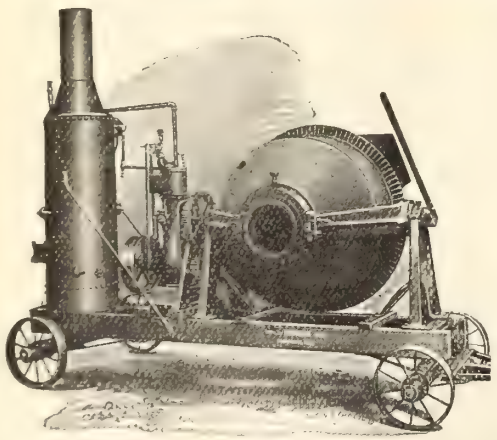

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the construction of an extension to the wharf at Providence Bay, Manitoulin Island.

The Jaques Transportation Co., Ltd., incorporated under the Dominion Companies Act, has been licensed to carry on its business in Ontario, with J. H. Hall, Ottawa, as its attorney.

The Inland Lines, Ltd., s.s. Dundurn, which ran aground near Alexandria Bay, N.Y., was released by the company's s.s. Glenellah, and taken to Kingston for examination and repairs.

The Dominion Government survey steamboat Bayfield is engaged in taking soundings and other survey work in Lake Ontario. She commenced operations at the eastern end, and is working along westerly.

The Geo. Hall Coal Co.'s steamboat Phoenix ran on the rocks about six miles west of South Bay point, early in Oct., and salvage operations have been successfully carried out, and the vessel docked for repairs.

W. M. German, M.P., is reported to have stated that the Government will provide an appropriation, next session, for the commencement of construction on a new Welland canal, about 22 miles long, starting about six miles west of Port Colborne, with its outlet on the Jordan River.

The Dominion Fish Co., Toronto, has purchased the steamboat C. W. Moore, formerly owned by A. Booth and Co., Chicago, Ill. She was built at Allegan, Mich., in 1881, and is equipped with engine of 19 n.h.p., driving a screw. Her dimensions are:—Length, 124 ft.; breadth, 24 ft.; depth, 9.4 ft.; tonnage, 428 gross, 259 register.

The Morden Transit Co.'s steamboat United Lumberman, was destroyed by fire at North Tonawanda, N.Y., at the end of Sept. She was a screw driven vessel, with engine of 46 n.h.p., and was built at Dresden, Ont., in 1884, her dimensions being:—Length, 139.2 ft.; breadth, 31.6; depth, 11.7 ft.; tonnage, 399 gross, 259 register.

The U.S. Lake Survey reports the levels of the Great Lakes, in feet above tidewater, for Sept., as follows Superior 601.99; Michigan and Huron, 580.30; Erie, 571.88; Ontario, 245.70. Compared with the average Sept. levels for the past 10 years, Superior was 1.05 ft. below; Michigan and Huron, 0.73 ft. below; Erie, 0.55 ft. below, and Ontario, 0.47 ft. below.

The Lake Coast Trading Co.'s steamboat Kaministiquia, which was burnt to the water's edge recently at Port Arthur, was built at Toronto in 1886, named Imperial, and was rebuilt and renamed at Port Arthur in 1906. She was screw driven, with engine of 13 n.h.p.; her dimensions were:—Length, 109 ft.; breadth, 22 ft.; depth, 7 ft.! tonnage, 106 gross, 72 register. She had been used for some time as a ferry and passenger boat on the Kaministikwia River.

The Ontario Gravel Freighting Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $50,000 and office at Windsor, Ont., to carry on the business of dredging and marine transportation on the Great Lakes and inland waters, and to build, own and operate steam and other vessels, wharves, docks, warehouses, etc. The provisional directors are:—O. E. Fleming, K.C., C. W. Cadwell, Windsor, Ont.; H. H. Oakes, B. Waller, I. B. Unger, Detroit, Mich.

Press reports state that negotiations are in progress involving the reconsideration of the proposed boundary line between Ontario and Manitoba, with the intention of giving Ontario access to the port which it is intended to open up on Hudson Bay, when the Hudson Bay railway is constructed. The idea is to extend the Ontario line to the new port, and to give Manitoba, in return, a portion of the Keewatin territory which it was the intention to include in Ontario, when the new boundaries are settled.

The Dominion Department of Marine is reported to have arranged to take over from the U.S. all the lighthouses, lights and other aids to navigation in the Limekiln crossing in the Detroit River. Although the crossing is in Canadian territory, the aids to navigation there have hitherto been in charge of the U.S., in view of the fact that some years ago the channel was dredged and improved by the U.S. Government. It is stated that the Department contemplates considerable improvements in the lights there during next year.

A joint committee of the Toronto city council and board of trade has recommended that application be made to the Dominion Parliament to recognise the existing harbor commission and to alter and enlarge its powers, so that it may control all property on the water front, within the city limits, build docks, railways, elevators, etc., and impose and collect tolls and penalties. The present commission consists of five members, two of whom are nominated by the city council, two by the board of trade, the fifth being nominated by the other four and appointed by the Governor-in-Council. Under the new proposals, it is desired that the city council nominate three, the Governor-in-Council one on his own motion, and one on the nomination of the board of trade.

Manitoba, Saskatchewan and Alberta.

The steamboat recently built in Winnipeg for the Arctic Ice Co., Winnipeg, of which we have previously given some particulars, has been named Amelia Mac. She is screw driven, with engine of 16 n.h.p., and is of the following dimensions:—Length, 66 ft.; breadth, 17 ft.; depth, 7 ft.; tonnage, 65 gross, 44 register.

The Lake Winnipeg Shipping and Supply Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $1,000,000, and office at Winnipeg, to carry on a general shipping, navigation, shipbuilding, wrecking, dredging and warehouse business. The provisional directors are E. Bickerdike, E. and R. Siderfin, W. D. Robertson, D. Howatson and C. S. Scott, Winnipeg.

The Northern Transportation Co.'s steamboat Northland Call arrived at Grouard, Alta., at the end of Sept., being, it is stated, the first steam vessel to make the through trip from Athabasca Landing to the west end of Lesser Slave Lake. She navigated the Athabasca River from Athabasca Landing to Mirror Landing, thence up the Little Slave River, through the hitherto unnavigable rapids to the east end of Lesser Slave Lake, and across the lake to Grouard. The wing dams, recently constructed in the Little Slave River, have made such a trip possible by increasing the depth of water.

A steel barge, the Rosamond Billett, which was launched at Winnipeg Oct. 10, has been built for Hugh Sutherland Executive Agent Canadian Northern Ry., to transport sand and other building materials on Lake Winnipeg and the Red River. The barge is 170 ft. long, 40 ft. beam and 13 ft. deep, and will carry 1,000 tons of sand on a draught of 8½ ft. It is equipped with three hoppers, in which the sand is deposited by a powerful centrifugal pump. By a system of pipes and valves the sand is taken from these hoppers with the same centrifugal pump and discharged on shore. The barge is propelled by two compound engines of 366 h.p., operating twin screws, and there are two Scotch boilers. The barge was designed by W. E. Redway, N.A., Toronto, and built by the Doty Engine Works, Ltd.

B.C. and Pacific Coast Marine.

Capt. F. Amesbury, Manager Victoria and Vancouver Stevedoring Co.'s Vancouver branch, died there recently.

The Canadian-Mexican-Pacific Steamship Co. is reported to have chartered the s.s. Wensleydale, 2,568 tons.

The Queen Charlotte Whaling Co., Victoria, is applying for permission to purchase certain lands at Rose Harbor, Moresby Island.

The C.P.R. commenced a double triangular weekly steamship service between Vancouver, Victoria and Seattle,

SAULT STE. MARIE CANALS TRAFFIC.

The following commerce passed through the Sault Ste. Marie Canals in September :

ARTICLES.		CANADIAN	U. S. CANAL	TOTAL
Copper		1,528	17,055	18,583
[illegible]		1,610,888	1,523,096	3,133,984
[illegible]		[illegible]	1,375	1,375
[illegible]		[illegible]	[illegible]	975,024
[illegible]		4,085,[illegible]	2,140,593	6,226,751
Pig iron		[illegible]	4,080	[illegible]
Lumber	M. ft. B.M.	3,310	94,925	98,235
[illegible]		[illegible]	[illegible]	[illegible]
Wheat		5,669,278	2,407,327	[illegible]
[illegible]		[illegible]	15,813	32,436
[illegible]		1,646	4,243	5,889
[illegible]		[illegible]	104,230	149,030
[illegible]		[illegible]	1,121,467	1,598,508
Flour		[illegible]	10	[illegible]
[illegible]		[illegible]	53	53
[illegible]		[illegible]	18,911	42,192
[illegible]		[illegible]	[illegible]	[illegible]
Salt		[illegible]	24,919	[illegible]
[illegible]		72,595	73,879	146,474
[illegible]		[illegible]	2,250	5,144
[illegible]		[illegible]	2,008	[illegible]
[illegible]		3,034,284	4,059,291	[illegible]
Freight [illegible]		4,335,301	2,514,121	6,849,722
" Westward		[illegible]	1,322,226	1,940,652
Total freight		4,953,727	3,836,647	8,790,374

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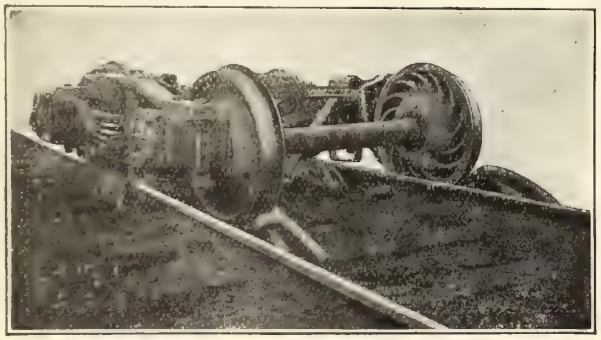

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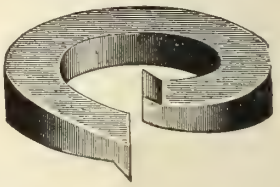

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Capital Authorized	$10,000,000 00
Capital Subscribed	5,660,000.00
Capital Paid up	5,450,000.00
Reserve Fund	5,450,000.00

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Oct. 30. It is intended to continue it throughout the winter.

The C.P.R. has, it is reported, owing to the tremendous growth of the northern B.C. trade, ordered another steamship to be built in England.

The C.P.R. s.s. Princess Beatrice ran aground in the Narrows, near Vancouver recently. It has been stated that the damage was not serious. She is a wooden vessel, and was built at Victoria in 1903.

Plans have been deposited with the Public Works Department, Ottawa, by Bullen Bros., Esquimalt, B.C., for the construction of a dry dock there. It is said that the financial arrangements for the carrying out of the work are well advanced.

Press reports from Vancouver state that the Pacific Whaling Co. is arranging to have built in Norway, five additional whaling steamers for use in B.C. waters, and that they will be of the same type as the William Grant, the largest of the company's vessels.

The Cocos Island Hydraulic and Treasure Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $300,000, to seek for treasure deposited on Cocos Island, on adjacent islands and in the vicinity, and in connection therewith to own and operate steam and other vessels.

The Portland Canal Short Line Ry. has deposited with the Public Works Department, Ottawa, and at the registry office at Prince Rupert, plans and description of site and side elevation of a proposed railway wharf and trestle approach, to be built near the mouth of Bear River at Stewart.

Canadian Collieries (Dunsmuir) Ltd., incorporated under the Dominion Companies Act, with power, among other things, to own and operate steam and other vessels, wharves, piers, docks, etc., has been licensed to carry on its business in British Columbia, with W. J. Taylor, Victoria, as its attorney.

J. McGowan, engineer of the C.P.R. British Columbia Coast Service, is in Great Britain for the purpose of inspecting the two vessels, Princess Adelaide and Princess Mary, which are now practically complete. The former, which is being built at Glasgow, Scotland, will be the first one to sail for the Pacific coast.

The Canadian Fish and Cold Storage Co., Prince Rupert, has registered its recently built steamboat, which has been named F. H. Phippen. It was built at North Vancouver this year, and is a screw driven vessel with engine of 7 n.h.p. Its dimensions are:—Length, 54.4 ft.; breadth, 12.3 ft.; depth, 6 ft.; tonnage, 26 gross, 17 register.

The Dominion Government is reported to have approved the Thompson Co.'s plans for the construction of a dry dock at Vancouver, B.C., providing for one of the second class under the subsidy act granting aid of 3½% per annum on the cost of construction, for 25 years. The dock will be 600 ft. long, and it is estimated that the cost will be $1,000,000.

The Department of Public Works has awarded a contract for the construction of a steel bow well twin screw barge loading dredge for British Columbia, to W. Simons and Co., Renfrew, Scotland, who are represented in Canada by Jno. Reid and Co., Board of Trade Bldg., Montreal.

The British Columbia General Development Syndicate, Ltd., has been incorporated under the B.C. Companies Act, with a capital of $250,000, to carry on a general development business, and in connection therewith to build, manage or control tramways, railways, steam and other vessels, wharves, docks, etc., and to act as general carriers by land and water.

The Terminal Steam Navigation Co.'s s.s. Belcarra was reported to have sunk off Jarvis Inlet, Sept. 17, after striking a rock. The passengers and crew escaped in the boats. She was a screw driven vessel, built in Vancouver in 1902, and was formerly known as Unican. Her dimensions were, length 89.2 ft., breadth 20 ft., depth 8 ft.; tonnage, 253 gross, 172 register, with engine of 20 n.h.p.

The stern wheel steamboat Hamlin, which has recently been purchased by Greer, Courtney and Skene, has been altered for oil consumption, and to fit her for towing purposes, and is being operated up the Fraser River. She was built in Vancouver in 1898, her dimensions being:—Length, 146.2 ft.; breadth, 30.8; depth, 4.6 ft.; tonnage, 515 gross, 323 register. She is equipped with engine of 17 n.h.p.

The Royal City Navigation Co.'s steamboat Paystreak, while clearing from the wharf at Pitt river, recently, backed on to some rocks, which cut a hole in the bottom, behind the boilers. The cargo was safely removed, and the vessel floated and taken to New Westminster for repairs, which were not heavy. She was built at New Westminster this year, and is operated between New Westminster and Chilliwack.

The Westholme Lumber Co., Vancouver, is being sued by insurance underwriters for $500, alleged to be a sum agreed to be paid by the company for the cargo of coal on the barge Quatsino, wrecked between Green and Grey islands, in Oct., 1909. It is stated that after a small quantity of the coal was removed, the barge slid off the reef into deep water, when the company repudiated the contract.

The Puget Sound Navigation Co. is reported to have purchased the steamships Yale and Harvard, which were operated by the Eastern Steamship Co. a year or two ago between St. John, N. B., and Boston, Mass. It is said that they will be run between Seattle, Wash., and Vancouver and Victoria. Press reports stated that the vessels were to leave Boston for the Pacific coast during October.

The Pacific Marine Brokerage Co., Ltd., has been incorporated under the B. C. Companies Act, with a capital of $25,000, to acquire the power boat Faloma, and the marine brokerage business carried on in New Westminster by F. S. DeGray; to build, purchase or otherwise acquire and operate steam and other vessels for the conveyance of passengers and freight, and to carry on the general business of carriers by land and water.

The Public Works Department has awarded the contract for the construction and delivery at Vancouver of a large bucket ladder dredge to W. Simons and Co., Renfrew, Scotland, represented in Canada by Jno. Reid and Co., Montreal. It is stated to be a condition that the dredge must be delivered in six months, under heavy penalties for delay. The dredge is to be used for widening the entrance to Burrard Inlet, and will be the largest and most powerful of its kind on the Pacific Coast.

A petition, signed by those engaged in the fishing industry in the Fraser River country, has been sent to the Minister of Marine and Fisheries, asking that in future no licenses to fish be granted to Asiatics, or persons interested in the fishing industry through motives of speculation. It is pointed out that a number of fishermen have to go to the U.S. to earn a living, made possible by the fact that Asiatics are not granted licenses there.

The C.P.R. s.s. Princess Adelaide, which has been built at Glasgow, Scotland, for the Pacific Coast service, is a single screw steamship, with dimensions: —Length, 290 ft.; breadth, 46 ft.; depth, 17 ft.; constructed of steel throughout, with a cellular double bottom, seven transverse bulkheads, two water tight flats, and is practically unsinkable. She has 118 staterooms, and on her recent trial trip maintained an average speed of 18.25 knots an hour.

The Marine Department is reported to have acquired from the G.T.P.R., four acres of land on the south shore of Casey Cove, Prince Rupert, about 2½ miles from the city, for the establishment of a lighthouse and buoy depot. The work, which it is stated will be undertaken, includes workshops, stores, etc., connected with a wharf of re-inforced concrete, projecting 30 ft. into the water, by a tramway, with houses for employes. The estimated cost is given as $100,000.

The C.P.R. s.s. Princess Mary, which is being built at Paisley, Scotland, for the B.C. Coast Service, was launched there recently. She is a twin screw vessel, with dimensions:—Length, 210 ft.; breadth, 40 ft.; depth, 16 ft. The upper deck extends the whole length, and she will have accommodation for 200 passengers. She is equipped with two sets of triple expansion engines, designed for a speed of 15 knots an hour. The vessel was christened by Mrs. Pritchard, daughter of A. Piers, Manager C.P.R. Steamships.

The Fort George Lumber and Navigation Co., Vancouver, has added two steamboats to its fleet, named respectively Chilcotin and Fort Fraser. Both were built at Soda Creek this year, the dimensions of the former being:—Length, 134.5 ft.; breadth, 23.5 ft.; depth, 4.5 ft.; tonnage, 435 gross, 274 register, equipped with engine of 21 n.h.p., driving a paddle wheel, and of the latter: Length, 56 ft.; breadth, 11.8 ft.; depth, 2.9 ft.; tonnage 33 gross, 21 register; equipped with engine of 2 n.h.p. driving a paddle wheel.

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TORONTO

NOTICE.

To the Holders of The Canadian Northern Railway Company 5 per cent. Income Charge Convertible Debenture Stock.

Notice is hereby given that the amount of interest to be paid on the 2nd day of November, 1910, to the holders of the above mentioned stock, in respect of the half year ending June 30th, 1910, will be at the rate of 5 per cent. per annum.

By order of the Board of Directors.

Toronto, October 8th, 1910.

B. P. ORMSBY, Assistant Secretary.
The Canadian Northern Railway Company.

It is reported that a party of business men from Portland, Ore.., and Seattle, Tacoma and Spokane, Wash., has chartered the G.T.P. Steamship Co.'s s.s. Prince Rupert for a cruise to Honolulu next February, and it has been pointed out that the party will have to embark at a Canadian port, as, under the U.S. laws, a voyage between the main land and Honolulu is regarded as coastwise navigation, and therefore, the Prince Rupert, being a foreign vessel, cannot operate between a U.S. port and Honolulu.

G. A. Keefer, Dominion Resident Engineer, New Westminster, in charge of the dredging operations on the Fraser River, is reported to have stated recently that there is now not less than 15 ft. of water in any part of the sandheads at extreme low water, and at ordinary high water, not less than 27 ft., and at higher tides, 30 ft. The river is now considered navigable for any vessel, the Annieville bar, which was some danger to navigation, having been removed, the recently constructed wing dams having completely cleared the channel. A new channel through the sandheads, decreasing the distance between New Westminster and deep water by about a mile, will be completed within a year.

E. D. Watson, cashier Reid Newfoundland Co., was married to Miss C. M. White, at Boswood, Nfld., Oct. 5.

Canadian Northern Fisheries, Ltd., has been incorporated under the Dominion Companies Act, with a capital of $2,500,000 and office at Toronto, to carry on the business of fishing in all its branches; to own water lots, wharfage rights and privileges, trawling and seining rights, etc.; to build, own and operate vessels of all descriptions, wharves, docks, piers and works for the improvement of navigation, fishing and whaling, and other busin thereto. The provisional directors are F. H. Phippen, K.C., G. G. Ruel, A. J. Reid, R. H. M. Temple and R. P. Ormsby, all of whom are connected with the Canadian Northern Ry. Legal Department, Toronto. In this connection a recent cablegram from London Eng., says: —Wm. Mackenzie and associates are planning another appeal to the English market, viz., Canadian Northern Fisheries £400,000 5% bonds, to be offered at 86. The purpose is to acquire and operate a whaling business on the Pacific coast. The underwriters are to receive 2½% cash bonus, and a bonus of 19% in common stock is being given to the syndicate with whom Mr. Mackenzie and associates are now endeavoring to place the issue.

The Purchasing Agents' Guide

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Accumulators, Electric
Tate Accumulator Co. of Canada, Toronto
Aerated Waters
E. L. Drewry .....Winnipeg.
Air Brakes and Fittings
Allis-Chalmers-Bullock Ltd. ....Montreal.
Canadian Westinghouse Co. Hamilton, Ont.
Ales
E. L. Drewry .....Winnipeg.
Alloys
American Vanadium Co....Pittsburg, Pa.
Angle Bars
Hamilton Steel & Iron Co..Hamilton, Ont.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Anti Rail Creepers
The Holden Co., Ltd.....Montreal.
Automobiles
Preston Car & Coach Co...Preston, Ont.
Axes
James Smart Mfg. Co.....Brockville, Ont.
Axles
Canadian Car & Foundry Co....Montreal.
Hamilton S. & I. Co., Ltd., Hamilton, Ont.
James Hutton & Co. .....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Jas. W. Pyke & Co.....Montreal.
Babbit Metal
Tallman Brass & Metal Co., Hamilton, Ont.
Beacons
International Marine Signal Co....Ottawa.
Bearings, Side
Canadian Car & Foundry Co....Montreal.
Chicago Railway Equipment Co..Chicago.
Blankets and Bedding
The Hudson's Bay Co. .....
Boilers
Babcock & Wilcox, Ltd.....Montreal.
Poison Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
Boilers, Portable
Babcock & Wilcox, Ltd.....Montreal.
Poison Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
Boilers, Stationary and Marine
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
I. Matheson & Co.....New Glasgow, N.S.
Poison Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
Boiler Staybolt Iron or Steel Bars
Falls Hollow Staybolt Co..Cuyahoga Falls.
Boilers, Steam
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
Poison Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
Boilers, Water Tube
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
Poison Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
Bolsters
Canadian Car & Foundry Co....Montreal.
Canadian Ry. Equipment Co., Welland, Ont.
Bolts, Bridge
Montreal Rolling Mills Co.....Montreal.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Bolts, Track
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Borers, Car Wheel
John Bertram & Sons Co....Dundas, Ont.
Braces, Cross Arm
Montreal Rolling Mills Co.....Montreal.
Brake Beams
Canadian Car & Foundry Co....Montreal.
Chicago Railway Equipment Co..Chicago.
Brake Shoes
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd..Montreal.
The Holden Co., Ltd.....Montreal.
Brake Shoes, Locomotive Driver
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd..Montreal.
Railway Materials Co. .....New York.
Brass and Copper Cloth
The B. Greening Wire Co..Hamilton, Ont.
Brasses, Car
T. McAvity & Sons .....St. John, N.B.
Bridge Numbers
Acton Burrows, Limited .....Toronto.
Bridges
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Bronze
American Vanadium Co....Pittsburg, Pa.
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M. Beatty & Sons, Ltd....Welland, Ont.
Brown Hoisting Machinery Co., Cleveland.
Williams & Wilson, Ltd .....Montreal.
Buildings, Steel
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Bumping Posts
Dominion Equip't & Supply Co..Winnipeg.
The Holden Co., Ltd.....Montreal.
McCord & Co. .....Chicago, Ill.
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Safety Car Heat. & Light. Co..New York.
Buoys
International Marine Signal Co....Ottawa.
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Chapman & Walker, Ltd.....Toronto.
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The Wire and Cable Co.....Montreal.
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Mussens, Ltd. .....Montreal.
Car Movers
F. H. Hopkins & Co.....Montreal.
Mussens, Ltd. .....Montreal.
Cars
Crossen Car Mfg. Co.....Cobourg, Ont.
Canadian Car & Foundry Co....Montreal.
J. T. Gardner .....Chicago, Ill.
Hart-Otis Car Co., Ltd.....Montreal.
Hicks Locomotive and Car Works, Chicago.
The Males Co., ... Cincinnati, O.
Ottawa Car Co., Ltd.....Ottawa.
Pay-As-You-Enter Car Co....New York.
Preston Car and Coach Co., Ltd..Preston.
Russel Wheel & Fdry Co...Detroit, Mich.
Silliker Car Co., Ltd.....Halifax, N.S.
Cars, Logging
Peteler Car Co. .....Minneapolis, Minn.
Russel Wheel & Fdry Co...Detroit, Mich.
Castings
Edgar Allen & Co., Ltd. ..... Montreal.
American Vanadium Co....Pittsburg, Pa
Canadian Car & Foundry Co....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
John Inglis Co., Ltd. .....Toronto.
Lumen Bearing Co.....West Toronto, Ont.
I. Matheson & Co.....New Glasgow, N.S.
Russel Wheel & Fdry Co...Detroit, Mich.
Standard Steel Works Co..Philadelphia, Pa.
Castings, Brass
Canadian Bronze Co. .....Montreal.
Canada Iron Corporation, Ltd...Montreal.
Kerr Engine Co. .....Walkerville, Ont.
Lumen Bearing Co.....West Toronto, Ont.
I. Matheson & Co.....New Glasgow, N.S.
Tallman Brass & Metal Co., Ltd.Hamilton.
Castings, Car
Edgar Allen & Co., Ltd. ..... Montreal.
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd...Montreal.
Russel Wheel & Fdry.. Co..Detroit, Mich.
Castings, Iron
Allis-Chalmers-Bullock Ltd. ....Montreal.
Canada Iron Corporation, Ltd...Montreal.
Kerr Engine Co.....Walkerville, Ont.
Russel Wheel & Fdry.. Co..Detroit, Mich.
Castings, Iron and Steel
Edgar Allen & Co., Ltd. ..... Montreal.
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Castings, Malleable
Galt Malleable Iron Co.....Galt, Ont.
Taylor & Arnold .....Montreal.
Castings, Manganese Steel
Edgar Allen & Co., Ltd. ..... Montreal.
Lumen Bearing Co.....West Toronto, Ont.
Montreal Steel Works, Ltd.....Montreal.
Castings, Steel
Edgar Allen & Co., Ltd. ..... Montreal.
American Vanadium Co....Pittsburg, Pa.
Canada Iron Corporation, Ltd..Montreal.
W. Kennedy & Sons, Ltd., Owen So'd, Ont.
Montreal Steel Works .....Montreal.
Chains
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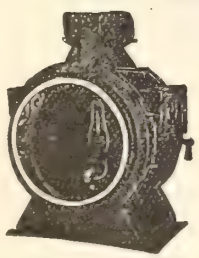

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Canadian Locomotive Co..Kingston, Ont.

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Montreal Locomotive Works.....Montreal.

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Vandeleur & Nichols .....Toronto.
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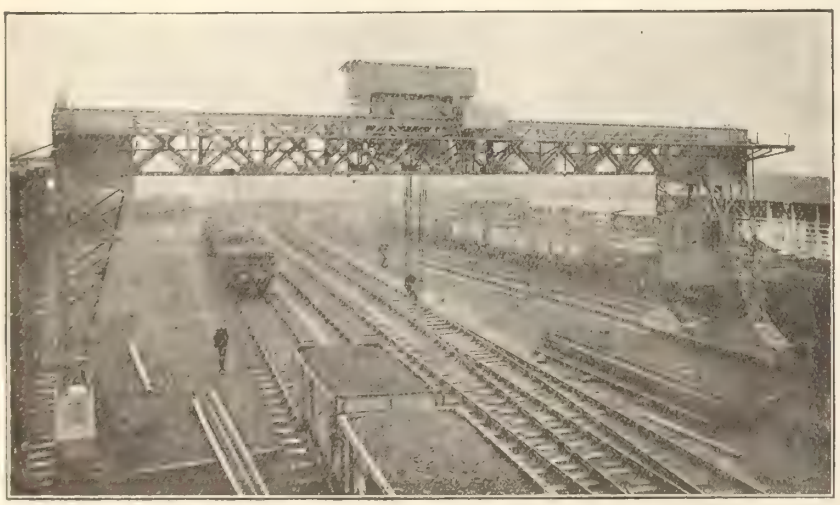

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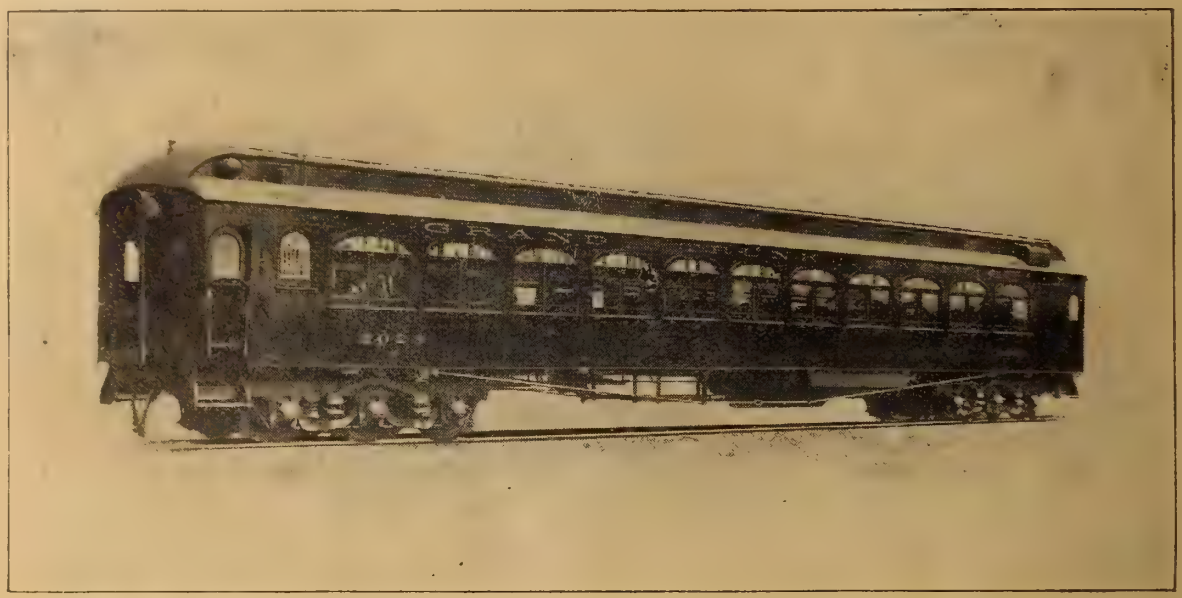

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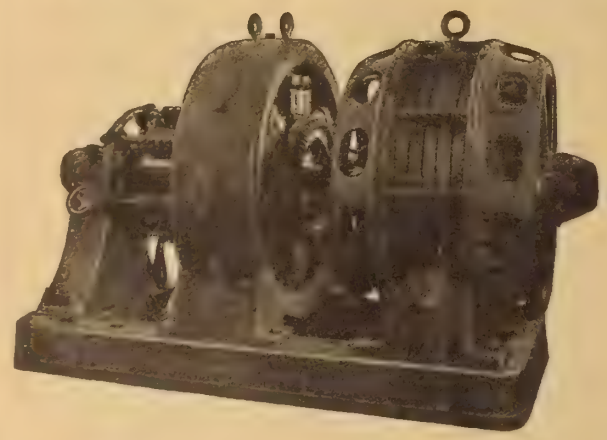

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TORONTO, CANADA, DECEMBER, 1910.

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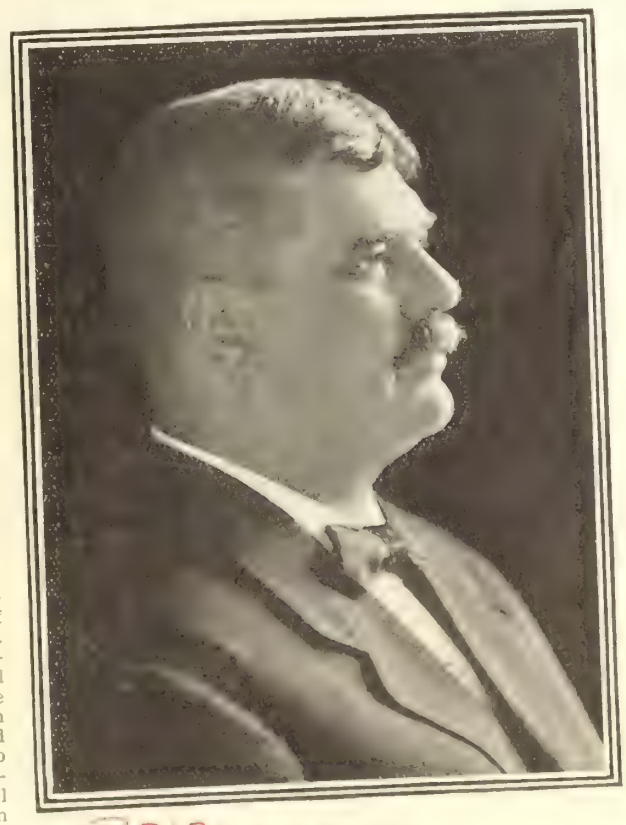
A Review of the Past and Present Locomotive Boiler, with Suggestions.

By T. W. Lowe, General Boiler Inspector C. P. R. Western Lines.

It is not my intention in this paper to attempt to give a complete description of the design, construction and maintenance of locomotive boilers between 1874 and 1910, but rather to refer to them in a general way, and explain the necessity for the many changes in design during the past 36 years. Further on in the paper I will refer to the "Maintenance and care of the modern locomotive boiler," make some remarks on round house practice, and conclude with special reference to feeding the boiler with water, and carrying a sufficient quantity to avoid damage to the crown sheet of the inside firebox, due to the absence of water. When I refer to the boiler, I am speaking about plates under tensile stress, and when speaking about the inside firebox, I refer to plates under compression.

The types of locomotive boilers which have been, and still are, in general use on locomotives on the North American Continent are commonly titled under the following names: Straight, figure 1; wagon top, figure 2; extended wagon top with Belpaire firebox, figure 3, and extended wagon top round top firebox, figure 4, together with many other designs under experiment in the U.S., and which derive their names from the patentee. The only material difference in their construction compared to any I have already quoted is to be found in the design of the inside and outside firebox. The straight boiler, figure 1, derives its name because the barrel plates and outside firebox are parallel on the top, and steam dome being usually located ahead of the firebox. The wagon top boiler, figure 2, consists of a firebox elevated above the barrel courses, with a tapered section joining them, having its dome located over the firebox or taper course, dependent entirely upon the style of staying adopted to support the crown sheet of the inside firebox. The extended wagon top with Belpaire firebox, figure 3, carries the designer's name, the most noticeable difference in construction is at the firebox, here the top is flat and tapered, otherwise the general shape ahead of it conforms to that of the extended wagon top design. The extended wagon top round top firebox, figure 4, has one or more courses ahead of the firebox corresponding in diameter to that of the firebox, with the dome usually located on the course next the firebox and a taper course further forward.

Locomotive boilers consist of the following main parts: smoke box, front tube sheet, tubes, barrel, steam dome, outside firebox, and inside firebox, the latter two being separated at the bottom legs by a foundation ring secured in place by suitable rivetting, all of the inside firebox being supported by threaded stay bolts, excepting a portion of the crown on some designs, which have crown bars and sling stays. Other staying in general use are face plate staying, barrel stays to back tube sheet, front tube sheet staying, dome stays, lateral stays, and flexible stay bolt, all of which when properly designed, marked off, assembled, rivetted, caulked and tubed, entitle the boiler to receive a proof water and steam test, when, if satisfactory, it is ready to be applied to the engine.



P213 W. G. Brownlee

General Transportation Manager Grand Trunk Railway

Let us now look into the construction of the straight boiler, figure 1, which in the early days were built with the longitudinal barrel seams lap-jointed, and double rivetted, with very little consideration given to whether the rivet and plate section were proportionately strong, and when of the best construction and workmanship did not figure to have more than 56% of the strength of the original plate, with the factor of safety frequently as low as three, yet we find from our experience that not one of the many of this old construction could ever have failed in service had the practical man and supervisor used common sense, and taken reasonable precaution to repair defects brought to their notice because of leakage. This longitudinal seam construction has been abandoned in the modern boiler and we can now have seams designed which all afford the same strength or more than the original plate, with that much more security. Several of the straight boilers which I met with in my early practice had the longitudinal seams welded throughout and at the time of scrapping they were probably 25 years or more old, and had not caused any inconvenience working under the customary 140 lbs.. pressure per square inch. The Countess of Dufferin, now in the Wm. Whyte park at Winnipeg, is a relic of this design. The steam domes on the Dubb boilers all came to the C.P.R. with welded vertical seams, and although some of these boilers are still in existence working under 150 lbs. pressure, not one of these welded seams were ever known to fail or leak. If asked why the practice of welding seams has been abandoned, I will have to take refuge under the plea that it is expected to be restored again, probably with more success than before because of the thicker material now in general use. The flanging of the old straight boilers had a very sharp radius in contrast to the present designs, and this resulted in frequent cracking in their root, as well as serious leakage at the bottom corners of the firebox.

Although the design of the straight boiler has not been abandoned altogether, the wagon top boiler, fig. 2, was introduced because of the necessity for more steam room. A much improved longitudinal and circumferential seam joint for the boiler came into practice with this design, yet the application of the steam dome on top of the firebox, and the necessity of partly supporting the inside firebox crown sheet with sling stays attached to the dome and crown bars, together with sling stays from the crown bars secured to the wagon top, set up breathing stresses throughout the wagon top, which were constantly being recorded by defects developing with the dome stays, sling stays, dome and wagon top itself, which necessitates frequent inspection and expense to maintain, and because of this it was not long before the extended wagon top with Belpaire firebox, fig. 3, came into favor, and although straight boilers are being built and operated, principally in [illegible] water, I would never expect the wagon top boiler to regain its popularity. The extended wagon top boiler with Belpaire firebox, fig. 3, was a radical departure from any previous design in construction, because the top of the firebox is

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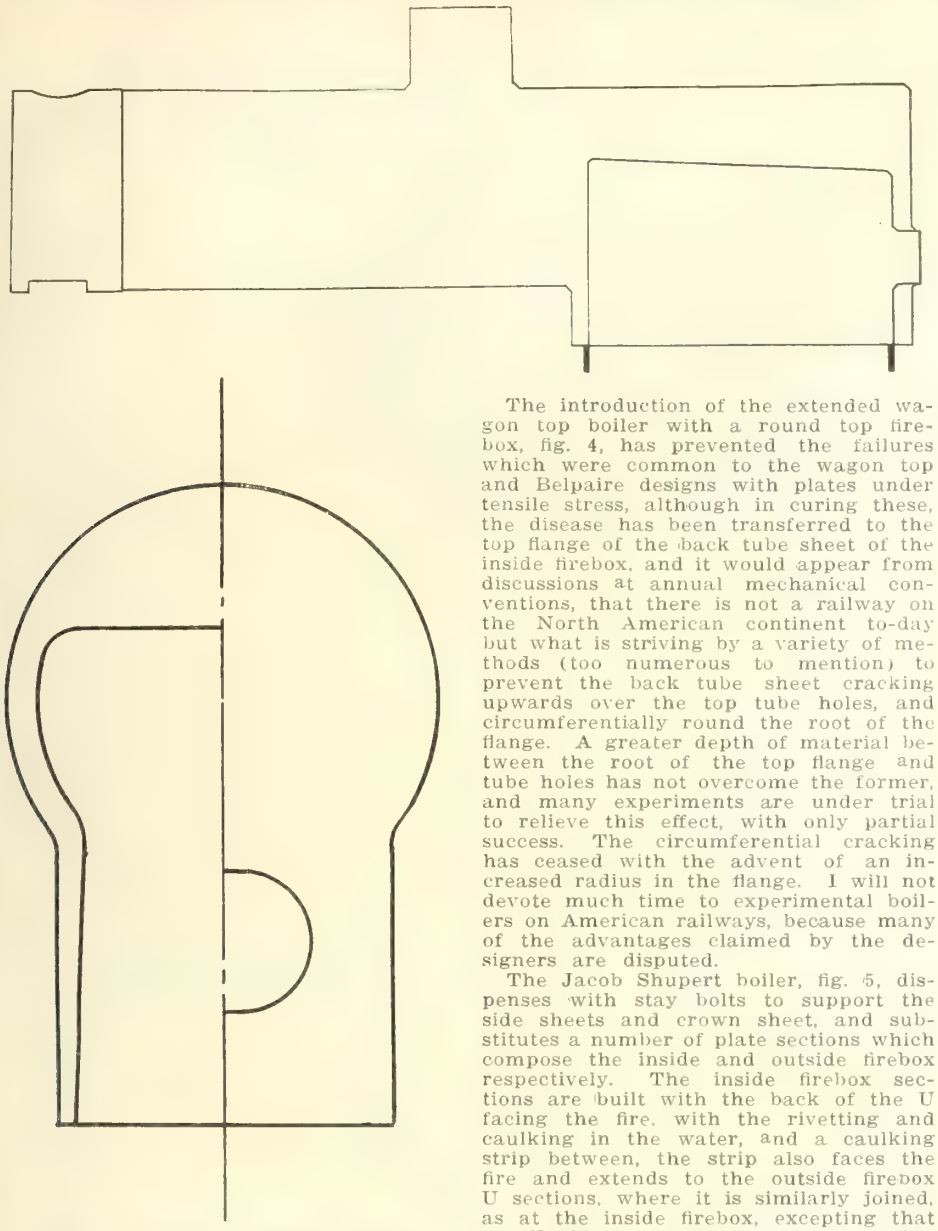

Fig. 1. Straight Locomotive Boiler.

flat and tapered horizontally, which necessitates a throat connection between the firebox and barrel to correspond with the different shapes of each. This design was in service under a year when the top of the throat connections developed cracks which necessitated reinforcements at once, and although the actual cause for this failure has not been assigned, it is satisfactory to know that the reinforcements applied have been entirely satisfactory as regards preventing further trouble. It is apparent to me that if this flat connection is independently stayed free from the influence of the inside firebox that this connection can be maintained as integral as any other part of the boiler. Experiences with this design recommends it for the following main reasons, nonpriming, foamless, breaks less stay bolts and is generally more economical in boiler repairs compared to other designs. These are results attributable to better circulation. The staybolting of the fireboxes is accomplished under the soundest principles of good boilermaking, and I am firmly convinced that its many points of superiority over other designs more than compensate for the extra initial cost of manufacture compared to the extended wagon top round top firebox.

The introduction of the extended wagon top boiler with a round top firebox, fig. 4, has prevented the failures which were common to the wagon top and Belpaire designs with plates under tensile stress, although in curing these, the disease has been transferred to the top flange of the back tube sheet of the inside firebox, and it would appear from discussions at annual mechanical conventions, that there is not a railway on the North American continent to-day but what is striving by a variety of methods (too numerous to mention) to prevent the back tube sheet cracking upwards over the top tube holes, and circumferentially round the root of the flange. A greater depth of material between the root of the top flange and tube holes has not overcome the former, and many experiments are under trial to relieve this effect, with only partial success. The circumferential cracking has ceased with the advent of an increased radius in the flange. I will not devote much time to experimental boilers on American railways, because many of the advantages claimed by the designers are disputed.

The Jacob Shupert boiler, fig. 5, dispenses with stay bolts to support the side sheets and crown sheet, and substitutes a number of plate sections which compose the inside and outside firebox respectively. The inside firebox sections are built with the back of the U facing the fire, with the rivetting and caulking in the water, and a caulking strip between, the strip also faces the fire and extends to the outside firebox U sections, where it is similarly joined, as at the inside firebox, excepting that the U plates are reversed, thus exposing the rivetting and caulking for repairs. The integrity of the inside and outside firebox depends on the plate which retains the U plates in position and on which superior workmanship under construction is a necessity, as the vital section through the rivet holes is hidden from service inspection.

The Wood corrugated inside firebox boiler, fig. 6, is another design which the patentee claims is desirable to prevent cracking of fireboxes. Its construction is such that the staybolts are on the high side next the fire, and on the low side next the water. It is my opinion that if their position was reversed, and it was possible to keep the corrugations free from scale formation, the firebox would have greater usefulness.

The combustion chamber firebox boiler, fig. 7, is on trial on some roads. The C.P.R. Western Lines experimented with two of this design about 18 years ago, with which we had little trouble due to tube leakage, yet there were other stresses set up which created cracking of the sheets, and resulted in numerous stay bolt breakages which stopped further trials, as they were deservedly unpopular.

The Wooten boiler, fig. 8, is designed specially at the firebox end with a view of getting a large grate area, and has a shallow firebox to burn anthracite coal.

The barrel of the boiler in some of the Mallet engine boilers, fig. 9 C.P.R., and fig. 10, U.S., is built in two sections, separated by an intermediate chamber, each section having its own complement

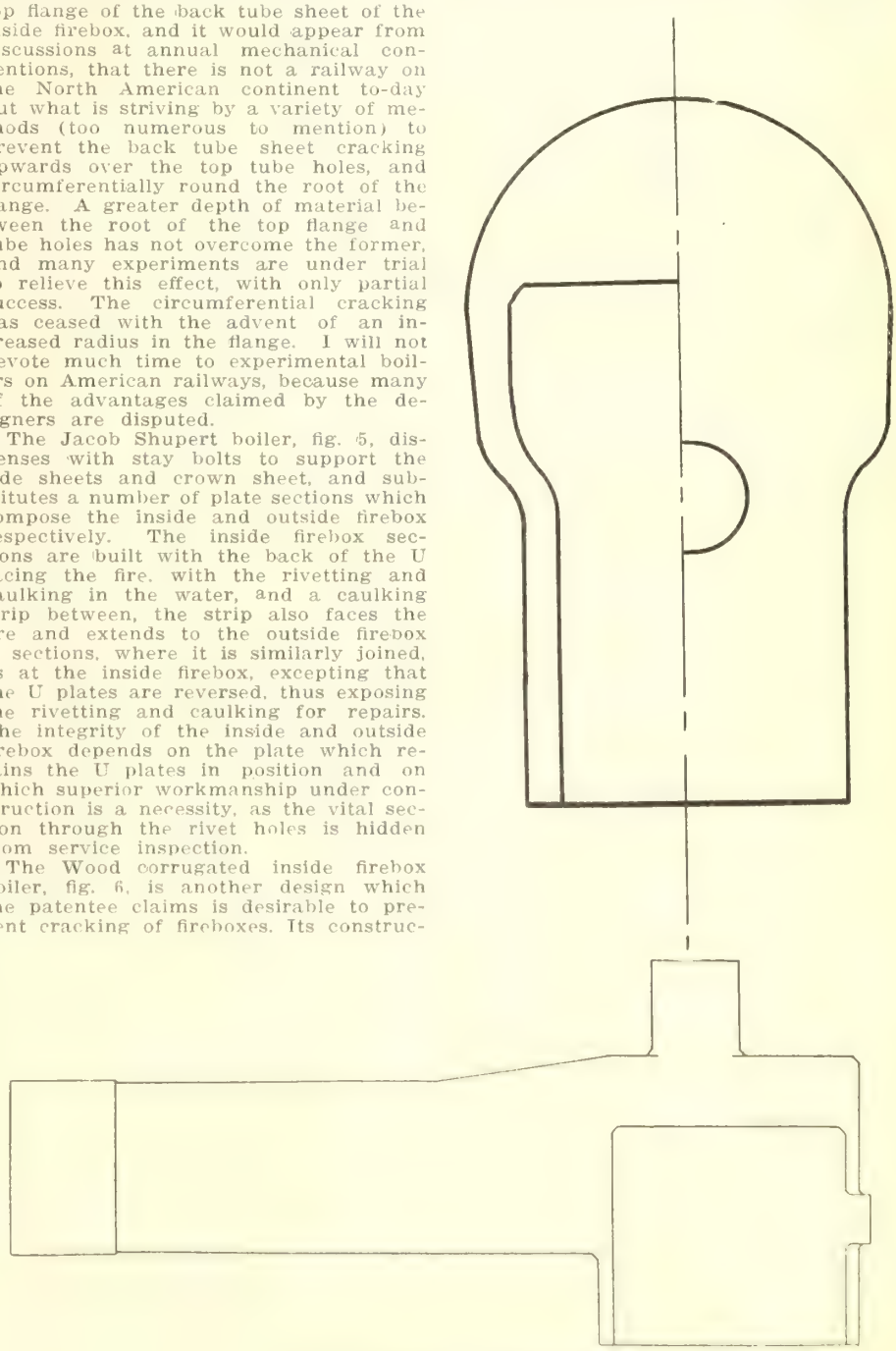

Fig. 2. Wagon Top Locomotive Boiler.

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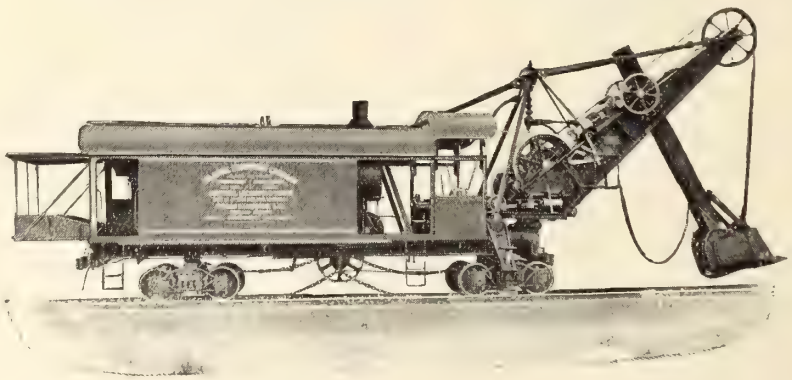

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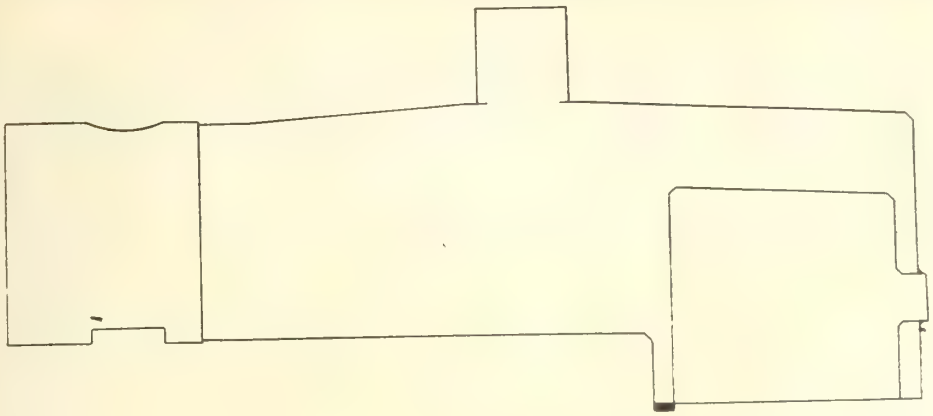


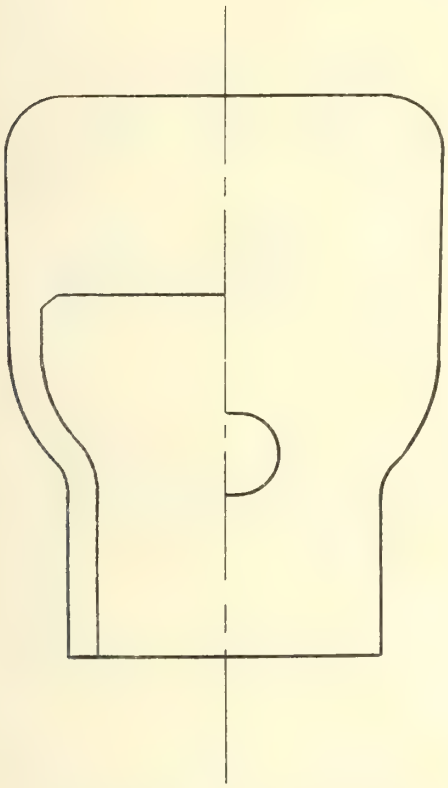


Fig. 3. Extended Wagon Top Locomotive Boiler, with Belpaire Firebox.

of tubes, the forward section being practically a water heater for the main boiler and firebox at the rear, they are connected with circulating pipes.

There are many other designs which I will pass by and close this part of the paper by alluding to the comparison of the general dimensions of locomotive boilers in use in 1874 with those of some obtaining today. In 1874 the diameter was about 40 ins., material iron, 45,000 lbs. tensile stress per sq. in., ⅜ in. thick, whereas in 1910 the diameter has increased to 86 ins. material steel, 60,000 lbs. tensile stress per sq. in., ⅞ in. thick, and the boiler pressure has increased from 140 lbs. to 200 lbs. and over, per square inch. The grate area has increased from about 18 sq. ft. in 1874 to 68 sq. ft. in 1910. The inside fireboxes in 1874 were about 72 ins. long, 35 ins. wide, compared to many to-day 126 ins. long 78 ins. wide. There were about 140 tubes 2 ins. diameter 11 ft. long in 1874, whereas a number to-day have 448 tubes 2¼ ins. diameter 21 ft. long.

The most prolific source of annoyance to railway officials is to have a leaky boiler on a train, or a failure because of leaks, as it generally presents itself by the following from the Engineer "Tubes leaking" or "Tubes burst," and it is unusual to have any other class of boiler failure, I am pleased to say that the frequency of such on the road I am connected with, has almost vanished, because of the care taken in handling the engines on the part of the engineers and shop staff, together with the help afforded due to grade revisions, and an improved water supply. H. B. Lake, the C.P.R. Western Lines Chemist, is fulfilling the practical part of his paper presented earlier in the year (and published in the Railway and Marine World for September), by endeavoring to have a "Lake" at every local water supply which should afford further relief.

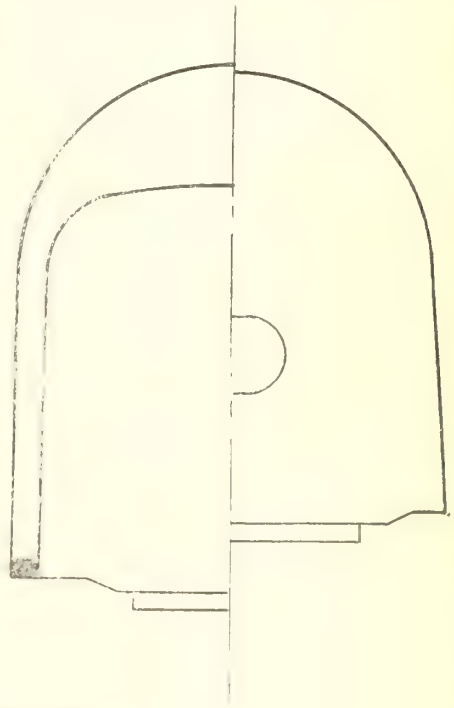
There is still another improvement which is reducing firebox repairs and preventing many tube failures, viz.: the feeding of the water into the boiler from the top and near the front, thereby lessening the scale formation around the firebox plates, and assisting in preserving a more uniform temperature throughout.

With the growth of the boiler, mechanics have been kept busy in another direction, that of keeping pace with the demand for improved tools. The march of progress in this respect, has been side by side with the growth of the boilers, which is a good indication of the great hand of harmony prevailing in the mechanical world to-day, and the shops and roundhouses which have not modern facilities to compare with their rolling stock, are those which are commonly called "not railroading." During the past 36 years there has been practically no change in the form of the tools used to set tubes in the sheets, except that they are power driven, and welded principally by machines, on the roller principle.

Several railways are experimenting by welding tubes into the firebox tube sheet, the success of which has not been fully demonstrated. My own views in this respect are, that few men are sufficiently familiar with the cost of this method, neither have they experimented with it long enough to determine the percentage of failures, that might be expected, compared to the present method, and therefore it is too soon to say that it will succeed the old method.

Corrosion is another enemy to boiler plates, particularly noticeable on the pressure side of the inside and outside firebox close to the foundation ring, as well as throughout the back tube sheet, tubes and the bottom of the barrel of the boiler, from the pressure side. This is discovered by vigilant inspection and repaired by authorized boiler practices, for which regulations are issued by the heads of the mechanical department to the foremen (on well governed railways) to guide them in directing a standard method of performance. Corrosion is in a degree preventible by neutralizing the action with zinc slabs suspended inside the boiler, it requires renewal frequently and is best suited for marine boiler practice because of their accessibility. Little experimenting has been conducted with locomotive boilers to prevent corrosion, principally because they are inaccessible, except at general repairs, and with the tubes removed. It is my opinion that treatment to combat corrosion will become a very live question in the future and there is the whole truth in the old proverb: "Prevention is better than cure"—and more especially so if shown to be profitable.

Incrustation is one of the chief promoters of trouble to the locomotive boiler. It enters the boiler as impure water and the incrusting solids are precipitated around the stay bolts in the water space, adhere to the firebox plates, causing them to bulge and crack, and gradu-



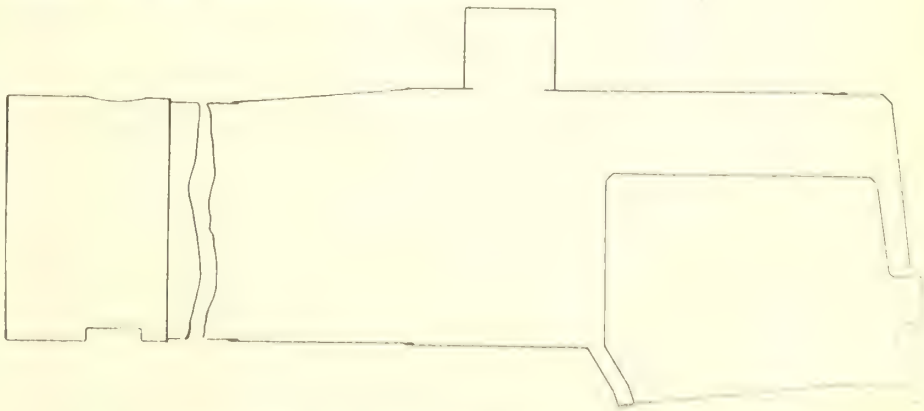


Fig.4. Extended Wagon Top Locomotive Boiler, with Round Top Firebox..

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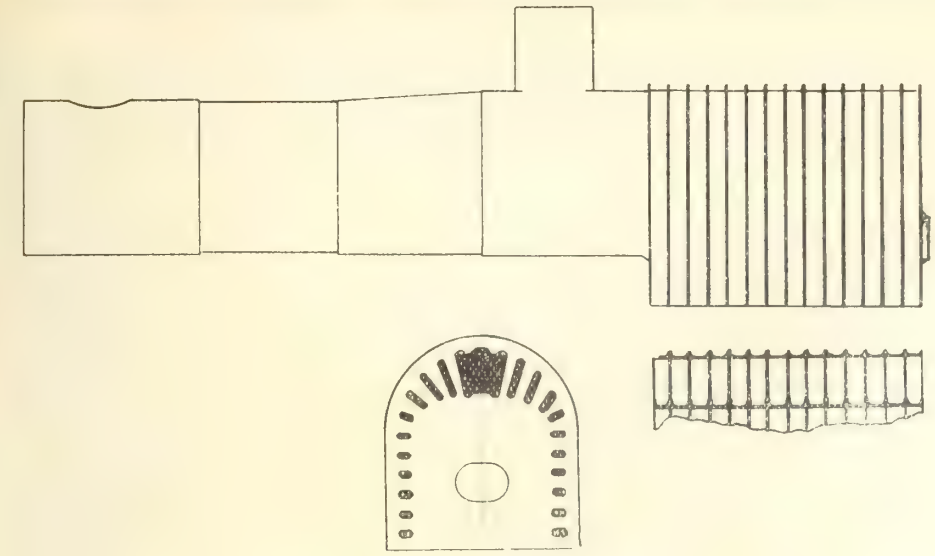

Fig. 5. The Jacob Shupert Locomotive Boiler.

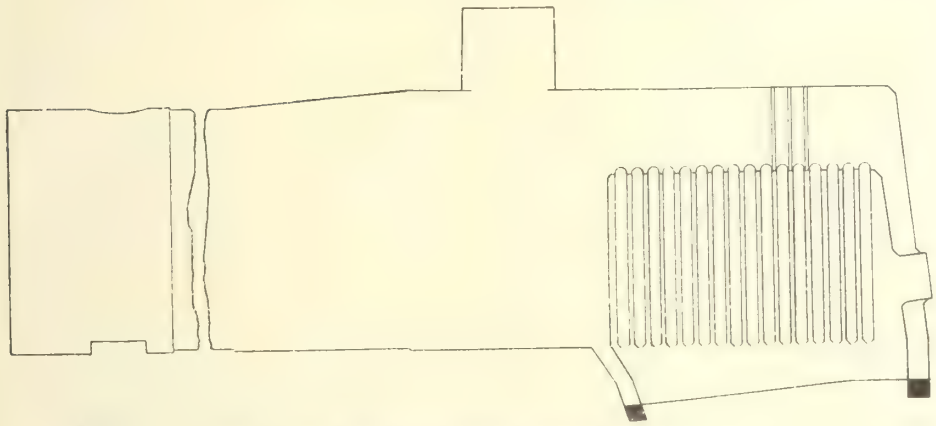

Fig. 6. The Wood Corrugated Inside Firebox Boiler.
For End Elevation See Fig. 4.

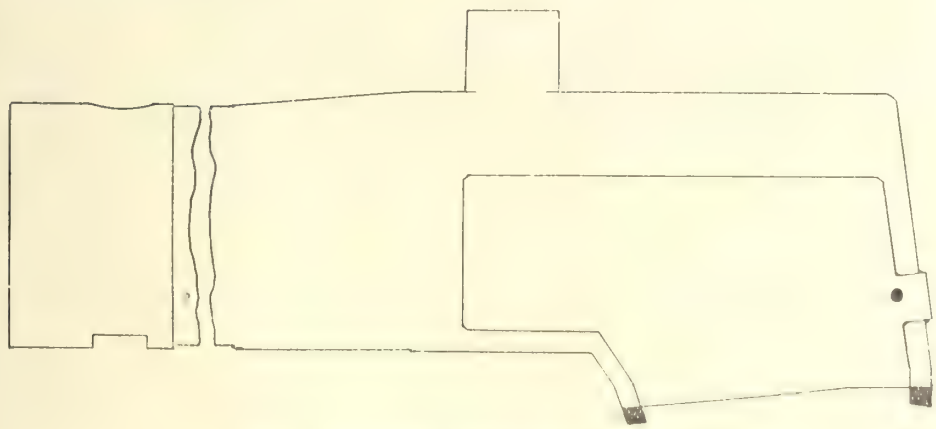

Fig. 7. Combustion Chamber Firebox Boiler.
For End Elevation See Fig. 4.

ally develop a stocking of scale surrounding the tube, which necessitates their frequent renewal. The water containing excessive salts in suspension does not develop as much injury to a boiler as that which contains a much less quantity of salts in solution, for the reason that the former can be almost all washed out at intervals, to prevent injury, whereas most of the latter has to be chiselled away because of its hardness. Washing out the boilers is a most important part in the care of boilers. Our practice is to have printed regulations and a blue print of the tools in general use, conveniently placed in the round house, so that the new and regular staff can become familiar with the authorized methods, and it is then the foreman and other officials' duty to see they are observed. The treatment of water is a chemical question, and on most railways it is in direct charge of the chemist, so, we look to him to prevent the boilers getting filled up with [illegible] which we [illegible] can be more conveniently removed by water purification before entering the boiler.

I will now refer to a part of the engineer and fireman's duty, that of feeding and preventing an injury to plates which would be affected by an absence of water. The most desirable regulations for feeding is to constantly supply the quantity of water evaporating, thereby keeping a uniform level in the boiler. In stationary practice this is automatically accomplished with a steam pump, float, and regulating valves, but I am not familiar with any design suitable to be attached to a locomotive. Uniform feeding is desirable because it reduces fuel consumption and boiler work and prolongs the life of fireboxes and maintains even temperature.

So much has been written and expressed by many prominent mechanical men and others about crown sheet separations, that I hope to be excused for venturing to make some remarks on a question which concerns engineers, firemen and the railway companies alike, and I will feel fully repaid for the trouble of touching upon this question, if it should only have the effect of preventing one failure of this kind. We have all read of the experiments conducted in which water was injected into boilers when the sheets were red hot. I want to say that if the sheets were red hot before the water was turned on to them, the plate would not have been there to receive it, and the men who conducted the experiment (if they were close enough to it) would not likely have lived to tell the tale. The reason for this is that before the crown sheet gets red hot the factor of safety will have disappeared and the plate would likely be weakened as to almost separate from its staying. Steel plates rapidly decline in value after reaching 400 deg. temperature and at about 1,000 deg. temperature they possess about 1-5 of the strength they had at 400 deg. and yet steel is not red hot at 1,000 deg. temperature. I see no good to be derived from telling engineers and firemen that it will not harm a crown sheet to inject water into it when hot, because my own experience tells me that it will not undo the harm already done, and the plan I would suggest as proper to pursue would be to get the fire out and steam pressure off as soon as possible, as any assumption you have as to how long the water is absent from the sheet, when such has actually occurred, can only be guess work, and by waiting to take further chances of recovering the water, may be just long enough to allow the sheet to get hot enough to cause a complete separation, and result in fatal injuries to those on or about the locomotive. I do not take the view that crown sheets separate, because of injecting water on to them when hot, but the water may frequently be feeding into the boiler at the time of separation, for the reasons I have just explained, and if the same trouble had been taken to get the fire out, as to get the injector on, the crown sheet might have been saved. Remember that because you can bring water into sight in the water glass, after it has disappeared, by closing the top mounting of the water glass, that it does not put any more water in the boiler. Remember also that a new crown sheet, flanged, hot, but not red hot, can be curved out of its good position by sprinkling water over one side of its surface, because the contraction shortens the metal on one side and the reverse side is obliged to stretch to accommodate the curve we know this to be the result on the floor before erection, and therefore the practice is not good.

The foregoing paper was prepared for [illegible] before the Western Canada Railway Club.

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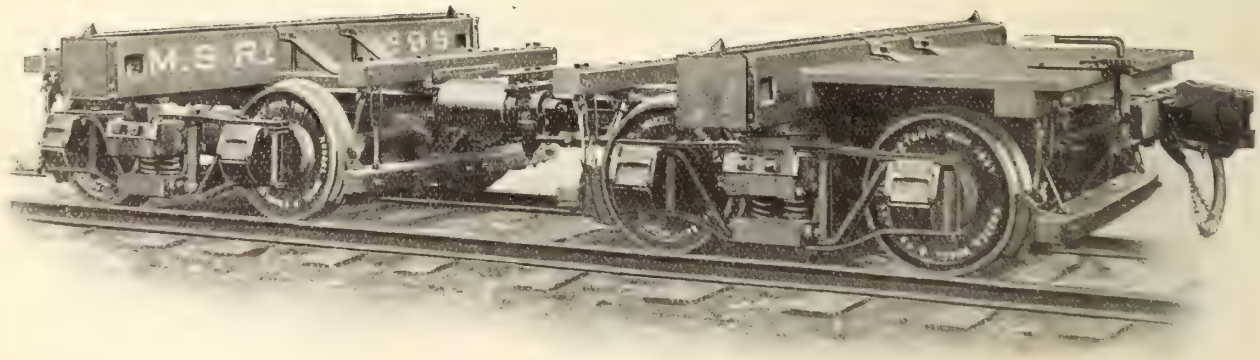

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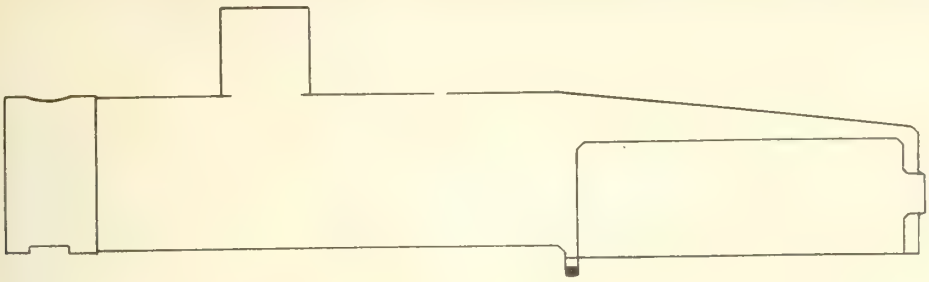


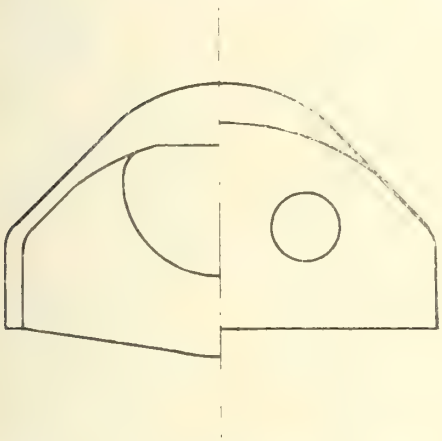


Fig. 8. The Wooten Locomotive Boiler.
See Page 993.

Canadian Government Railways.

The Government railways are the Intercolonial Ry. in Nova Scotia, New Brunswick and Quebec, and the P.E.I. Ry. in Prince Edward Island. These lines are under the control of the Government Railways Managing Board, formed under an order-in-council of April 20, 1909. The gross earnings of these lines for the year ended Mar. 31. were $9,647,963.71, and the working expenses $9,095,903.96, showing a profit of $552,059.75. The profit on the I.C.R. was $623,164.66, and on the Windsor branch $37,104.08. There was a deficit of $108,-208.99 on the P.E.I.R.

The I.C.R. has a length of 1,447.13 miles, of which 23.13 miles is double track, and the aggregate length of spur lines, sidings and yard tracks is 383.71 miles. The Windsor branch, 32 miles, is leased to the Dominion Atlantic Ry. for 21 years from Dec. 13, 1892, at a rental of one-third of the gross earnings, the Government assuming all cost of maintenance of the road and works. The P.E.I.R. is 3½ ft. gauge, and is 267.5 miles long.

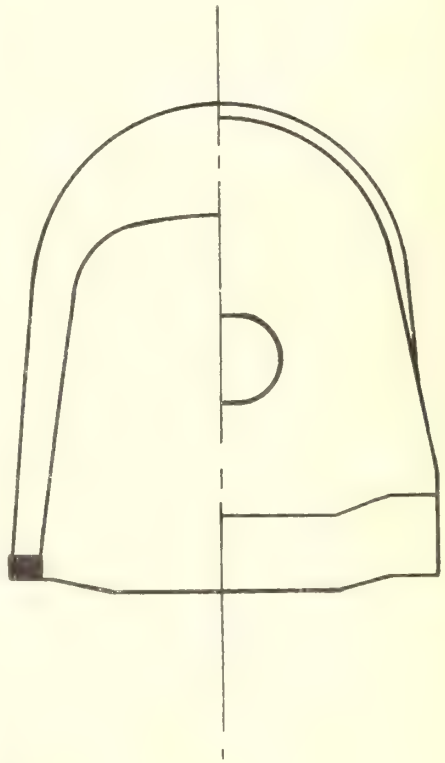
The expenditure on the I.C.R. for the year on capital account was $1,278,-409.45, making the total expenditure on the whole road $92,273,073.51. The expenditure on capital account was $2,-588,822.71 less than in the previous year, of which $1,353,646 was expended on rolling stock, against no capital expenditure under this head in the year under review. The main heads of expenditure on revenue account were:—Maintenance of way and structures, $1,629,-254.81, less credit of $6,975.06 for maintenance of joint tracks, yards, etc.; maintenance of equipment, $1,851,-792.68; traffic expenses, $179,882.61; transportation expenses, $4,870,874.65, less credit of $86,206.89 for operating joint yards and terminals; general expenses, $206,447.53. The gross earnings for the year were derived as follows:—Passengers, $2,765,884.66; freight, $6,-048,884.18; mail and express, $408,-847.66; miscellaneous, $44,618.49. The gross earnings per mile of railway were $6,404.56; per engine mile, $1.08; per train mile, $1.39, and per car mile, 9.82 cents.

The other general statistics show:—Engine mileage, 8,608,486; train mileage, 6,682,353; car mileage, 94,384,628; expenses per train mile, maintenance of way and structures, 24.28 c.; maintenance of equipment, 27.71c.; traffic expenses, 2.69c.; transportation expenses, 71.60c.; general expenses, 3.09 c.; total, 129.37c.; ratio of expenses to gross earnings: maintenance of way and structures, 17.50%; maintenance of equipment, 19.98%; traffic expenses, 1.94%; transportation expenses, 51.62%; general expenses, 2.23%. The revenue for the past year shows an increase of $741,165.53, over that of the year ended Mar. 31, 1909, while the working expenses show a decrease of $682,951.22 in the same period. The number of passengers carried was 3,-122,324, an increase of 217,330 in the number of local passengers, and a decrease of 2,243 in the number of through passengers, a net increase of 215,087 passengers over the previous year. The actual quantity of freight carried was 4,071,692 tons, of which 144,452 consisted of supplies carried for the railway. The revenue producing freight, 3,927,240 tons, was 353,268 tons in excess of that carried in the previous year. Local freight showed an increase of 216,188 tons, and through freight of 137,080 tons. The rolling stock on Mar. 31 consisted of 414 locomotives, 452 passenger, mail and express and baggage cars, four steam motor cars, and 12,514 freight, cars of all types, auxiliary cars, snow plows, work cars, etc. Other traffic statistics are:—Average freight tonnage per train, 260.02; average passengers per train, 58-99; average tons per loaded car, 17.23; average passengers per car, 9.62; average distance per ton of freight carried, 271.69 miles; average distance per passenger carried, 48.73 miles; train mileage, 2,578,885 miles; freight, 4,103,468; loaded car mileage, 61,916,687; empty car mileage, 12,843,-789; steam motor mileage, 16,563.

There was an addition of $206,396.97 to the capital expenditure on the P.E.I.R. during the year, making the total capital expenditure $8,465,364.91. The added expenditure included $156,-531.57 for increased accommodation at Charlottetown, and $49,829.25 for the branch line from Harmony to Elmira, 9.9 miles, which was placed under contract during the year. The gross earnings for the year were $319,074.74, and the working expenses $427,283.73, a deficiency of $108,208.99. As compared with the year ended Mar. 31, 1909, there was an increase of $7,751.11 in the gross earnings, and an increase of $16,953.32 in the working expenses. The earnings were:—Passengers, $140,076.83; freight, $153,373.11; mails and sundries, $25,-624.80. The expenditures were:—Maintenance of way and structures, $121,-046.70; maintenance of equipment, $79,-258.26; traffic expenses, $968.97; transportation expenses, $211,004.76; general expenses, $15,005.04. The general statistics show:—Passengers carried, 351,038; freight carried, 105,741 tons; engine mileage, 444,837; train mileage, 323,522; car mileage, 2,051,034; gross earnings per mile of railway, $1,195.03; per engine mile, 71.73 cents; per train mile, 98.63 cents; per car mile, 15.56 cents; working expenses, per mile of railway, $1,600.31; per train mile, 132.07 cents. The rolling stock on Mar. 31 consisted of 31 locomotives, 61 passenger cars, 506 freight cars of all types, 10 snow plows, and nine flangers.

Railway Lands Patented.—Letters patent were issued, during Sept., covering Dominion lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Calgary and Edmonton Ry.	160.00
Canadian Northern Ry.	3,471.08
Canadian Pacific Ry. grants	6.48
Canadian Pacific Ry. roadbed and station grounds	175.89
Grand Trunk Pacific Ry.	368.27
Manitoba and Southeastern Ry.	160.00
Total	4,341.72



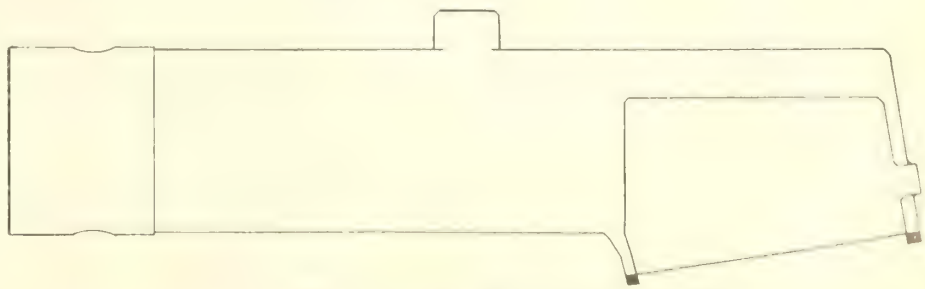
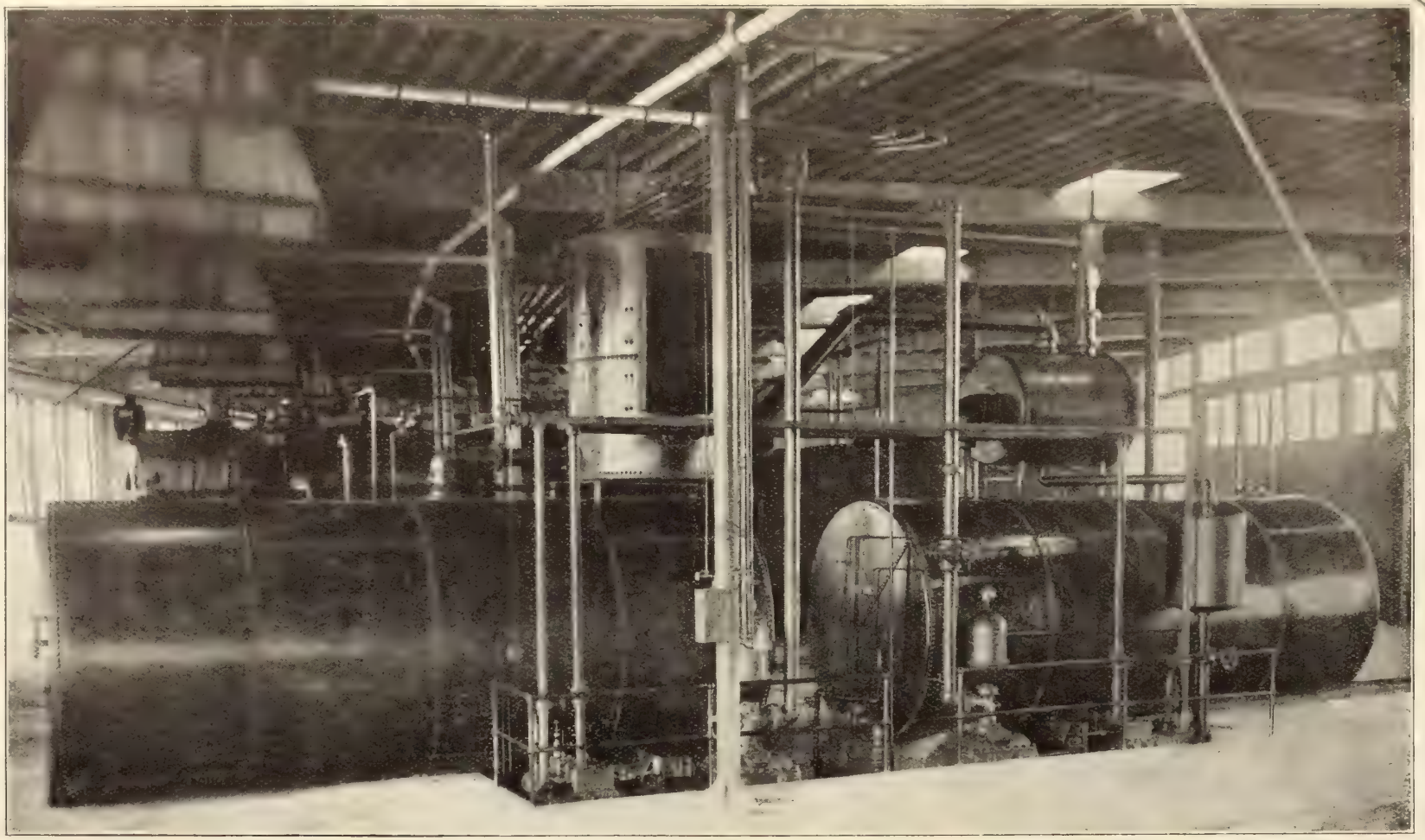


Fig. 9. Canadian Pacific Ry. Mallet Locomotive Boiler.
See Page 993.

NATIONAL



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The National Boiler Washing Company, Limited, Montreal

Railway Signaling.

By C. L. Hackett.

(CONTINUED FROM NOVEMBER ISSUE.)

Mr. Peabody, Signal Engineer of the Chicago & North Western Ry., after having experimented with different trains, concluded that it averaged 45c. per train. For the sake of illustration, if we take 45c. as the cost, it is an easy matter to determine how many trains per day will justify the expenditure necessary to install interlocking at a crossing. Fig. 1, on page 1001, shows in diagram the signaling necessary to protect a single track crossing a single track. There would be 16 levers. This sized plant installed would cost $4,800, and would require a day and night towerman to operate it. The yearly cost for the plant would stand about as follows:—

Cost of interlocking		$4,800 00
Interest on cost, 4%	$ 192 00	
Depreciation, 7%	336 00	
Cost of maintenance per year	240 00	
Cost of operation per year.	1,200 00	
Total cost per year	$1,968 00	

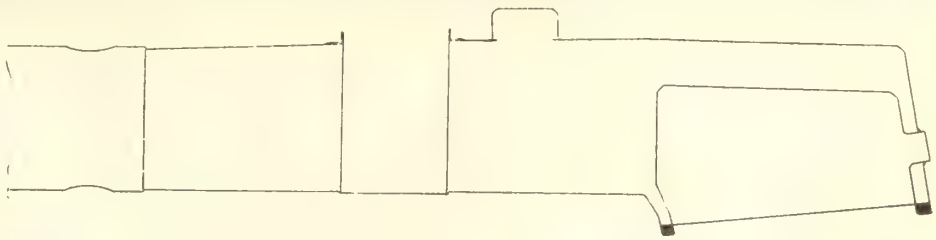
Saving to be effected:—

Trains per day.	Cost per year acct. stopping	Total yearly cost of interlocking	Net saving per year.	Cost of Interlocking.	Time required to pay for installation from saving
14	$1,971	$1,968	$3	$4,800	
20	2,817	1,968	849	4,800	5½ years
25	3,521	1,968	1,553	4,800	3 years

It is apparent then that 14 trains a day over this plant would justify its installation, aside altogether from the saving due to increased safety.

Interlocking is based on the following principles. First, that a failure in any part of the apparatus will prevent a clear signal being displayed. Second, that the normal position of all signals is "stop." Third, that a signal cannot be cleared for a train to move across the interlocking until all the switches in the route are properly set, and locked. Third, that a signal cleared locks all the switches, and that no switch or lock can be moved while the signal is clear. Fifth, that the signal cleared guarantees to the engineman the route, with no possibility of a move being made by any other train that could in any way foul the route given. In Canada the first three of these have been always conformed to, but the fourth (fully as essential as the other three) has not. Fig. 2, on pg. 1001, is a sketch of a plant in operation which does not. A train moving from B to C having received a clear signal no. 1 is not protected from a possible movement by a train from Q which could cause a serious side swipe at the frog A. I have seen several other plans which also have this serious loop hole, and it has been my experience that if a loop hole is left in any signaling installation it is only a question of time when some train will run into it.

In order to prevent a train running by a signal at a crossing the law requires the use of a derailing switch operating in connection with the signals. The signal can only be cleared after the derailing switch has been closed and locked. The closing of the derailing switch on one side locks the derails on the crossing line open, the idea being that if signals alone were used, it would be possible to have a train on the crossing run into by a train on the other line, should the engineer disobey the signal. Each individual interlocking plant is a problem in itself, different conditions either in track lay out or operation in itself, different treatment in the location of the signals, and this is the province of the signal engineer. The signal engineer of a large road is one of the most important officials. His knowledge and experience must be large and varied. He should be a civil engineer, and also thoroughly understand how the trains are operated, his duties, once the plant is installed, are closer allied to the operating end of the railway than to the engineering. In order for him to be able to advise what arrangement of signals will give the greatest results he must be in close touch with the officers who are responsible for the movement of the trains, otherwise his usefulness to the railway is not fully utilized.



In Fig. 1 we have the layout of a simple crossing of one single track line with another. Each derail is handled by a lever situated in a convenient building. The locks for the derails are handled by levers, and the signals by levers. All of these levers are grouped together in a frame, the interlocking between the levers being obtained by the use of cross locking operated by the levers, and held in the lever frame itself. The levers are numbered consecutively from left to right, the derail, switch, lock or signal which they operate being numbered to correspond to the lever, the connection between the levers and the functions being made by means of pipe carried on rollers, the turns in the pipe lines being made with bell cranks. The lock lever also operates what is known as a detector bar, whose function is to prevent the switch or derail being unlocked if there is a train on the track. This detector bar consists of a long bar of steel supported on a number of links pivoted to a casting attached to the base of the rail, free to move in a plane parallel to the track and inclined slightly toward the centre. When the bar is moved the links raise it above the tread of the rail. If, however, a wheel is on the rail the bar cannot be moved, as it will be held down by the wheel tread which projects beyond the rail head. This prevents the lock plunger from being withdrawn while there is a car on the track. In the figure the interlocking between the levers would be:—

Reverse lever no. 1	lock lever no. 2	reversed	
Reverse lever no. 2	lock lever no. 5	reversed	10 reversed, 13 normal.
Reverse lever no. 3	lock lever no. 4	reversed	
Reverse lever no. 4	lock lever no. 7	reversed	12 reversed, 15 normal
Reverse lever no. 5	lock lever no. 6	reversed	
Reverse lever no. 6	lock lever no. 8	normal	11 normal.
Reverse lever no. 7	lock lever no. 8	reversed	
Reverse lever no. 8	lock lever no. 6	normal	9 normal
Reverse lever no. 9	lock lever no. 8	normal	11 normal.
Reverse lever no. 10	lock lever no. 9	reversed	
Reverse lever no. 11	lock lever no. 9	normal	6 normal.
Reverse lever no. 12	lock lever no. 11	reversed	
Reverse lever no. 13	lock lever no. 10	reversed	5 reversed, 2 normal.
Reverse lever no. 14	lock lever no. 13	reversed	
Reverse lever no. 15	lock lever no. 12	reversed	7 reversed 1 normal
Reverse lever no. 16	lock lever no. 15	reversed	

Thus the first lever to be moved would be the derails, then their locks, then the home signal and last the distant signal, in returning the track to its former position, the order of moving the levers is just the opposite.

Block signals differ from interlocking signals only in this respect. Interlocking signals indicate a condition of the track and switches, block signals on the other hand indicate the presence or absence of a train in or from a specific length of track. They may indicate the condition of the switches also, but their function is to show whether a train can be admitted to a block system, or whether it is already occupied. The block system is a means of moving trains by means of signals, as opposed to moving trains by time table and train orders. The principle on which it is based is that two trains must not occupy the same piece of track at the same time. The line is divided into sections, the limits of which are marked by a signal, and trains are only admitted to one of these sections by means of the signal governing that block. The length of these sections will depend on the number of trains run, their speed, and maximum length.

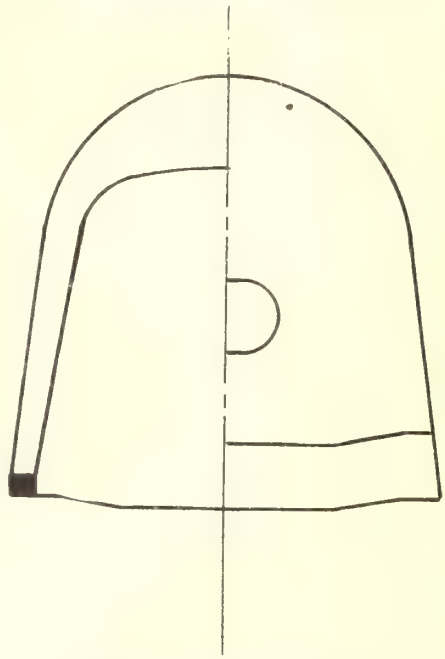


Fig. 10. United States Mallet Locomotive Boiler. See Previous Pages.
See pg. 995.

There are several different methods of block signaling in use. In the telegraph block system the signals are operated manually, upon information by telegraph. This is simply a make shift and is a combination of the block system and the Standard Code and dispatching system, a combination that cannot be made if the basic principle of block signal operation is maintained. In the controlled manual block system the signals are operated manually and so constructed as to require the co-operation of the signalman at both ends of the block to display a clear signal. That is in this system the signal at the entrance end of the block is so interlocked with the signal levers at the outgoing, and that it requires the men at each end to co-operate in order to admit a train. There are several types of this system, "the block and block," ordinarily used on a double track, where head on movements are not ordinarily made, and the staff system used on single track, where head

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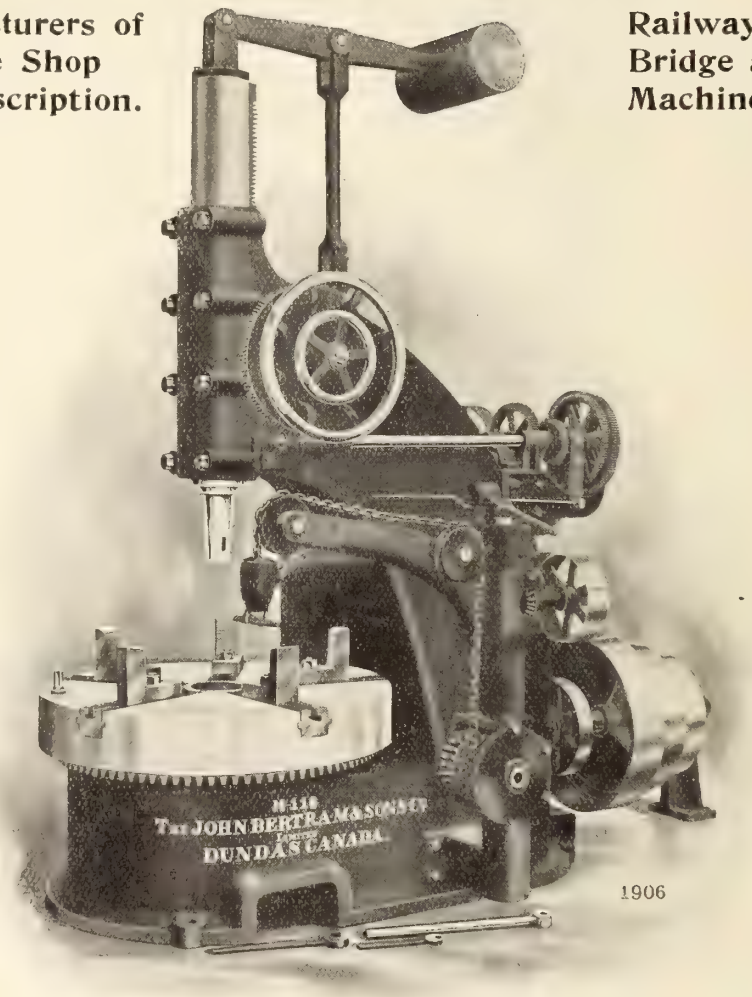

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on movements must be protected. In the automatic block system the signals are operated by electric, pneumatic or other agency actuated by a train, or by a certain condition affecting the use of a block. This system does not supersede the train order system of dispatching, and is not absolute, that is from its nature it is necessary where automatics are used to insert the rule, that an engineer finding a block signal indicating stop, must bring his train to a stop at the signal and then proceed, under caution. If this rule is not used the train men would have to flag through the block; the introduction of this rule makes the automatic a permissive signal.

Miscellaneous signals comprise train order signals, used at stations to indicate to the runner whether he is to stop for orders or not. Station signals, used to protect trains standing at stations where no block system is in use. Outlying switch signals used to indicate to a runner, whether or not the main line switch is properly set for him to proceed. Highway crossing signals, used to warn the public at a highway of the approach of a train. In the case of station signals, it is futile to simply put up a home signal of 1,500 or 2,000 ft. from a station, and expect that this will protect the station. It will not. If a train is running at 45 or 50 miles an hour, as pointed out above, it would be impossible for the driver to stop at the signal, and if the signal does not mark the point beyond which he must not go, what does mark this? In order for a station signal to be effective it must have a distant signal working in conjunction with it. I have in mind a condition which I saw some time ago at a station, where a freight train had stopped. The caboose was perhaps some 50 ft. inside of the station signal, which was indicating "stop." Approaching the signal at this point there is a sharp curve, a following freight came round the curve and did not have time to stop before it ran into the caboose of the standing train. A distant signal would have given the proper preliminary information. The fundamental principle that must be kept ever in mind in signaling is that a failure in any of the parts must produce the stop indication. Thus when we put up a signal at a highway crossing to protect the public using that crossing, it is here just as necessary to keep this principle in view as it is at an interlocking plant. The crossing signal should be so constructed that if any thing fails, the signal should give a positive stop indication to the highway. Most of the highway crossing signals simply consist of a bell. When the bell rings the public understand that a train is approaching the crossing, when the bell is silent it is perfectly safe for them to cross the tracks. This is evidently wrong, a broken wire, a discharged battery or one of several things may happen to prevent the bell ringing, yet the non-ringing of the bell is an indication in the proceed position, nor does the addition of a light in connection with the bell improve matters. The light is run usually by the same source of power as the bell; anything that will cause the bell to fail will also cause the light to do likewise. A crossing signal to be dependable must be built on the same principle as a signal. It should have a visible stop indication that will show "stop" should any break occur. The bell is a good adjunct to such a signal, but the visible indication which will take up the stop position by gravity is essential.

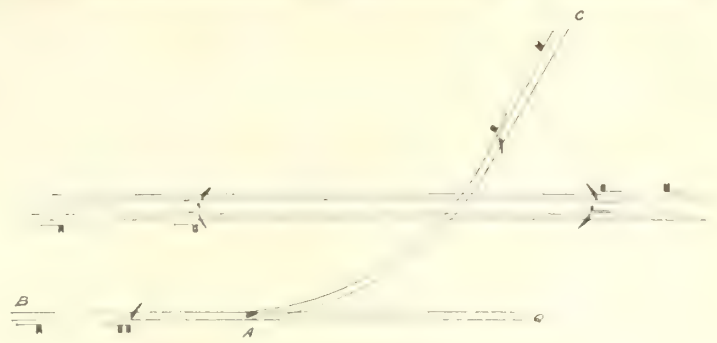

FIG 2

The foregoing paper was read before the Central Railway and Engineering Club, recently.

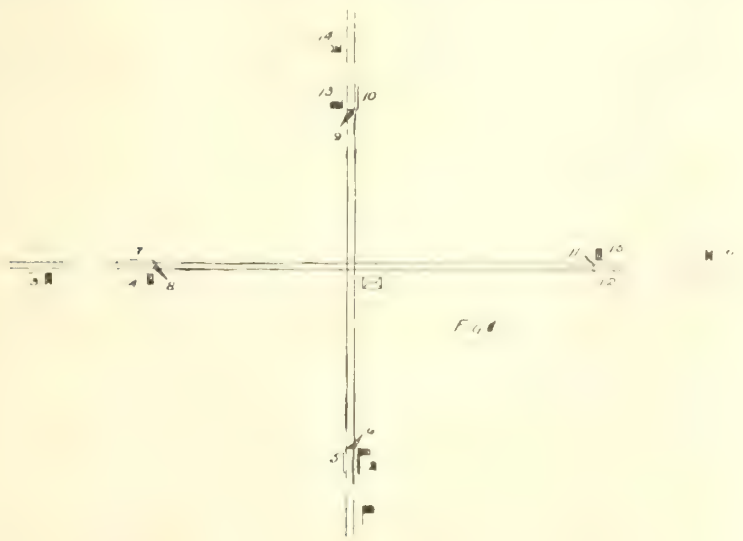
FIG 1

Railway and Canal Expenditure.

For the year ended Mar. 31 the total expenditure on the Government railways, railway subsidies, etc., was $32,862,094.46, of which $21,505,975.91 was charged to capital, $2,260,214.59 to income, and $9,095,903.96 to revenue. The expenditure on capital account included $19,968,126.86 for the Eastern Division of the National Transcontinental Ry., and $53,042.63 for surveys for a railway to Hudson Bay. The expenditure on income included a total of $2,048,097.05 paid as subsidies to railways other than the Government lines; $112,465.04 for the Board of Railway Commissioners, $17,644.66 for inspection of the Grand Trunk Pacific Ry., and $111,788.02 for preparing plans, etc., for the reconstruction of the Quebec Bridge. The expenditure on the Intercolonial Ry. was $9,923,479.78, viz., on capital account, $1,278,409.45, and on revenue account, $8,645,070.33. On the maintenance of the I.C.R. Windsor branch, the expenditure, $23,549.90, was charged to revenue account. On the P.E.I. Ry. the total expenditure was $633,688.70, of which $206,396.97 was charged to capital and $427,283.73 to revenue.

The expenditure on canals aggregated $3,259,097.18, of which $1,650,706.64 was on capital account, $489,256.68 on income, $604,899.26 for staff, and $514,234.60 for repairs, the last two amounts being charged to revenue. Added to the above for miscellaneous expenditures in both branches the sum of $4,706.79, the total expenditures for the year on railways and canals amounted to $36,125,898.43.

The total revenue derived from railway and canal work was $9,841,347.99, of which railways produced $9,647,963.71 and the canals $193,384.28, the sum of $168,893.63 being received from hydraulic rents. The canals have been free of tolls since 1905.

The total Government expenditure on railways prior to and since Confederation amounts, on capital account, to $236,654,665.29, including $25,000,000 granted to the C.P.R. for its main line, and $660,683.09 expended on the Annapolis and Digby line. In addition there has been expended from the consolidated fund a total of $202,532,757.03, making a total of $439,187,422.32. Of this amount $13,881,460.65 was expended prior to Confederation, on the construction of portions of what is now the I.C.R. system.

The Government expenditure on canals prior to and since Confederation amounts on capital account to $96,982,449.37, of which $20,593,866.13 was expended prior to Confederation, and from the consolidated fund $29,346,507.21, making a total of $126,328,956.58.

The total expenditures on railways and canals therefore amounts to $565,516,378.90, adding to which for general expenditures embracing both, $810,358.32, the grand total expenditure is $566,326,737.22. This amount does not include payments to the province of Quebec in respect to the building of the Ottawa and Quebec Ry., which is dealt with by the Finance Department.

Filing Railway Location Plans. The Board of Railway Commissioners has given notice that hereafter, with every application by a railway for approval of a location, or deviation of a location, there shall be filed with the Board an affidavit by a competent engineer that the proposed location or deviation is not at any point more than one mile from the route approved by the Minister of Railways.

Senator Beique has been given a verdict of $300 damages in an action for libel brought against La Nationaliste, a Montreal Sunday newspaper, on account of some comments made on the sale of the South Shore Ry., which Senator Beique purchased [illegible] sale, on behalf of its present owners the Delaware and Hudson Co.

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Canadian Northern Railway Report.

The following directors' report, over the signature of W. Mackenzie, President, was submitted at the annual meeting in Toronto recently:—

The result of operations for the year ended June 30, is as follows:—

Gross earnings—	
Passenger traffic	$2,415,440.39
Freight traffic	10,102,510.36
Express, mail, telegraph, dining and sleeping cars, interest and profits from elevators and other subsidiary companies	1,315,110.83
	$13,833,061.63
Working expenses, including taxes, etc.	9,488,671.60
Net earnings	$4,344,390.03
Fixed charges	3,313,632.58
Surplus	$1,030,757.45

The gross earnings show an increase of $3,251,293.70, or 30.7%, and net earnings, $778,027.86, or 21.82% over the preceding year. The working expenses, including all taxes, were 74.01% of gross earnings of the railway proper and 68.59% of gross earnings from all sources, compared with 72.55% and 66.30% respectively last year. An examination of the gross earnings shows that the development of the territory tributary to your railway is proceeding with great rapidity. In passenger receipts the increase is $486,754.04, or 25.24% over last year, and to keep pace with the demand for train service considerable new passenger equipment is now on order. The receipts from freight traffic also show a substantial increase over last year, the figures being $2,621,-184.42, or 35.04%. In this connection your attention is directed to the statement of freight carried, from which it will be seen that in the movement of grain, live stock, immigrants' effects, lumber and building materials generally, your company shows a very substantial increase over the previous year. It is gratifying to your directors that Government figures of grain reported at Winnipeg show that not only has your railway increased its business but that the proportion of the total crop carried by your railway increases year by year. The returns for the crop of 1909 show that your company carried 31% of the total shipments from Manitoba, Saskatchewan and Alberta. This your directors submit is a very satisfactory showing, having regard to the comparatively short time which your railway has been in existence, and also especially in view of the fact that the company has operated but a few years in Saskatchewan, and more recently still in Alberta. The remarkable increase in immigrants' effects of 1,939 cars, or 62% over the previous year, and 12,211 cars, or 128% over 1909 of coarse building materials, is gratifying proof of both kinds of expansion in your territory, viz., the opening up of new districts and the improvement in the quality of commercial and domestic construction in the towns. The larger centres reached by your railway, such as Winnipeg, Regina, Saskatoon, Prince Albert and Edmonton, have grown considerably during the year, but the expansion, as indicated by the haulage of heavy building materials, applies to practically every district which your railway serves. Commercial conditions generally throughout Western Canada are reflected in the substantial increase in freight revenues from the movement of westbound business.

The average mileage operated during the year was 3,179, compared with 3,013 the preceding year. The most noteworthy of the lines taken over from the construction department is that from Zealandia to Kindersley, on the Saskatoon-Calgary line, which has opened up a remarkably extensive and fertile tract of country. During the early spring as many as 40 carloads of immigrants' effects were daily being hauled to Kindersley, which, although a town of less than one year old, has nearly 1,000 inhabitants. It is expected the line will reach Calgary at an early date, and give that most important city its first competitive railway. The mileage actually brought into operation does not fully represent the extent of the growth of your railway during the year. Considerable stretches of line which have been constructed had not been formally taken over by the operating department at the close of the fiscal year, although an immigration service was being furnished by the construction department into several districts hitherto unreached by railways. The expansion of lines already in hand assures considerable development in the immediate future. The

Removal of Offices.

The Railway and Marine World offices have been removed to 70 Bond Street, Toronto. This has been rendered necessary by the expansion of business and consequent increase of staff, and by the necessity for securing more room for records, data, maps, plans, charts, reference library, etc., all of which are being continually added to. No more space being available at 157 Bay Street, it became necessary to look for new quarters.

In deciding to secure enlarged accommodation, the question of the best natural light available, by windows facing north, was the first consideration. It was some time before this could be found in a satisfactory locality, but it was ultimately secured in a new building at 70 Bond Street. In our new location we are installing the latest equipment and appliances for carrying on business to the greatest possible advantage. Added to the splendid natural light secured, a most up to date system of electric lighting has been put in. The offices are being equipped with the latest devices for filing correspondence, data, card indexes, etc., with ample provision for the systematic storage of and ready reference to maps, plans, charts, etc., of which we have a large and valuable collection, and for a reference library thoroughly covering the transportation and allied fields. Intercommunicating telephones will connect every desk and effect a large saving of time.

For some time past we were considerably inconvenienced by lack of sufficient space in our old offices, which were, however, most satisfactory in other respects. In our new quarters the work will be carried on to much greater advantage, and the result will be seen in still further improvements in the Railway and Marine World.

of Prince Albert, has already been commenced. Construction has already been of the Crooked Lake region, northwest tapping of the enormous timber limits started on the branch line to the Brazeau coal fields, which will furnish an inexhaustible supply of the finest fuel to Central Alberta and Western Saskatchewan. It is hoped with the completion of the line from Morinville to Athabasca Landing to bring much nearer development the asphalt and other deposits in the Athabasca district.

The crop results have proved more conclusively than ever the wisdom of building your railway through diversified territory. It happens this year that Southern Manitoba and the country adjacent to the U.S. has a crop below the average, but in the northern districts, where your line has immense territory tributary to it, the crops are, if anything, above the average. Your more experienced officers who have been through the country report that your company may expect to carry as much grain from the crop of 1910 as it did from the crop of 1909, the satisfactory conditions of the crop of 1910 being due to the better weather conditions prevailing in the northern half of the wheat-growing country, and there being an increased acreage under cultivation in all sections of the Prairie Provinces reached by your line. It may be taken as established, therefore, that with so vast an extent of producing country as is covered by your line a general crop failure is practically impossible. For the further development of the resources of the country served by your railway there is needed only a continuance of immigration to meet the demand for labor, which is as great today as it has ever been in Canada, and in that connection arrangements have been completed for a more extended campaign in Great Britain, as your directors most earnestly desire to see the best class of men from home settled along the company's line.

The land sales during the year were 246,996 acres, for $2,561,072.52—an average of $10.36 an acre, compared with 116,662 acres for $1,091,722.37—an average of $9.36 an acre last year. Among the sales is one to a colonization company which purposes to establish settlers of the very best class in the districts east of Prince Albert, which is especially suitable for mixed farming, and which, by reason of its wooded character, appeals strongly to settlers from Great Britain. Since the close of the fiscal year a number of other sales have been made at higher values per acre, and others are pending. The result to date in respect to land sales has been very gratifying to your directors. In Feb., 1899, an issue of $2,000,000 of land grant bonds was authorized, secured by certain lands. A reference to the general balance sheet shows that after providing for the retirement of the total issue, there is a surplus of $2,733,378.67 in the hands of the trust company belonging to your company, in addition to which there is a balance of deferred payments still to collect of $597,671.97. In June, 1909, a further issue of £1,027,400, or $5,000,013.32, of land grant bonds was authorized, secured by specific lands. Sales to the amount of $2,260,810.13 under this mortgage have been made on the deferred payment plan and with the collections your directors have retired £53,000, or $257,933.32 of the bonds, thus reducing the amount of bonds outstanding at the close of the fiscal year to £974,400, or $4,742,080. The general position in regard to land sales is as follows:—

Cash held by National Trust Co.	$4,733,378.67	
Deferred payments due C.N.R. on sales	8,231,249.09	
		$12,964,627.76
Less land grant bond issue, Feb., 1899	$2,000,000	
Less land grant bond issue, June, 1909	4,742,080	6,742,080.00
Surplus belonging to C.N.R. Co.		$6,222,547.76

In addition to which the C.N.R. has still 1,151,017 acres of land to dispose of, having a value, on the basis of present prices, of not less than $14,000,000.

Your directors are glad to report that two more important steps have been taken during the year towards making the C.N.R. a transcontinental line, with its own [illegible]. A contract has been entered into between the Canadian Northern Pacific Ry. Co. (which was separately incorporated on account of necessary arrangements in connection with the proposed issue of securities guaranteed by British Columbia) and the B.C. Government for the

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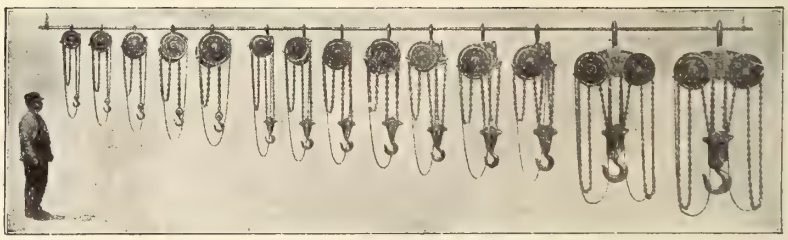

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construction of the line from Alberta to the Pacific coast, approximately 500 miles. The contract calls for the completion of the work within four years, and your directors have not only every reason to anticipate that it will be finished within the stipulated time, but that when it is completed and in operation it will prove of tremendous traffic advantage to the C.N.R. system as a whole.

Through a subsidiary company, the Canadian Northern Steamships Ltd., your directors now operate the two fastest steamers in the British-Canadian service, the Royal Edward and Royal George. These steamers are triple turbine vessels of over 12,000 tons each, with a speed exceeding 20 knots. They furnish a fortnightly service between Bristol, Quebec and Montreal, and carry mails. Bristol was chosen as the British port because of its contiguity to Canada, its admirable dock facilities and the opportunity it affords of securing freight and passenger business from the Midlands, the West of England, and South Wales. The service was inaugurated in May, and the result of the season's work so far is quite as satisfactory as your directors anticipated.

During the year various issues of securities were made on account of the construction of additional lines. In respect to the two issues, each of £600,000 4% first mortgage debenture stock guaranteed as to principal and interest by Saskatchewan and Alberta, respectively, on certain branch lines to be constructed, your directors desire to say that whilst the progress of construction has been quite satisfactory, none of the lines were completed before the close of the fiscal year. The payments authorized by the respective governments have been charged to "advances to lines under construction," and the balance unexpended appears on the general balance sheet to the credit of both governments. The interest paid on these securities is not a charge on the current year's business. Near the close of the fiscal year an issue was made of £950,000 Duluth, Winnipeg & Pacific Ry. 4% first mortgage debenture stock, which your company, with the approval of the Dominion Government, agreed to guarantee as to principal and interest. The Duluth Company owns the entire capital stock of the Duluth, Rainy Lake & Winnipeg Ry., which operates a line from Fort Frances, on your company's main line, southerly to Virginia, Minn., and is now constructing a continuation of about 78 miles to Duluth, where it has already acquired very valuable terminal properties. The importance of this connection to your company cannot be overestimated, because of the ever-increasing movement of passenger and freight traffic passing through the Duluth gateway to and from the U.S. and Western Canada. In addition to this the Duluth Company has obtained an exclusive contract with the Virginia & Rainy Lake Lumber Co. (having an annual capacity of 250,000,000 ft.) for the haulage of all its logs and lumber. The railway also has tributary to it the immense iron ore mines of the Missabe Range, and shipments must be carried by rail to the Great Lakes for furtherance by water carriers to destination. The operation, too, of one of the largest pulp and paper mills in the U.S. at International Falls, near Fort Frances, will contribute largely to the gross revenue of the Duluth line, it being estimated that when the complete plant is in operation it will represent the haulage of over 1,000,000 tons of raw or finished products annually, the greater tonnage of which will be handled by the Duluth Company. Instead, therefore, of being called upon to make any payments under the guarantee, it is expected that the arrangement will add materially to the gross revenue of your company.

In keeping with the policy of the company your directors continue to incur large expenditures in betterments of the property. During the year additional car trust obligations were created to the amount of $3,000,000, and $1,650,000 repaid in respect to previous obligations, thus making a net increase on the account of $1,350,000. Considerable mileage has been relaid with heavy steel. New stations and freight houses have been built and existing buildings extended at many points. Industrial tracks have been built or extensions made to existing sidings and generally an intelligent regard has been had to the pressing necessities of a development which can only be characterized as remarkable in its growth.

Toward the close of the financial year your directors arranged for an issue of 5% 20-year income charge convertible debenture stock, secured by a general charge on properties of the company, subject to prior charges. The total amount of this stock at any time outstanding is not to exceed an amount equal to $10,000 a mile of the company's lines. During 1916, 1917 and 1918 holders of the stock have the right to exchange their holdings for an equal amount of fully paid ordinary shares in the capital stock of the company. The interest on the stock, at a rate not exceeding 5% per annum, is payable only out of the net earnings. In and after 1920 the company is entitled to redeem the stock at par. Since the close of the financial year $5,000,000 of this stock has been disposed of upon satisfactory terms and, as you will see by the figures given in the annual statements, and by its present earnings, the company will be in a position to meet the full interest during the coming year.

The accounts and statistical tables appended, were submitted by D. B. Hanna, Third Vice President, as follows:—

GENERAL BALANCE SHEET.

ASSETS.

Cost of railway and equipment		$133,782,348.08
Acquired securities (cost)		5,725,060.21
Advances to other companies		1,819,227.32
Advances to lines under construction and terminals at Winnipeg		7,864,010.89
Value of material and supplies on hand	$1,412,162.18	
Due from agents, station balances, etc.	612,650.72	2,024,812.90
Deferred payments on land sales	8,231,249.09	
Cash with National Trust Co., account of land sales	4,733,378.67	12,964,627.76
Cash Account—		
With Dominion Government	975,751.94	
Province of Manitoba	1,710,199.20	
Province of Saskatchewan	2,076,478.83	
Province of Alberta	3,314,306.12	
Cash on hand	1,796,968.10	9,873,704.19
		$174,053,791.35

In addition to the above assets the company owns 1,151,017 acres of land in Manitoba and Saskatchewan.

LIABILITIES.

Capital stock		$55,000,000.00
Bonds and stock (guaranteed by Government		44,490,210.02
4% perpetual consolidated debenture stock		33,058,049.97
Land grant bonds, 1899	$2,000,000.00	
1909	4,742,080.00	6,742,080.00
Car trust obligations		11,121,862.87
Current liabilities—		
Unpaid pay rolls	736,267.37	
Unpaid audited vouchers	944,104.10	
Due other companies (net)	2,538,280.49	4,218,651.96
Coupon and dividend warrants due July 1 (since paid)	1,642,225.89	
Accrued interest on bonds and equipment securities	224,562.92	1,866,788.81
Equipment replacement fund		108,258.31
Gross land sales	14,497,029.42	
Less land grant bonds (issue 1899), as above, money to redeem which is in hands of National Trust Co.	2,000,000.00	
Surplus—		
Land grant account	2,497,029.42	
Railway account	4,950,859.99	17,447,889.41
		$174,053,791.35

ACQUIRED SECURITIES.

Minnesota and Ontario Bridge Co.	
4½% first mortgage debenture bonds	$180,000.00
Capital stock	100,000.00
Minnesota and Manitoba Rd.	
5% general mortgage bonds	250,000.00
Capital stock	400,000.00
Lake Superior Terminals Co.	
5% mortgage gold bonds	2,000,000.00
Capital stock	500,000.00
Canadian Northern Telegraph Co.	
5% general mortgage bonds	800,000.00
Capital stock	500,000.00
Winnipeg Land Co.	
5% first mortgage gold bonds	300,000.00
Capital stock	100,000.00
Canadian Northern Coal & Ore Dock Co.	
5% first mortgage bonds	375,000.00
St. Boniface & Western Land Co.	
5% first mortgage bonds	750,000.00
Capital stock	250,000.00
Edmonton and Slave Lake Ry.	
5% first mort age bonds	420,000.00
Canadian Northern Prairie Lands Co.	
Capital stock	483,393.55
	$7,408,393.55

INCOME ACCOUNT.

Operating expenses		$9,341,486.41
Taxes, railway		96,693.73
Taxes on company's lands		50,491.46
Interest on bonds, etc.:		
Consolidated debenture bonds guaranteed by Manitoba	$478,451.67	
Ontario Division debenture bonds, guaranteed by Manitoba	230,706.77	
3% debenture stock, guaranteed by the Dominion	280,799.84	
Consolidated debenture stock	1,150,055.26	
Qu'Appelle, Long Lake and Saskatchewan Ry. 4% debenture stock	202,055.96	
Qu'Appelle, Long Lake and Saskatchewan Ry. 6% bonds	1,927.20	
Land grant 4% bonds	191,532.51	$2,535,529.21
Rental of leased lines:		
Northern Pacific & Manitoba Ry.	210,000.00	
Minnesota & Manitoba Rd.	13,960.00	223,960.00
Interest on equipment securities		554,143.37
Accrued interest to June 30.	224,562.92	
Less accrued interest at June 30, 1909, paid during current year	196,147.53	28,415.39
Balance of income account		4,950,859.99
		$17,781,579.56
Balance of income account at June 30, 1909		$3,948,517.93
Gross earnings:		
Passenger earnings	$2,415,440.39	
Freight earnings	10,102,510.36	
Express, mail and miscellaneous earnings	1,315,110.88	13,833,061.63
		$17,781,579.56

GROSS EARNINGS

Class.	1910.	%
Passenger	$2,415,440.39	17.46
Freight	10,102,510.36	73.03
Mails	77,599.06	00.56
Express	145,904.36	01.06
Miscellaneous	1,091,607.46	07.89
Total	$13,833,061.63	100.

OPERATING EXPENSES.

Class.	1910.	%
Maintenance of way and structures	$2,047,830.97	21.58
Maintenance of equipment	1,840,112.42	19.39
Traffic expenses	153,512.02	01.62
Transportation expenses	4,879,153.36	51.42
General expenses	568,062.83	05.99
Total	$9,488,671.60	100.

DESCRIPTION OF FREIGHT CARRIED.

	For year ended June 30, 1909-10.	1908-09.
Flour, sacks, 100 lbs each	1,789,768	1,380,207
Grain, bushels	[illegible]	27,113,077
Live stock, head	[illegible]	91,546
Logs and lumber feet	294,647,000	247,452,000
Firewood, cords	189,535	177,231
Fish, tons	[illegible]	4,547
Immigrants' effects, cars	[illegible]	3,129
Building material (lime, stone brick, sand, etc.), cars	21,758	9,547
Miscellaneous, tons	[illegible]	1,073,872

PASSENGER TRAFFIC.

	1909-10.	1908-09.
Passengers carried	1,268,296	1,055,787
Passengers carried one mile	106,217,424	78,044,255
Passengers carried one mile per mile of road	33,412	25,902

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Sole manufacturers of the celebrated GALENA COACH, ENGINE and CAR OILS, and SIBLEY'S PERFECTION VALVE and SIGNAL OILS.

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Is pure water white in color; high fire test; low cold test, and splendid gravity.

Please write to home office for further particulars.

CHARLES MILLER,

PRESIDENT

Average distance carried ..	83.75	75.86
Total passenger revenue ..$	2,320,520.52	1,829,703.25
Average amount received per passenger .....$	1.82.96	1.77.85
Average amount received per passenger per mile .	02.184	.02 344
Total pass. train earnings,	$2,638,943.81	2,112,845.55
Passenger train earnings per train mile .....$	1.08.115	1.04.453

FREIGHT TRAFFIC.

	1909-10.	1908-09.
Revenue tons carried.....	3,809,856	2,958,802
Revenue tons carried 1 mile.	1,356,351,140	1,000,875,386
Revenue tons carried 1 mile per mile of road	426,659	332,185
Av. distance haul of 1 ton.	356.01	338.27
Total freight revenue.....$	9,955,289.93	7,370,376.28
Av. amount received for each ton of freight .....$	2.61.303	2.49.100
Av. revenue per ton per mile	.00.734	.00.736
Total freight train earnings	$10,102,510.36	7,481,325.94
Freight train earnings per train mile .....$	2.59.086	2.46.189

PASSENGER AND FREIGHT, ETC.

	1909-10.	1908-09.
Gross earnings per mile of road .....$	4,351.39	3,512.04
Operating expenses per mile of road.....	2,984.80	2,328.38
Net earnings per mile of road	1,366.59	1,183.66
Amount required per mile of road to pay fixed charges, including leased lines ..$	868.03	809.45

TRAIN MILEAGE.

	1909-10.	1908-09.
Mileage of passenger trains	2,440,870	2,022,778
Mileage of freight trains ..	3,899,280	3,038,859

EXPENSES PER TRAFFIC TRAIN MILE.

	1909-10.	1908-09.
Maintenance of way and structures	32.30	27.76
Maintenance of equipment..	29.02	23.72
Traffic expenses	02.42	02.54
Transportation expenses ..	76.96	76.14
General expenses	08.96	08.44
Total .....$	1.49.66	1.38.60

SUMMARY OF EQUIPMENT.

	June 30, 1909.	June 30, 1910.
Locomotives	372	346
Sleeping and dining cars	43	39
Passenger coaches	203	164
Baggage and mail and express cars..	79	72
Business cars	11	7
Freight, refrigerator and stock cars	11,735	9,465
Conductors' vans	184	118
Boarding, tool, auxiliary cars, steam shovels and snow equipment	416	355

The total mileage owned and operated, including leased lines, at June 30, was 3,325, located as follows:—Ontario, 353.7 miles; Manitoba, 1,530.9 miles; Saskatchewan, 1,182.5 miles; Alberta, 214.2 miles; Minnesota, 43.7 miles. The average mileage operated during the year was 3,179.

The report was unanimously adopted, and the directors re-elected, as follows: —W. Mackenzie, President; D. D. Mann, Vice President; Z. A. Lash, K.C., F. Nicholls, Toronto; R. M. Horne-Payne, London, Eng.

The monorail car, running between Bartow and City Island, New York, which met with an accident on the first day of its operation three months ago, has been rebuilt, and the road, which has been carrying passengers experimentally for some weeks, shortly commence regular service under a new franchise. The car is carried on two trucks on a single rail, and is supported by a strong trolley running on a rigid overhead rail supported from standards placed on the side of the track.

The British Board of Trade's report on railway accidents in the United Kingdom during 1909, shows that only one passenger was killed in an accident to a train in which he was travelling, and that this was the first fatality for 20 preceding months. The number of passengers injured while travelling was 390, which is the lowest average for several years past. As 1,264,000,000 passengers were carried during 1909, the death record is certainly remarkably small. By accidents to pasengers from other causes —falling between trains and platforms, etc.—directly traceable to personal carelessness and disobedience of orders, 82 persons were killed and 2,148 were injured.

December Birthdays.

Many happy returns of the day to—

E. Alexander, Assistant Treasurer C.P.R., Montreal, born in Yorkshire, Eng., Dec. 8, 1862.

J. H. Barber, Engineering Department C.P.R., Montreal, Que., born at Cobourg, Ont., Dec. 20, 1856.

N. E. Brooks, C.P.R. Division Engineer, Calgary, Alta., born at Sherbrooke, Que., Dec. 25, 1866.

Harold Browning, Steamship Agent, etc., Windsor, Ont., born at Stamford, Lincolnshire, Eng., Dec. 2, 1864.

J. C. M. Buntzen, Director British Columbia Electric Ry. Co., Copenhagen, Denmark, born there Dec. 16, 1859.

T. C. Burpee, Engineer of Maintenance of Way Intercolonial Ry., Moncton, N.B., born at Sheffield, N.B., Dec. 11, 1852.

W. W. Butler, Vice President Canadian Car and Foundry Co., Ltd., Montreal, born at Danville, Ohio, Dec. 9, 1862.

M. M. Campbell, C.E., Building Inspector G.T.R., Montreal, born at Bridgeton, N.B., Dec. 17, 1879.

A. H. Chave, Purchasing Agent and Assistant to First Vice President Canadian Car and Foundry Co., Montreal, born at Williamsbridge, N.Y., Dec. 26, 1872.

H. P. Dwight, President Great North Western Telegraph Co., Toronto, born at Belville, Jefferson Co., N.Y., Dec. 23, 1828.

R. Forget, M.P., President Richelieu and Ontario Navigation Co., Montreal, born at Terrebonne, Que., Dec. 10, 1861.

W. H. Gardiner, City Freight Agent C.P.R., and District Freight Agent Esquimalt and Nanaimo Ry., Victoria, born there, Dec. 6th, 1859.

H. H. Gildersleeve, Manager Northern Navigation Co. of Ontario, Sarnia, born tion Portland Canal Short Line Ry.,

A. J. Gorrie, ex-General Superintendent Canadian Northern Quebec Ry., now Receiver Quebec and Lake St. John Ry., Quebec, born at Raith, Kirkcaldy, Scotland, Dec. 10, 1868.

W. H. Grant, Manager of Construction Portland Canal Short Line Ry., Stewart, B.C., born at Acton, Ont., Dec. 8, 1858.

F. P. Gutelius, General Superintendent Lake Superior Division C.P.R., North Bay, Ont., born at Mifflinburg, Pa., Dec. 21, 1864.

D. B. Hanna, President Quebec and Lake St. John Ry., Third Vice President Canadian Northern Ry., Toronto, born at Thornliebank, Scotland, Dec. 20, 1858.

S. P. Howard, ex-General Freight Agent Eastern and Lake Superior Divisions C.P.R., Montreal, born there Dec. 30, 1865.

R. Johnson, Locomotive Foreman C.P.R., White River, Ont., born at Quebec, Que., Dec. 24, 1863.

B. B. Kelliher, Chief Engineer Grand Trunk Pacific Ry., Winnipeg, born in Ireland, Dec. 26, 1862.

J. T. McGrath, Master Mechanic G.T.R., Battle Creek, Mich., born at Toronto, Dec. 6, 1869.

A. T. McKean, Soliciting Freight Agent C.P.R., Winnipeg, born at St. John, N.B., Dec. 18, 1886.

L. Macdonald, Division Freight Agent G.T.R., Toronto, born at Montreal, Dec. 10, 1871.

J. Niblock, ex-Superintendent C.P.R., Naramata, B.C., born in York County, Ont., Dec. 21, 1849.

A. Price, General Superintendent Alberta Division C.P.R., Calgary, born at Toronto, Dec. 6, 1861.

G. D. Robinson, Assistant Export and Import Freight Agent C.P.R., Toronto, born at St. John, N.B., Dec. 7, 1877.

C. Schreiber, C.M.G., Consulting Engineer Department of Railways and Canals, Ottawa, Ont., born at Bradwell, Essex, Eng., Dec. 14, 1831.

F. P. Smith, Secretary Richelieu and Ontario Navigation Co., Montreal, born there, Dec. 23, 1873.

C. E. E. Ussher, Passenger Traffic Manager C.P.R., Montreal, born at Niagara Falls, Ont., Dec. 29, 1857.

H. H. Vaughan, Assistant to Vice President C.P.R., Montreal, born at Forest Hill, Essex, Eng., Dec. 26, 1868.

R. C. Vaughan, Assistant to Third Vice President Canadian Northern Ry., Toronto, born there Dec. 1, 1883.

W. Wood, locomotive foreman C.P.R., Megantic, Que., born at Montreal, Dec. 6, 1863.

G. T. R. Subsidiary Companies.

Following are the officers and directors for the current year:—

CHICAGO AND KALAMAZOO TERMINAL RD. —President, A. B. Atwater; Vice President, F. M. Hodge; Secretary-Treasurer, G. W. Alexander; other directors, L. C. Stanley, M. H. Lane, F. B. Lay, C. B. Hays, D. A. Shepardson, C. Clarage.

CHICAGO, DETROIT AND CANADA GRAND Trunk Jct. Rd.—President, C. M. Hays; Vice President, E. H. Fitzhugh; other directors, J. W. Loud, W. H. Biggar, A. B. Atwater; Secretary, G. W. Alexander; Treasurer, F. Scott.

DETROIT, GRAND HAVEN AND MILWAUKEE Ry.—President, C. M. Hays; Vice President, E. H. Fitzhugh; other directors, J. W. Loud, W. G. Brownlee, Jos. Hobson, A. B. Atwater, F. W. Egan, A. P. Sherrill, J. Pridgeon, jr.; Secretary-Treasurer, G. W. Alexander.

GRAND RAPIDS TERMINAL RD.—President, A. B. Atwater; Secretary-Treasurer, G. W. Alexander; other directors, L. C. Stanley, F. W. Egan, C. Clarke.

GRAND TRUNK JUNCTION RY.—President C. M. Hays; Vice President, E. H. Fitzhugh; other directors, J. W. Loud, A. B. Atwater, F. A. Howe; Secretary-Treasurer, G. W. Alexander.

GRAND TRUNK MILWAUKEE CAR FERRY Co.—President, C. M. Hays; Vice President, E. H. Fitzhugh; other directors, W. G. Brownlee, A. B. Atwater, E. H. Bottum; Secretary-Treasurer, G. W. Alexander.

GRAND TRUNK WESTERN RY.—President, C. M. Hays; Vice President, E. H. Fitzhugh; other directors, W. G. Brownlee, A. B. Atwater, A. Dixon, A. W. Wright, L. R. Skinner; Secretary-Treasurer, G. W. Alexander.

INTERNATIONAL BRIDGE CO.—President, C. M. Hays; Vice President, E. H. Fitzhugh; other directors, J. W. Loud, W. G. Brownlee, H. G. Kelley, Jos. Hobson, H. W. Sprague; Secretary, G. W. Alexander; Treasurer, F. Scott.

MICHIGAN AIR LINE RY.—President, C. M. Hays; Vice President, E. H. Fitzhugh; other directors, J. W. Loud, W. H. Biggar, A. B. Atwater; Secretary, G. W. Alexander; Treasurer, F. Scott.

PONTIAC, OXFORD AND NORTHERN RD. President, C. M. Hays; Vice President, E. H. Fitzhugh; other directors, M. M. Reynolds, J. W. Loud, A. B. Atwater, L. C. Stanley; Secretary-Treasurer, G. W. Alexander.

ST. CLAIR TUNNEL CO.—President, C. M. Hays; Vice President, E. H. Fitzhugh; other directors, J. W. Loud, W. G Brownlee, W. H. Biggar, Jos. Hobson, A. B. Atwater; Secretary, G. W. Alexander; Treasurer, F. Scott.

TOLEDO, SAGINAW AND MUSKEGON RY. President, C. M. Hays; Vice President, E. H. Fitzhugh; other directors, J. W. Loud, A. B. Atwater, A. F. Temple, C. W. Middleton, F. E. Ranney; Secretary-Treasurer, G. W. Alexander.

The Intercolonial Ry. brotherhoods of machinists, boilermakers, blacksmiths, and carmen appointed a committee, Nov. 10, to consider the question of federation on similar lines to that adopted on the C.P.R.

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G. T. R. Semi-Annual Meeting.

The semi-annual meeting was held in London, Eng., Oct. 21, when the report for the half year ended June 30 was presented. The following summary shows a comparison of the revenue with that of the corresponding half-year, 1909:—

1909.		1910.
£2,866,468	Gross receipts	£3 321,636 11 0
	Deduct—	
2,079,196	Working expenses, being at the rate of 73.94%, as compared with 72.54% in 1909.	2,456,065 7 6
787,272	Net traffic receipts	865 571 3 6
Cr. 58,092	Balance of income from rentals, outside operations, and car mileage	*Cr.* 58,089 10 2
845,364	Total net revenue	923,660 13 8
	Add—	
16,013	Amount received from International Bridge Co.	16,012 16 7
6,507	Interest on Central Vermont Ry. bonds	6,506 14 3
60,320	Interest on securities of controlled lines and on St. Clair Tunnel bonds acquired by the issue of Grand Trunk 4% debenture stock	62,483 10 10
33,997	Balance of general interest account	38 302 7 0
£962,201	Net revenue receipts	£1,046,966 2 4

Following are the net revenue charges for the half-year, compared with the corresponding period:—

1909.		1910.
£77,603	Rents (leased lines)	£77,603 0 9
503,481	Interest on debenture stocks and bonds of the company	520,240 17 4
34,332	Interest on debenture stock and bonds of lines consolidated with the company	32,447 17 9
41,103	Can. Atlantic Ry. deficiency	34,965 18 2
25,749	D., G.H. & M. R. deficiency	34,547 16 10
682,268		699,805 10 10
279,933	Leaving a surplus of	347,160 11 6
£962,201		£1,046,966 2 4

Adding the balance of £11,839 11s 6d at credit of net revenue account on Dec. 31, 1909, to the surplus of £347,160 11s 6d, the amount available for dividend is £359,000 3s 0d, from which the directors recommend payment of the following dividends, viz.:—

Half-year on 4% guaranteed stock	£197,816 11 8
Half-year on first preference stock	85,420 15 0
Half-year on second preference stock	63,210 0 4
	£346,447 7 0

leaving £12,552 16s 0d to be carried forward to next half-year's account.

Following is a table of the receipts for the half-years ended June 30, 1910 and 1909:—

TRAFFIC STATISTICS

Description.	1910	1909	Increase.	Decrease.
	£	£	£	£
Passengers	884,274	780,162	95,112	....
Mails and express	146,426	134,823	11,603	....
Freight and live stock	2,186,067	1,861,785	324,282	....
Other receipts	104,869	80,635	24,234	....
	3,321,636	2,866,468	455,168	....
Passengers carried	4,990,401	4,817,156	173,245	....
Average fare per passenger	42.58d	39.32d	3.26d	....
Tons of freight and live stock	8,852,382	7,508,440	1,343,942	....
Average rate per ton	59.40d	59.52d	....	0.12d
Tons carried one mile	1,589,087,718	1,374,668,422	214,419,296	....
Earnings per train mile	83.44d	80.72d	2.72	....

The average rate per ton per mile on the entire freight business was 0.67c., compared with 0.66c. in the corresponding half-year.

The working expenses, excluding taxes, were £2,409,690, or 72.55% of gross receipts, compared with £2,037,014 or 71.06%, an increase of 1.49%.

Revenue expenditure, including taxes, for half-years ended June 30, 1910 and 1909:—

Description.	1910.	1909.	Increase.
	£	£	£
Maintenance of way and structures	365,487	272,176	93,311
Maintenance of equipment	638,696	449,110	189,586
Traffic expenses	107,475	91,407	15,968
Conducting transportation	1,294,024	1,135,172	09,452
General expenses	93,508	89,159	4,349
Taxes	46,375	42,182	4,193
Total	£2,456,065	£2,079,197	376,868
Per centage of gross receipts	73.94	72.54	1.40
Expenditure per train mile	61.731	54.961	6.770

Increase in train mileage, compares with that for the half-year ended June 30, 1909, as follows:—

Description of Mileage.	1910.	1909.	Increase.
Passenger	4,133,558	4,086,109	17,429
Freight	5,111,999	4,732,765	389,144
Mixed trains	272,592	240,528	32,064
Total	9,518,039	9,079,402	438,637

The gross receipts show increase of £455,168, or 15.88%; the working expenses, including taxes, £376,868, or 18.12%, and train mileage 468,637, or 5.16%.

The charges to capital account were £148,821 10s 11d. Of this £110,342 9s 4d was for the acquisition of $537,000 G.T. Western Ry. first mortgage bonds issued in respect of a similar amount of Northwestern G.T. bonds, which matured Jan. 1, and were paid off during the half-year; and £27,148 18s 6d for discount and commission on 4% guaranteed stock and additional 4% debenture stock issued in exchange for Midland consolidated bonds, less premium on 4% debenture stock sold.

The expenditure on capital account in respect of new works, double track and land purchased, was as follows:—

New works	£4,153 4s. 5d.
Double track	1,152 9 9
Land purchased	6,024 8 11
	£11,330 3 1

During the half-year, 10 passenger engines and one dining and six first class passenger cars were built in the company's works, and 35 freight engines and 10 baggage cars purchased on revenue account, and £122,117 3s 1d has been charged to revenue in reduction of engine and car renewal suspense account, leaving the balance of that account on June 30 £75,578 3s 4d, of which £26,346 was in respect of engines and £49,232 3s 4d of cars.

CANADA ATLANTIC RAILWAY.

The following summary shows results of the half-year's working, compared with the corresponding period of 1909:

1909.		1910.
£168 073	Gross receipts	£192.977
161,482	Working expenses	169,500
6,591	Net traffic receipts	23,477
12,419	Balance of income from rentals, outside operations and car mileage	4,586
£19,010	Total net revenue	£28,063

The interest charges were £63,029, against £60,113, so that there was a net revenue deficiency of £34,966, compared with £41,103 in 1909.

GRAND TRUNK WESTERN RAILWAY.

The following summary shows results of the half-year's working compared with the corresponding period, 1909:

1909.		1910.
£553,847	Gross receipts	£643,457
440,093	Working expenses	509,571
113,754	Net traffic receipts	133,886
Dr. 39,996	Balance of income from rentals, outside operations and car mileage	*Dr.* 55,872
£73,758	Total net revenue	£78,014

The net revenue charges were £92,187, so that there was a net revenue deficiency of £14,173, compared with a deficiency of £13,883 for the corresponding half-year of 1909. Deducting this deficiency from the surplus for the half-year ended Dec. 31, 1909, of £25,789, there remains a surplus for the year to June 30, 1910, of £11,616, and adding to this the balance of £5,650 carried forward on June 30, 1909, the net revenue balance is £17,266, which will admit of payment of full interest on second mortgage income bonds, and leave a balance of £4,937.

DETROIT, GRAND HAVEN AND MILWAUKEE RAILWAY.

The following summary shows results of the half-year's working, compared with the corresponding period, 1909:—

1909.		1910.
£160,223	Gross receipts	£199,488
136,955	Working expenses	167,654
23,268	Net traffic receipts	31,834
Dr. 12,072	Balance of income from rentals, outside operations, and car mileage	*Dr.* 29,401
£11,196	Total net revenue	£2,433

The net revenue charges were £36,981, against £36,946 in 1909, so that there was a net revenue deficiency of £34,548, as compared with £25,749 for the corresponding period of 1909.

GRAND TRUNK PACIFIC RAILWAY.

The contractors for the Government have continued to encounter difficulties on the eastern division from Lake Superior Jct. to Winnipeg owing to the sinking of the line caused by the swampy nature of the ground at various points. These difficulties have been practically overcome, and, under special arrangement with the Government, the expectation that this year's grain would be carried over the line from Winnipeg to the Lake will be realized. Pending the official opening, it has been arranged, in order to give the public as soon as possible the convenience of improved communication between Winnipeg and Edmonton over the Prairie section, that a daily passenger and freight train service should be run each way between those points. This service was commenced early in July, and has given great satisfaction, the time saved in the journey being from five to seven hours as compared with any other route. The expenses of operation are charged to construction account, which is also credited with the receipts. From Winnipeg west the track has been laid for 916 miles to Wolfe Creek, the end of the Prairie section, 123 miles west of Edmonton. From Wolf Creek, the beginning of the Mountain section, track has been laid to Edson, and it is expected, will be extended to the Athabasca River, 100 miles, by the end of the season. From Prince Rupert rail has been laid for 80 miles, and grading completed to Copper River, 130 miles. The expectation that the line would reach Tete Jaune Cache from the east and Aldermere from the west this year, is not likely to be fulfilled, owing to the great scarcity of labor. The contractors have made every effort to obtain labor, offering as much as $3 a day, and making every possible arrangement for the comfort of the men, yet they are at least 1000 men

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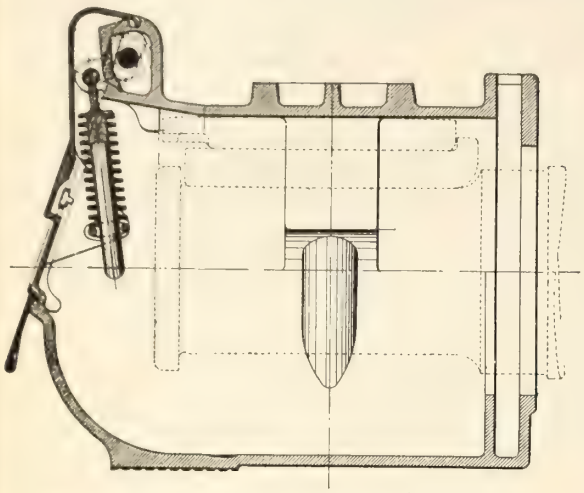

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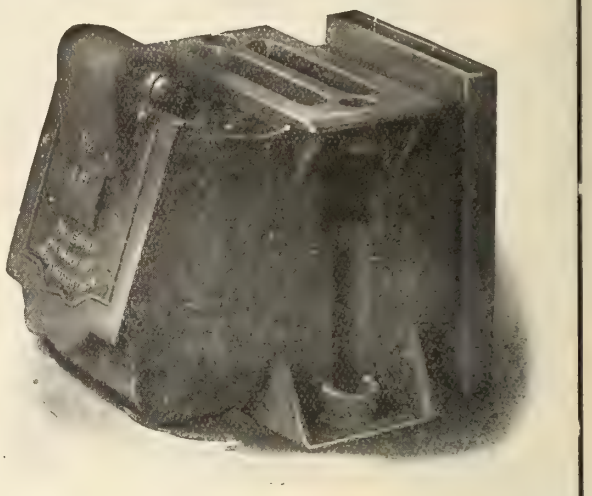

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CAR CASTINGS, FORGINGS AND REPAIR PARTS

short of their requirements. Continued progress has been made with the building of branch lines from Melville to Regina, Melville to Yorkton and Canora, Sask., and Tofield to Calgary, Alta. The scarcity of labor has, however, also retarded the work on these lines.

REPORTS OF OFFICIALS.

The Chief Engineer, H. G. Kelley, states that the expenditure for maintenance of the property, during the half-year was $454,116.03 more than during the corresponding period of 1909.

The Superintendent of Motive Power, W. D. Robb, reports expenditure, mileage, etc., as follows:—

Half-year ended	Total expenditure.	Train mileage	Rate of expense per mile. Train	Engine	Car
June, 1910..	$4,944,322	9,548,039	51 78c	39.68 c.	3.25 c.
" 1909..	4,150,751	9,079,402	45.72c	35.91 c.	2.83 c.

An increase in expenditure of $793,-571, or 19.12%, compared with an increase in train miles of 468,637, or 5.16%.

	Passenger trains.	Freight trains.	Mixed trains.
The average number of cars moved per train was..	4.6	25.5	7.0
And for the corresponding period	4.5	26.7	6.8

During the half-year three locomotives were scrapped, leaving 26 old light capacity engines set aside to be scrapped. Ten Pacific type passenger locomotives were built at Point St. Charles shops, and 15 compound consolidation freight locomotives and 25 simple mogul freight locomotives were purchased, and put into service.

The actual stock at June 30th, 1910, was 924 locomotives, against the official figure of 803.

The comparative cost of repairs per train, engine and car mile was:—

Cost per mile.	Repairs and renewals of locomotives. 1910.	1909	All repairing charges, including shop machinery, tools and marine equipment, etc. 1910	1909
Train	16.99 c.	11.37 c.	19.00 c.	12.98 c.
Engine.....	13.02 c.	8.94 c.	14.56 c.	10.19 c.
Car	1.07 c.	0.70 c.	1.19 c.	0.80 c.

J. Coleman, Superintendent Car Department, reports expenditure, mileage, etc., as follows:

Half-year ended.	Total cost of repairs and renewals.	Total miles run by cars. Passenger.	Freight.	Total	Cost per mile. Car.	Train
June, 1910	$1,344,588	19,599,216	132,637,532	152,236,748	0.883 c.	14.08 c.
" 1909	1,034,173	18,817,467	127,871,131	146,688,598	0.705 c.	11.39 c.

An increase in expenditure of $310,-410, or 30.01%, with an increase in car miles of 5,548,150, or 3.782%.

One dining and six first class cars were built at the company's shops, and 10 baggage cars were purchased, out of revenue.

The income account for the half-year is as follows:—

		£	s.	d.
RECEIPTS.				
Freight		2,279,049	10	9
Less —				
Cartage, &c., ...	58,250	15	0	
International Bridge tolls	15,391	10	11	
St. Clair Tunnel tolls	24,379	14	6	
	98,022	0	5	
Passenger	891,290	3	1	
Less —				
International Bridge tolls	847	5	2	
St. Clair Tunnel tolls	6,168	18	1	
	7,016	3	3	
Mail and express				
Other revenue from transportation				
Revenue from operations other than transportation				
		2,186,027	10	4
		884,273	19	10
		146,436	9	5
		67,585	15	5
		37,372	16	
		3,321,636	11	0

EXPENDITURE.

On account of—		£	s.	d.
Maintenance of way and structures 11.00%		365,487	8	11
Maintenance of equipment ..19.23		638,696	7	6
Traffic expenses 3.23		107,374	13	8
Conducting transportation...36.27		1,204,624	2	8
General expenses 2.82		93,507	14	11
Total operating expenses 72.55		2,409,690	7	8
Taxes 1.39		46,374	19	10
	73.94%	£2,456,065	7	6
Net income from rentals .....*Cr.*		71,366	0	2
		2,384,699	7	4
Dining car service balance *Dr*		165	13	7
		2,385,165	0	11
Hire of equipment balance ....*Dr.*		12,810	16	5
		2,397,975	17	4
Balance to net income account .		923,660	13	8
		£3,321,636	11	0

A. W. Smithers, Chairman, in proposing the adoption of the report, dealt with the accounts in detail, and also referred to his recent tour of inspection over the system. He reported that the Ottawa station is nearing completion, and stated that the company would have as tenants and part users, the C.P.R., C.N.R. and New York Central Lines. The recently built M.C.R. Detroit River tunnel was also mentioned, and it was announced that the G.T.R. would, doubtless use the tunnel for some of its traffic, on terms, especially during the winter, so that difficulty with ice in the Detroit River would be avoided. The trip over the G.T.P.R. from Fort William to Prince Rupert was also described, and it was stated that it was hoped to have track laid to the Athabasca River this year. Dividends of 2% on the 4% guaranteed stock, 2½% on the first preference stock, and 2½% on the second preference stock were declared. The company is promoting legislation in the Dominion Parliament to sanction the holding of one general meeting each year, instead of two, and to make up its accounts annually instead of semi-annually; to pay dividends semi-annually, to provide a reserve fund for extensions, renewals, maintenance, repairs, etc.; to acquire, hold and sell the stocks and securities of the Montreal and Southern Counties Ry.; to guarantee interest at 4% on an issue of 4% first mortgage bonds of the Grand Trunk Western Ry., to issue additional G.T.R. consolidated debenture stock as may be necessary, and to repeal certain inconsistent provisions of former acts.

Government Railways Provident Fund.

This fund was established April, 1907, by a contribution of 1½% of the monthly salary or wages of each officer or employe, on which 3% is allowed by Government and a sum equal to that contributed by the employes given out of the revenues of the railways. The minimum allowance from the fund is $20 a month and the maximum is two-thirds of the pay at the time of retirement. The fund is administered by five persons, three of whom are officers of the railway appointed by the Department of Railways and two elected annually by the contributing employes. On April 1, 1909, there had been accumulated a fund of $225,898.31. The employes' contributions for the year were $69,949.70, and with the railway contribution, interest, etc., the total fund for the year aggregated $372,-595.09. The total expenditure for the year was $117,010.01, of which $103,-628.20 was paid out in retiring allowances to employes, leaving a capital balance of $255,585.08. Since the fund was started 398 employes have been pensioned, of whom 168 were placed on the list during the year under review; 45 pensioners have died, leaving 353 persons now on the list. The total amount paid in pensions since the fund was started has been $191,608.87.

Reid Newfoundland Co's Works.

A Toronto Globe staff correspondent has been visiting Newfoundland and writing a series of letters. In one from St. John's he says:—"The city's greatest industry is the Reid Newfoundland Co.'s locomotive and car works. These turn out the rolling stock of the road, carry out all repairs, and keep pace with the need of the new lines in supplying equipment. They are now building four locomotives. They also carry out all the work of the dry dock, which is 600 ft. long, 132½ ft. wide in the body, with 85 ft. entrance and 25 ft. depth on the sills. The dock held one of the Empresses. It is available for all purposes, from the patching of a fishing schooner to the repairing of a liner's hull. There are now 250 men employed in the works, but the force is increased to about 400 in the busy season."

Emergency Tools for Cars.

The Board of Railway Commissioners passed the following order: 12206, Nov. 3:—"Every railway company subject to the legislative authority of the Parliament of Canada, operating a railway by steam power, shall cause its sleeping, dining, baggage, mail and express cars and coaches used in passenger service on its railway, to be equipped with emergency tools, consisting of a sledge, axe, and saw; said tools to be kept in a conspicuous place in every such car, so as to be easy and ready of access in case of need, and said cars to be so equipped on or before April 1, 1911. That every such railway company be liable to a penalty of not exceeding $25 for every failure to comply with the foregoing regulation within the time for its coming into force and thereafter."

The Engineers' Club of Toronto, at a meeting Nov. 10, considered the proposed bylaws of a social club, which it is intended to establish there. The intention is to limit the membership to 500 resident, 200 non-resident, 25 life and 75 associate members. The provisional directors are:—C. M. Canniff, Chairman Engineers' Club of Toronto; A. B. Barry, W. Chipman, J. Galbraith, J. G. Sing, J. B. Tyrrell and A. J. Van Nostrand.

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Alberta Central Ry.—The location plan of the section under construction from Red Deer to Rocky Mountain House shows a line from just south of Red Deer, in tp. 38, range 27, southwesterly to the Red Deer River, where the line turns northwest, and crosses the 5th meridian at Cygnet Lake, passes to the south of Sylvan Lake, crosses the Medicine River south of Eckville, and then proceeds westerly to Rocky Mountain House, through tps. 39, ranges 3, 4, 5, 6 and 7. We are advised that it is expected to complete about 20 miles of grading, and to lay about six miles of track this season. The company had not purchased any rails at the time of our advice, and the six miles of track which it is proposed to lay will be for the purpose of getting in bridge material.

The Board of Railway Commissioners has authorized the A.C.R. to cross the C.P.R.'s Calgary and Edmonton Ry. at Red Deer, by an overhead bridge. The location plans of the line easterly from Red Deer have been approved by the Board of Railway Commissioners to Sounding Creek, in tp. 30, range 5, west of the 4th meridian, and from that point to Moose Jaw, Sask. The line will cross the South Saskatchewan River, between ranges 7 and 8, tp. 21, and will parallel the C.P.R. from Caron into Moose Jaw.

The Board of Railway Commissioners has authorized the building of a branch line at Rocky Mountain House, in tp. 39, range 7, west 5th meridian.

Application is being made to the Dominion Parliament for an act authorizing the building of the following additional lines:—From the present authorized easterly terminus at Saskatoon, northerly and northeasterly to Fort Churchill, on Hudson Bay, with a branch from some point on the line to Port Nelson, also on the Hudson Bay, with power to enter into agreements with the Crown as to the construction, equipment or operation of such a line; from Moose Jaw, Sask., to the International boundary in tp. 1, range 16, west of the second meridian; from the already authorized line between Red Deer River and Cygnet Lake, generally northeasterly to Blackfalds, and Lacombe, Alta.; three branch lines of 30 miles each into the Big Horn Range between the North Saskatchewan and Brazeau Rivers, and two branch lines of 25 miles each, northerly and northeasterly near the crossing of the Brazeau River. An extension of time for the building of the lines already authorized is also asked. (Nov., pg. 909.)

Alberta North Western Ry.—The Alberta Legislature is being asked to amend the act of incorporation of 1906 and the amending acts of 1908 and 1909, in several particulars, and to grant an extension of time for construction. Emery, Newell and Bolton, Edmonton, Alta., are the solicitors. (Aug., 1909, pg. 573.)

Algoma Central and Hudson Bay Ry.—Application is being made to the Dominion Parliament to extend the time for the construction of the projected line from the C.P.R. northward to James Bay, specifically described in chap. 46 of the statutes of 1901, and to authorize the building of a branch from near mile 17 from Michipicoten Harbor northerly for a distance of 9.5 miles.

At a dinner at Sault Ste. Marie, Ont., Oct. 24, to the General Manager of the Lake Superior Corporation, W. C. Franz, he stated the company had provided $4,000,000 for the completion of the line to C.P.R. main line, and had also determined that it was to be built through to James Bay. The right of way, which was graded to Hawk Lake in 1903, had been cleaned up, and already six miles of track had been laid on it. Montreal River was to be crossed by a steel viaduct, 1,100 ft. long, the material for which was on order. The subgrade had been cleaned up well on to Hobon, the junction with the C.P.R. and it was hoped to have that section of the line completed next season. (Nov., pg. 909.)

Athabasca Northern Ry.—The Dominion Parliament is being asked to extend the time within which the company may build the lines authorized by chap. 57 of the statutes of 1904-05. Smith, Markey, Skinner, Pugsley and Hyde, Montreal, are the solicitors. (July, 1909, pg. 473.)

British Columbia and White River Ry.—Application is being made to the Dominion Parliament to incorporate a company with this title to build a line from the International boundary between British Columbia and Alaska, near Bear Creek, a tributary of the Chilkat River, northwesterly towards the Alsek River, through the Shakwak Valley to Lake Kluane, and via the Doujek Valley to White River, and if desired, thence to the International boundary between Yukon Territory and Alaska, between the 62nd and 64th parallels of latitude. H. Fisher, Ottawa, is solicitor for applicants.

Burrard Inlet Tunnel and Bridge Co.—The Board of Railway Commissioners has approved the location of this projected line from station 122-57.5 at the west side of Kootenay St., to station 154-86.9 at north side of Burrard Inlet, near Seymour Creek, B.C. This distance consists of the approaches to the proposed bridge across the Narrows; the question of the approval of the other plans filed, which have already been approved by the Minister of Railways, has been held over.

The general plans provide for the building of a bridge across the second narrows of Burrard Inlet, from North Vancouver to near the eastern boundary of Hastings townsite, and a tunnel under the first narrows, from near the mouth of Capilano River to Stanley Park, and either by means of new lines of railway or utilizing some existing lines, connect the bridge and tunnel by a belt line. Some plans have been prepared by Cleveland and Cameron, Vancouver, showing the projected tunnel and connecting lines, and a plan for a bridge at the second narrows has been submitted by Waddell and Harrington. In an interview Nov. 2, J. Y. McNaught, Reeve of North Vancouver, said the line would join the Great Northern Ry. east of False Creek, and on the north side of the inlet it would run west as far as Deep Cove on the North Arm, and eastward as far as Horseshoe Bay on Howe Sound. A diamond drill will be at work shortly finding out the depth required for the foundations of the bridge, which will be located west of the mouth of the Seymour River. (Nov., pg. 909.)

Canadian Western Ry.—See Chicago, Milwaukee & St. Paul Ry.

Chicago, Milwaukee & St. Paul Ry.—A report from Fergus Falls, Minn., Oct. 27, stated that N. J. Kaulman had had a conference with the company's General Passenger Agent with respect to the surveys for a line to Fargo, N.D., and has been assured that these surveys would be extended, as it was the intention of the company to build into Winnipeg, Man.

Engineers representing the Chicago, Milwaukee and Puget Sound Ry., which is the western extension of the Chicago, Milwaukee and St. Paul Ry., are reported to be at work making surveys in the Flathead Valley, and are said to have completed the location of a line from a town in Montana to the International boundary, to connect with the proposed line in Canada. There are several charters in existence covering this line, one or two of which are held by the Canadian Western Ry., which is applying to the Dominion Parliament for some changes in its provisional directors, extending the time for construction, and authorizing it to enter into agreements with other companies. It is said that the C., M. & P.S. Co. is interested in this charter.

Detroit River Tunnel.—Officers of the Michigan Central Rd. state, in reference to the reports current in Windsor, Ont., Nov. 1, that the tunnel between Detroit, Mich., and Windsor, Ont., is altogether too small; that it was designed to admit the use of much larger cars than any now in use on U.S. or Canadian railways. (Nov., pg. 909.)

The Elkhorn Northern Ry. Co. was incorporated last session by the Manitoba Legislature, with power to build a railway from the International boundary in range 27, 28 or 29, north of Antler, N.D., northerly to Elkhorn, and thence to the northern boundary of Manitoba, near Powell. The provisional directors are:—J. H. Miller, J. S. McLeod, G. C. Smith, W. J. Thompson, R. de W. Waller, B. Burke, A. McN. Fraser, H. J. Jones, J. J. Pierce, J. Carse, Elkhorn, Man. (May, 1909, pg. 355.)

Essex Terminal Ry.—The Board of Railway Commissioners has authorized the company to cross with its tracks the Windsor, Essex and Lake Shore Rapid Ry. tracks, at rail level, at Howard Ave., Windsor, Ont. (June, pg. 447.)

Frank, Alta.—At a meeting of the Crow's Nest Pass Improvement League, held at Frank, Alta., Nov. 9, a resolution was passed in favor of increased railway accommodation, and a committee was appointed to obtain from the Alberta Minister of Public Works information as to the charters granted to companies other than the C.P.R. for building railways through the Pass, and to find out what these companies were prepared to do in the way of increasing the railway facilities. At a meeting of the Macleod branch of the League, Nov. 1, a resolution was passed asking the Alberta Government to obtain information from the companies holding charters for building lines through the Pass as to a definite time when they would begin construction.

Hardy Bay to Quatsino Sound.—Application is being made to the British Columbia Legislature to incorporate a company with this title to build a line from Hardy Bay or Port McNeill, or some other convenient place near thereto, on the eastern shore of Vancouver Island, to Coal Harbor, on the west arm of Quatsino Sound, or to some point on Quatsino Sound. Barnard and Robertson, Victoria, B.C., are solicitors for applicants.

High River and Hudson Bay Ry.—Application is being made to the Alberta Legislature to incorporate a company with this title to build the following lines:—From the western boundary of the province, in tps. 17, 18 or 19, easterly to High River, thence northeasterly to the eastern boundary of the province in tps. 26, 27 or 28; from some point on the last mentioned line near High River northwesterly through Sheep Creek Pass to the western boundary of the province in tp. 19, 20 or 21; from a point near High River southwesterly to the western boundary of the province in tp. 16 or 17. The company is also asking for power to develop water powers and to dispose of electricity for power and lighting purposes. Ballachey and Black, High River, Alta., are solicitors for applicants.

Indian River Ry.—At the recent annual meeting of the Lake Megantic board of trade it was stated that work would be started next spring upon this projected railway; that the line would

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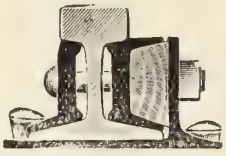
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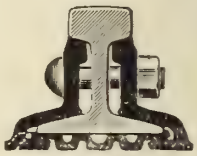
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connect with one in the U.S., and that the surveys for the whole of the line from Rumford Falls, Me., to Megantic, Que., had been completed. (Feb., pg. 109.)

Intercolonial Ry.—F. W. Bowden, Chief Engineer of the Department of Railways, spent some time early in Nov., in inspecting various branch lines in New Brunswick for the purpose of reporting on their physical condition with a view of their being acquired by the Government under the act passed last session.

A building 40 by 40 ft. is being built at Moncton, N.B., as an addition to the gas plant there. This will double the size of the building. The foundations are concrete with brick superstructure.

It is reported that the building of a second track between Moncton and St. John, N.B., will be begun next year. The first section of the work to be done, J. T. Halliday, Superintendent of the Truro-St. John district, is quoted as saying, will be from St. John to Hampton.

The Halifax board of trade was given to understand Nov. 3 that considerable improvements would be made at the deep water terminals as soon as plans were made and approved. The members of the Managing Board inspected the terminals a few days previously, and directed the carrying out of certain temporary improvements, including the doubling of the shed accommodation at pier 4. Work was started Nov. 4. (Nov., pg. 911.)

Kettle Valley Lines.—Application is being made to the Dominion Parliament to authorize the Kettle River Valley Ry., one of the railways operated under this title, to build the following branches:—From Penticton to the International boundary at Osoyoos Lake; from the already authorized line to Allison or Princeton; from the already authorized Coldwater-Fraser River line to Steamboat Mountain mining camp, B.C. Various other powers are asked for, including authority to acquire steam and other vessels, to build docks, etc.; to operate hotels, to carry on an express business, and to issue securities in respect of properties other than its railway lines. The notice is signed by C. B. Gordon, Secretary.

Construction has been started at Greenwood, B.C., by J. B. McLean & Co., on a further section of the line from Midway. A contract has been let to A. Schuill for the tracklaying of the 10 miles of grading completed by the old Midway and Vernon Ry., from Midway to Rock Creek. This work will be completed at once. Thirty miles of the extension are now under contract from Rock Creek to Penticton, and a similar mileage from Merrit easterly towards Penticton is also under contract. Track laying has been started at Merrit, 65 lb. rails being used, and it is expected to have the first 10 miles laid towards Penticton by Dec. 31. The divisional headquarters will be at Penticton, the plans for which include a wharf on the lake. A. McCullough, Engineer in charge of Construction, and J. P. Ford, the C.P.R. Resident Engineer at Revelstoke, B.C., were in Penticton, Oct. 28, going over the site of the yards, etc. (Nov., pg. 911.)

Kootenay and Alberta Ry.—C. Fergie, Manager of the Western Coal and Coke Co., Montreal, which is operating the Beaver Creek Coal Mines, is reported to have stated, prior to his going east, Oct. 27, that the line would be built at an early date, and that plans for the laying out of the Beaver Creek, Alta., townsite, the building of miners' cottages, etc., were under consideration by the directors at Montreal. A local report says the staking out of the route of the line is being proceeded with. (Aug., 1909, pg. 573; see also Lethbridge Collieries, Nov., pg. 911.)

Lloydminster and North Western Ry.—The Alberta Legislature is being asked to incorporate a company with this title to build a line from Lloydminster northwesterly to St. Paul de Metis, Alta. J. D. Munro, Lloydminster, is solicitor for applicants.

Manitoba and Keewatin Ry.—The Dominion Parliament is being asked to extend the time within which this projected railway may be built. (Sept., pg. 727.)

Midland Continental Ry.—According to press reports this railway, "now under construction from Winnipeg to the Missouri River," has completed grading "for the first fifty mile division between Jamestown and Edgeley, N.D.," and that following a recent inspection by the company's officials, "it was announced that rails would be laid and trains running by spring." No names are mentioned in connection with the project, but it is said "the builders of the road are principally Chicago and Middle West business men and capitalists." (See American Midland Ry., Sept., 1907, pg. 663.)

The New Brunswick Coal and Ry. Commissioners have accepted the tender of P. Lea & Co., Moncton, N.B., for the erection of a two stall engine house at Minto, N.B., to replace the one recently burned. The work is expected to be completed by Dec. 31. (Nov., pg. 911.)

Ontario, Hudson's Bay and Western Ry.—Application is being made to the Dominion Parliament to extend the time within which the company may build its projected railway. (June, 1909, pg. 442.)

Owen Sound and Meaford Ry.—A conference was held in Owen Sound, Ont., Nov. 12, between the provisional directors of the O.S. & M. Ry., the mayor and chairman of the railway committee of the Owen Sound town council, with respect to this projected railway. It was decided to endeavor to secure the co-operation of the towns across the three counties of Bruce, Grey and Simcoe, and to secure a charter for a line from Southampton, through Owen Sound, Meaford, Thornbury, Collingwood, and on to Orillia, so that the company would have a charter that could be utilized to make connection with any of the three big railways, or to enable the company to avail itself of any bargain that might be made to construct and operate the road. (June, pg. 451.)

Pacific and Peace River Ry.—Application is being made to the Dominion Parliament to incorporate a company with this title to build a railway from near Bella Coola on Burke Channel, B.C., following the Bella Coola River valley for about 20 miles, thence northeasterly, passing east of Teta Chuck, Cheslatta and Fraser Lakes to Fort Fraser, thence northerly, passing east of Stewart Lake to Fort St. James; thence northeasterly to Fort McLeod, and through the Pine Pass to Peace River near Dunvegan, Alta., about 480 miles. Power is also asked to build and operate car ferries, wharves, docks, etc., in connection with the line, and any branches which may be authorized. J. A. Ritchie, Ottawa, is solicitor for applicants.

Peace River Great Western Ry.—The Alberta Legislature is being asked to incorporate a company with this title to build a line from Edmonton northwesterly to the southwesterly end of Lesser Slave Lake, thence northwesterly to and along the Peace River. Hudson, Howell, Ormond and Marlatt, Edmonton, Alta., are solicitors for applicants.

Pincher Creek, Cardston and Montana Ry.—A Pincher Creek, Alta., dispatch of Oct. 31 says no construction has been done, but it is stated that the management is ready to begin at any time. J. A. Taylor has been in Ottawa, and C. Luber, the President of the company, has had an interview with the Alberta Premier in connection with the project. (Nov., pg. 911.)

Pontiac Central Ry.—An extension of time for the building of this projected railway is being asked from the Dominion Parliament. J. M. Wilson, Montreal, is President. (Dec., 1907, pg. 923.)

Porcupine District, Ontario.—The line to the Porcupine district, for which the Government has entered into an arrangement with a syndicate, of which E. A. Walberg is head, starts from the Temiskaming & Northern Ontario Ry., near mileage 225, and runs east of the lake to Frederickhouse. Several gangs of men were reported, Nov. 14, to be engaged in cutting out the right of way. J. R. Nichols is superintendent in charge of construction. The line will be operated by steam at first, but it is expected to arrange for its operation by electricity later on. The Ontario Government will facilitate the application for a charter of incorporation next session of the Legislature. (Nov., pg. 913.)

Prince Edward Island Ry.—A deputation from Prince Edward Island recently waited on the Dominion Government at Ottawa to urge the building of a railway from New London along the north shore. This branch would start from Emerald or Kensington, on the main line, and pass through Clifton to Stanley Bridge in New London, about 12 miles, but those interested in promoting the building of the line suggest that it should be extended from New London to a junction with the main line between Mount Stewart and Royalty Junction, 23 miles, making the total length of the line about 35 miles. (Oct., pg. 831.)

Quebec Central Ry.—The Chaudiere Valley extension from St. George, Beauce, to St. Justine, Que., 28 miles, was passed for traffic by E. V. Johnson, inspecting engineer of the Department of Railways, Ottawa, Oct. 26. The line runs through a good farming country, and opens up considerable timber areas. The stations on the section now opened for traffic are at Morisset, Ste. Rose, St. Germaine, and St. Justine. At this point the line is only eight miles from the International boundary between Quebec and Maine. Track has been laid beyond St. Justine for about a mile, and it is expected that the line will be completed to St. Sabine road by the end of the year. The extension will ultimately effect a junction with the Temiscouata Ry., at Cabano, Que. (Oct., pg. 831.)

Queen Charlotte Island Ry.—R. C. Brown, one of the provisional directors, returned to Prince Rupert, B.C., recently from Queen Charlotte Island, where he had been inspecting some coal areas on Skidegate Inlet, in which he is interested. The route of the proposed railway is from between Skidegate and Queen Charlotte City to Masset Inlet, through an area in which there are extensive deposits of coal, and adjacent to which there are large areas of timber. (May, pg. 353.)

Reid Newfoundland Ry.—The 700 ft. trestle across Gott's Cove, on the Bonavista branch line, was completed Oct. 25, and tracklaying was proceeded with to Indian Brook, where another trestle was being built. Trestles are also being built at North West Arm, and at Freshwater, and these were expected to be ready by Dec. 1. The grading is completed practically to Bonavista, and it is expected that track will be laid on the entire branch by Dec. 31. (Nov., pg. 911.)

Saskatoon and Hudson Bay Ry.—The Dominion Parliament is being asked to incorporate a company with this title to build a railway from Saskatoon, Sask., northerly to Melfort, and northeasterly to Pas Mission. The notice of applica-

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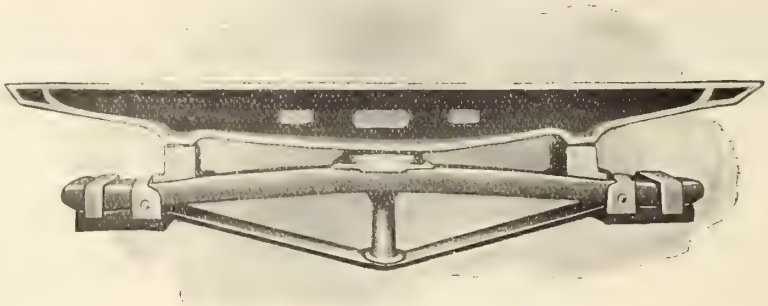

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tion is signed by V. T. Bartram, Secretary, Toronto, and is dated at Ottawa.

St. John Valley Ry.—F. B. Carvell, M.P., Woodstock, N.B., in discussing the prospects of railway construction in the St. John Valley, St. John, N.B., Nov. 12, said he believed a line from Grand Falls to St. John would be under construction within the next two years, and for its accomplishment he looked to one of the big railways. (Nov., pg. 913.)

Temiskaming and Northern Ontario Ry.—Engineers have secured a new location for the line between North Bay and Riddle, Ont., 34 miles, which will reduce gradients, and cut out a number of curves. The new route is easterly of the present line. The Commissioners have, it is said, decided to apply to the Ontario Government for $1,500,000 to enable them to carry out the plans. A reduction in operating expenses will, it is expected, offset the cost of the new line.

The Ontario Premier said Nov. 12, that the Government was not thinking of, and had not considered the possibility of selling the line to the C.P.R., the G.T.R. or any other company.

Toronto Civic Railway.—Good progress is being made with the grading for this short line along the eastern bank of the Don River, which the Toronto city council is building to connect the several lines entering Toronto with the Ashbridge's Bay industrial district. We are advised that an arrangement has been made with the railway companies for the supply of rails and other materials. (Nov., pg. 913.)

Toronto, Hamilton and Buffalo Ry.—The Board of Railway Commissioners has granted the company's application to build spur lines across Grant Ave., Wentworth St., Sanford Ave. and Sherwood Ave., Hamilton. The application was opposed by the Hamilton city council on the ground that it was the thin end of the wedge to make of the eastern district a large freight yard. (Oct., pg. 831.)

Vancouver North to Grouse Mountain.—It is said that among those who are making application to the British Columbia Legislature for the incorporation of a company to build a railway up Grouse Mountain are Macdonell and Gzowski, engineers and contractors, Vancouver; C. H. Allen, San Francisco, Cal.; G. M. Gibbs, and W. E. Graveley, Vancouver. (Nov., pg. 913.)

Windsor to Chester, N.S.—Local press reports state that a preliminary survey is being made for a line from Windsor to Chester, in Lunenburg county. Windsor is the point where the Dominion Atlantic Ry., the old Midland Ry. of N.S., and the Windsor branch of the Intercolonial Ry. meet, the whole being operated by the D.A. Ry., which has passed under the control of the C.P.R., while Chester is a seaport, and a station on the Halifax and South Western Ry., 51 miles from Halifax.

The Wainwright, Alta., board of trade has received a letter from the Canadian Monorail Corporation, enquiring as to the feasibility of establishing a monorail system of transportation in the district, which, it is claimed, is entirely suitable for such a farming district, if it is sufficiently settled to warrant the venture.

A bench warrant was issued at Montreal, Nov. 13, for the arrest of E. Smith, a C.P.R. sleeping car conductor, who failed to appear after being committed for trial on charges of theft of sleeping car fares and railway tickets. In connection with the case, a C.P.R. official is reported to have said that the traveling public is very much to blame for these thefts, in offering facilities and inducements.

Canadian Northern Ry. Earnings, Etc.

Gross earnings, working expenses and net profits from July 1, 1910, with increases over, or decreases from, those of 1909-10:

	Earnings.	Expenses.	Net Earnings.	Net Increase
July	$ 1,225,100	$876,900	$348,200	$118,600
Aug.	1,093,000	830,000	263,000	58,600
Sept.	1,279,900	898,700	381,200	69,700
	$3,598,000	$2,605,600	$992,400	$246,900
Inc.	$ 870,600	$ 623,700	$246,900	.....

Approximate gross earnings for Oct., $1,627,800, and for two weeks ended Nov. 14, $737,100, against $1,364,200 and $710,100 for same periods 1909.

C.P.R. Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits, increases or decreases over 1909-10, from July 1, 1910:

	Earnings.	Expenses.	Net Profits.	Net Increase
July	$8,869,214.32	5,384,594.73	3,484,619.50.	1,004,748.86
Aug.	9,255,331.67	5,563,659.34	3,691,672.33	727,614.46
Sept.	9,315,213.67	5,403,614.03	3,911,599.64	479,710.47
	$27,439,759.66	$16,351,868.10	$11,087,891.56	$2,212,073.79
Inc.	$4,549,567.08	$2,337,493.29	$2,212,073.79	.....

Approximate gross earnings for Oct., $5,573,000, and for two weeks ended Nov. 14, $4,375,000 against $5,271,000 and $4,243,000 for same periods 1909.

DULUTH, SOUTH SHORE AND ATLANTIC RY.—Operating revenue for Sept., $299,154.60; expenses, $186,608.09; net revenue, $112,546.51, against $310,502.20 operating revenue; $190,159.88 expenses; $120,342.32 net revenue for Sept., 1909. Aggregate operating revenue for three months ended Sept. 30, $947,616.60; expenses, $591,958.63; net revenue, $355,657.97, against $904,176.30 aggregate operating revenue; $591,293.31 expenses; $312,882.99 net revenue for same period 1909. Approximate gross earnings for Oct., $156,459 and for two weeks ended Nov. 14, $127,992, against $174,498 and $136,025 for same periods 1909.

MINERAL RANGE RY.—Operating revenue for Sept., $65,284.45; expenses $64,137.28; net revenue, $1,147.17, against $74,965.51 operating revenue; $59,397.72 expenses; $15,567.79 net revenue for Sept., 1909. Aggregate operating revenue for three months ended Sept. 30, $187,784.78; expenses, $195,764.83; net expenses, $7,980.05, against $224,931.89 operating revenue; $182,640.50 expenses; $42,291.39 net revenue for same period 1909. Approximate gross earnings for Oct., $33,484, and for two weeks ended Nov. 14, $29,613, against $40,494 and $30,382 for same periods 1909.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RY.—Operating revenue for Sept., $1,270,736.62; expenses and taxes, $751,746.93 operating income, $518,989.69, against $1,669,434.05 operating revenue; $811,404.25 expenses and taxes; $858,029.80 operating income for Sept., 1909. Aggregate operating revenue for three months ended Sept. 30, $3,682,800.39; expenses and taxes, $2,270,710.44; operating income, $1,412,089.95, against $4,018,060.04 aggregate operating revenue; $2,263,062.67 expenses and taxes; $1,754,997.37 operating income for same period 1909. Approximate gross earnings for Oct., $1,122 786, and for two weeks ended Nov. 14, $996,161, against $1,341,497 and $1,044,290 for same periods 1909.

CHICAGO DIVISION.—Operating revenue for Sept., $790,250.13; expenses and taxes, $570,111.46; operating income, $220,138.67, against $732,529.72 operating revenue; $500,589.31 expenses and taxes; $231,940.41 operating income for Sept., 1909. Aggregate operating revenue for three months ended Sept. 30, $2,407,976.36; expenses and taxes, $1,700,792.37; operating income, $707,183.99, against $2,180,808.75 aggregate operating revenue; $1,427,301.39 expenses and taxes; $753,507.36 operating income for same period 1909.

Grand Trunk Ry. Earnings, Expenses, Etc.

The following figures show the earnings, expenses, etc., of the G.T.R., C.A.R., G.T. Western Ry., and D.G.H. & M.R. for Sept., 1910, and 1909, respectively:

GRAND TRUNK RAILWAY

	1910.	1909.
Earnings	$3,217.700	$3,058,300
Expenses	2,269,200	2,106,900
Net earnings	$948,500	$951,400

CANADA ATLANTIC RAILWAY

	1910.	1909.
Earnings	$175,800	$189,600
Expenses	158,700	160,200
Net earnings	$17,100	$29,400

GRAND TRUNK WESTERN RAILWAY.

	1910.	1909.
Earnings	$529,600	$521,000
Expenses	402,100	364,600
Net earnings	$127,500	$156,400

DETROIT, GRAND HAVEN AND MILWAUKEE RY.

	1910.	1909.
Earnings	$184,900	$180,000
Expenses	147,700	125,000
Net earnings	$37,200	$55,000

Approximate earnings for Oct., $4 200,039, and for two weeks ended Nov. 14, $1,802,180, against $4,043,361 and $1,826,468 for same periods, 1909.

TRAFFIC RECEIPTS OF THE SYSTEM.

Aggregate from July 1 to Oct. 31:

	1910.	1909.
Grand Trunk Ry.	£2,481,267	£2,434,609
Canada Atlantic Ry.	137,289	150,410
G.T. Western Ry.	403,703	430,389
D.G.H. & M. Ry.	136,562	141,364
Totals	£3,158,821	£3,156,772

Railway Commissioners' Traffic Orders.

Summaries of other traffic orders are given on another page under "Orders by Railway Commissioners":—

SAW LOGS FROM RAINY RIVER.

12107. Sept. 22.—Re application of the Rat Portage Lumber Co., Ltd., under secs. 314, 318, 321, and 323 of the Railway Act, for an order directing the Canadian Northern Ry. to reduce its tolls, charges or freight rates for carrying the applicant's saw-logs from the Rainy River and points adjacent thereto, to the applicant's mills, in St. Boniface, Man.; that no switching charge be allowed; that the railway supply cars as required by the applicant, to enable the applicant to carry on its business; that the railway pay to the applicant any damages caused by its neglect and refusal to supply the necessary cars for the removal and haulage of the applicant's logs, and also, any additional monies the applicant was obliged to incur in handling and carrying over its logs. It is ordered that it is the duty of the C.N.R., as successor of the Manitoba & South Eastern Ry., to haul pine and spruce logs upon its lines: (a) for any distance up to 150 miles from Winnipeg; (b) from the point, if any, where the railway touches Rainy River to Winnipeg, at a rate not to exceed $2.50 per 1,000 ft. b.m., in accordance with the provision of 61 Vic., chap. 43, Manitoba. That the C.N.R. file with the Board, joint tariffs with the Minnesota & Manitoba Ry. showing through rates from Minnesota points to Winnipeg by continuous route provided by the Minnesota & Manitoba Ry. and the C.N. Ry. as successors to the Manitoba & South Eastern Ry., not to exceed $2.50 per 1,000 ft. b.m. That if, for any reason, the C.N.R. and the Minnesota & Manitoba Ry. are unable to agree upon such joint tariffs, or the division thereof, the C.N. Ry. shall file with the Board tariffs showing rates from the International boundary line between Minnesota and Manitoba, which, added to the local rate upon the Minnesota & Manitoba Ry. from the point of origin to such International boundary line shall not exceed $2.50 per 1,000 ft. b.m. That the $2 switching toll charged by the C.N.R. for the switching services rendered is hereby disallowed.

The annual meetings of the Canadian Society of Civil Engineers will be held at Winnipeg, Jan. 24 to 27, 1911.

We are advised that while the G.T.R management is considering the situation at Turcot, Que., Belleville and North Bay, Ont., to see what interest the employes would take in the establishment of Y.M.C.A., buildings at these points, no definite action has been decided upon.

The Temiskaming and Northern Ontario Ry. Commission has granted a general increase in wages to conductors, brakemen, freightmen and yardmen, effective from Oct. 1, varying from 10 to 25%. These increases, it is stated, bring the T. & N.O.R. into line with other companies' rates.

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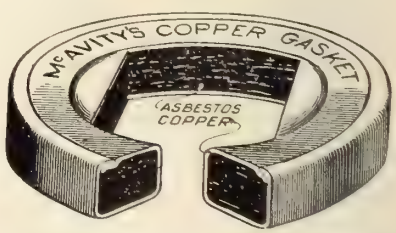

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Orders by the Railway Commissioners.

Beginning with June, 1904, we have published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed our paper have a continuous record of the Board's proceedings. No other paper has done this.

The dates given of orders, immediately following the numbers, are those on which the hearing took place and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the date assigned to them

11949. Oct. 14.—Authorizing Detroit River Tunnel Co. to open for traffic its tunnel and railway works between Windsor, Ont., and Detroit Mich.

11950, 11951. Oct. 10.—Authorizing C.N.R. to build between lots 85 and 86, and between lots 105 and 91, Cote St. Pierre South, Two Mountains county.

11958. Oct. 15.—Authorizing G.T.R. to build across road between lots 28 and 29, con. B, Brighton tp., Ont.

11953 to 11958. Oct. 14-15.—Authorizing city of Vancouver, B.C., to lay sewers and culvert under C..P.R. at six points.

11959. Oct. 14.—Authorizing W. L. Gilson, Dixville, Que., to lay water pipe under G.T.R.

11960. Oct. 14.—Authorizing city of Brantford, Ont., to lay sewers under G.T.R. on South Market St.

11961, 11962. Oct. 14.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across G.T.R. at Lake Shore Road, Toronto, and across C.P.R. telegraph wires in Waterloo tp.

11963 to 11969. Oct. 14.—Authorizing city of St. Thomas, Ont., to erect electric wires across C.P.R. telegraph wires at three points, and across Bell Telephone Co.'s wires at four points.

11970. Oct. 14. — Authorizing Nipissing Power Co. to erect wires across G.T.R. at Callander, Ont.

11971. Oct. 15.—Ordering G.T.R. within 90 days to install improved electric bell at crossing two miles west of Clinton, Ont.

11972. Oct. 17.—Approving Kettle River Valley Ry. bylaw authorizing O. E. Fisher, G.F. & P.A., to prepare and issue tariffs.

11973. Oct. 15.—Temporarily approving Bell Telephone Co.'s agreement with North American Telegraph Co., and Fenella Rural Telephone Co., July 1, 1909.

11974. Oct. 4.—Dismissing C.N.Q.R. application for order fixing the terms under which mining operations or quarrying may be carried on under its lines crossing lots 647, 648 and 649, Beauport parish.

11975. Oct. 15.—Authorizing G.T.R. to reconstruct bridge over York and Vaughan Road, York tp., Ont.

11976. Oct. 15.—Authorizing C.P.R. to construct bridge over Pincher Creek, on its Alberta Division.

11977. Oct. 17.—Authorizing Mount McKay and Kakabeka Falls Ry. to operate its cars over crossing of G.T.P.R. at Yonge St., Fort William, and authorizing G.T.P.R. Co. to operate its trains over the crossing, not exceeding 10 miles an hour, without being brought to a stop.

11978. Oct. 6.—Authorizing C.N.O.R. to build across roads in lot 20, broken front concession, Thurlow tp., Ont.

11979. Oct. 4.—Authorizing G.T.R. to build branch to Continental Bag and Paper Co.'s premises, Ottawa.

11980. Oct. 14.—Approving location of C.P.R. station at Arthur, Ont..

11981, 11982. Oct. 15.—Authorizing G.T.R. to build branches to premises of Niagara Brand Spray Co.'s premises, near Burlington, and Queen City Oil Co., Toronto.

11983. Oct. 17.—Approving change in location of steps to property of Mrs. Merrin and J. Elliott, at subway where Montreal Road crosses G.T.R., Kingston, Ont.

11984. Oct. 12.—Authorizing city of Hamilton, Ont., to carry Cannon st. grade across T., H. & B. Ry.

11985. Oct. 12.—Ordering G.T.R. to install gates at Sherman Ave. and Lottridge St. crossings, Hamilton, Ont., and appoint watchmen to attend between 6.30 a.m. and 6.30 p.m. daily; work to be completed within three months, and authorizing G.T.R. to lay northerly track there, the work to be completed within 12 months.

11986. Oct. 15.—Authorizing C.P.R. to build spur to Dominion Marble Co.'s premises, South Stukly tp., Que.

11987. Oct. 17.—Authorizing C.P.R. to use bridges 12.55 and 34.9, and subways at William and Pine Sts., Woodbridge, Ont.

11988. Oct. 17.—Approving C.N.R. location thropgh tps. 26-23, r. 24, w. 4 m., w. 5 m., Alta., mileage 212.83 to 257.32, from junction with the main line at Vegreville, Alta.

11989. Oct. 13.—Authorizing G.T.R. to remobe Sylvester's siding, Victoria Ave., south of Kent St., Lindsay, Ont., 65 ft. from Kent St.

11990. Oct. 17.—Authorizing C.N.R. to build branch through tps. 24 and 25, r. 15, w. p.m., Man., mileage 0 to 6, from junction with Ochre River branch, and to cross highways within such mileage.

11991. Oct. 13.—Ordering that upon payment of $30 by H. Pratt, Barrie, Ont., to G.T.R., the latter build farm crossing in west half of lot 6, con. 7, Vespra tp., Ont.

11992. Oct. 18.—Authorizing Essex Terminal Ry. and Lake Erie and Detroit River Ry. to operate trains over joint crossing at Walkerville, Ont.

11993. Oct. 18.—Approving C.P.R. location from International boundary at mileage 0 to 3.54, Mansonville, Que.

11994. Oct. 18.—Authorizing C.P.R. to open for traffic that portion of its line known as the Virden-MacAuley Branch, milage 0 to 14, Man.

11995. Oct. 17.—Authorizing G.T.R. to build extension of branch authorized by order 11064, July 5, from lot 103, con. 1, to lot 8. con. 2, Gwillimbury tp., Ont.

11996, 11997. Oct. 17.—Authorizing C.P.R. to build spurs for J. Stewart & Co., Westmount, Que., and M. Rumely Co., Regina, Sask.

11998. Oct. 17-18. Authorizing Ontario Hydro-Electric Power Commission to erect wires across Pere Marquette Rd. at two points, and across C.P.R. telegraph wires at one point.

12001. Oct. 8.—Authorizing town of Arnprior, Ont., to lay pipes under C.P.R. at Vancoortland St.

12002. Oct. 18.—Authorizing town of Joliette, Que., to lay sewer under C.N.Q.R. at St. Charles Borromee St.

12003, 12004. Oct. 18.—Authorizing city of Toronto to lay sewer under C.P.R. at Dovercourt Road and Dufferin St.

12005. Oct. 18.—Authorizing town of Arnprior, Ont., to lay pipe under G.T.R. at Vancoortland St.

12006. Oct. 18.—Approving C.N.O.R. revised location from Deseronto to Shannonville, Tyendinga and Thurlow tps., mileage 0 to 12.61.

12007. Oct. 18.—Authorizing G.T.P.R. to cross highways between secs. 1 and 2, and 1 and 36, tp. 34, r. 1, w. 3 m., Sask.

12008, 12009. Oct. 18.—Authorizing C.N.R. to build across 14 highways in tp. 24, west of principal meridian, and across 33 highways west of fourth meridian.

12010. Oct. 18.—Authorizing C.P.R. to build bridge over North Saskatchewan River, at Edmonton, Alta.

12011. Oct. 18.—Amending order 11435, Aug. 22, which authorized G.T.R. to build branch for National Carbon Mfg. Co., by striking out "National Carbon Manufacturing Co." and substituting "Canadian National Carbon Co."

12012. Sept. 23.—Authorizing C.N.R. to build spur across Mulvey and Fleet Aves. to block 10, Winnipeg.

12013. Oct. 12.—Ordering G.T.R. to erect standard gates at John St. crossing, Aylmer, Ont., to be operated between 7 a.m. and 7 p.m. daily, by a watchman.

12014. Oct. 18.—Approving Esquimalt and Nanaimo Ry. Standard Passenger Tariff, C. R.C. 20, at 4c. a mile on its Wellington-Cameron Lake extension.

12015. Oct. 19.—Dismissing application of T. Brooks, Ottawa, re rate on bark between Low and Chelsea, Que., and Kingston, Ont.

12016. Oct. 19.—Recommending to Governor-in-Council for sanction Montreal Terminal Ry. bylaw.

12017. Oct. 19.—Authorizing J. Thomas to lay water pipe under G.T.R. on lot 6, con. 1, Dover tp., Ont.

12018. Oct. 12.—Ordering G.T.R. to provide protection at Josephine St. crossing, Wingham, Ont., by appointing a watchman to be on duty between 6 a.m. and 7 p.m. daily.

12019. Oct. 19.—Authorizing C.P.R. to open for traffic portion of its Pheasant Hills branch, mileage 430.39 to 561.63, between Wilkie, Sask., and Hardisty, Man., and rescinding order 10217, Apr. 18.

12020. Oct. 20.—Authorizing C.P.R. to build three extensions of its spur across Rose St., Regina, Sask.

12021. Oct. 19.—Approving change in location of C.P.R. main line as now constructed between Elko and Wardner, B.C.

12022. Oct. 12.—Authorizing T., H. & B.R. and G.T.R. to build spur between Wentworth St. South and Victoria Ave. South, Hamilton, Ont., from the respective main lines to and across, and forming a junction with each.

12023. Oct. 18.—Authorizing C.N.R. to build across 73 highways w. 4th m.

12024. Sept. 27.—Authorizing C.N.O.R. to cross G.T.R. overhead, and to build viaduct over Port Hope creek, Hope tp.

12025 to 12027. Oct. 19.—Authorizing C.N.O.R. to build between lots 194 and 196, con. 1, Chatham tp., and across Mary, Maria, James, Jonn, Pinnacle and Water Sts., Belleville.

12028, 12029. Oct. 20.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across T., H. & B. at Pearl St., Hamilton, and telephone wires across P.M.R. at lot 19, con. 2, Westminster tp.

12030. Oct. 18.—Authorizing Lethbridge Collieries, Ltd., to lay pipe under C.P.R. in s.w. ¼ sec. 21, tp. 9, r. 22, w. 4 m.

12031. Oct. 14.—Authorizing C.P.R. to carry its Mimico cut-off in Etobicoke tp. across Scarlett Rd., Chadwick Ave., Church, Dundas and Montgomery Sts., and two road allowances in con. 5, also to raise grade of Dundas St. and Toronto Suburban Ry. on Dundas St.

12032, 12033. Oct. 19.—Authorizing C.N.O.R. to build across Front and Church Sts., Belleville.

12034, 12035. Oct. 18.—Authorizing Kingston and Pembroke Ry. to build bridges 87.2 and 79.2.

12036. Oct. 13.—Authorizing C.N.O.R. to build extension of its siding across Muskoka Road, Wasnago.

12037. Oct. 13.—Refusing application Ethel A. Bayly, Toronto, re rate charged by the Bell Telephone Co.

12038. Sept. 24.—Refusing application of J. T. Hall, Yorkton, Sask., for farm crossing over G.T.P.R.

12039. Sept. 23.—Dismissing application of Grain Growers' Association of Kenville, Man., that rate charged by C.N.R. on shipments of grain on its Thunder Hill branch are excessive and discriminatory.

12040. Sept. 6.—Ordering Vancouver, Victoria and Eastern Ry.. to widen dump on Oscar St., Abbotsford, B.C., to 20 ft. top and guarded by railings; and to build subway on Montrose Ave. 20 ft. clear in width, and to open said Avenue for traffic, work to be finished by Sept. 1, 1911.

12041. Sept. 1.—Ordering Esquimalt and Nanaimo Ry. to carry Wilson St., Victoria, B.C., across its right of way, the city removing all trees on southwest corner of crossing and undertaking that no obstructin to the view be allowed to be erected on northwest side.

12042, 12043. Sept. 6.—Ordering Vancouver, Victoria and Eastern Ry. to build a wooden bridge where its cutting intersects Woodland Drive, and within six months, to build wooden bridge where it intersects Lakewood Drive, Vancouver, B.C.

12044. Sept. 21.—Ordering city of Moose Jaw Sask., t build subway under railway at Eleventh St.

1204. Sept. 22.—Rescinding order 11654, Sept. 13, which authorized C.P.R. to build spur from near Roseberry St. to near Tenth St., also four sub-spurs from the last named, in Brandon, Man.

12046. Sept. 22.—Ordering C.N.R. to provide culverts over its right of way in Montcalm municipality, Man., at four points, and to provide approaches to crossing of highway on or adjoining river, lots 251 and 253.

12047. Sept. 22.—Authorizing C.P.R. to cross C.N.R. and G.T.P.R. with its second track, at Portage la Prairie, Man.

12048. Sept. 23.—Rescinding order 8914, Dec. 15, 1909, which approved highway crossing and road diversion by G.T.P.R. between secs. 15 and 22, tp. 33, r. 28, w. 2 m., Sask.

12049. Sept. 22.—Rescinding order 11156, July 11, which authorized connection of G.T.P. Branch Lines Co.'s Yorkton branch with C.N.R. at Canora, Sask.

12050. Oct. 13.—Ordering that C.P.R. crossing of Elizabeth St., Toronto, be protected by building a subway within one year from date.

12051. Oct. 13.—Authorizing Essex Terminal Ry. to cross, at rail level, the Windsor, Essex and Lake Shore Rapid Ry., at Howard Ave., Windsor, Ont.

12052. Oct. 7.—Authorizing Bay of Quinte Ry. to move its tracks from its yards at Napanee, Ont.

12053, 12054. Oct. 21.—Authorizing C.P.R. to use bridges 1.9, 43.3 and 51.3 on its Prescott Branch; 18.2 and 18.39 on its Brockville Branch, and bridge on Smart's siding, Brockville loop, Ont.

12055. Oct. 21.—Authorizing Alberta Central Ry. to cross overhead C.P.R. Calgary & Edmonton branch, at Red Deer, Alta.

12056. Oct. 20.—Authorizing G.T.R. to build passing track upon and across Division and Prince Edward Sts., Brighton, Ont.

12057. Oct. 20.—Authorizing C.N.O.R. to build across Kingston Road, lot 33, con. 1, Sidney tp.

12058. Oct. 20.—Amending order 11288, July 25, approving portions of Alberta Central Ry. by approving two miles east of Red Deer, instead of one mile.

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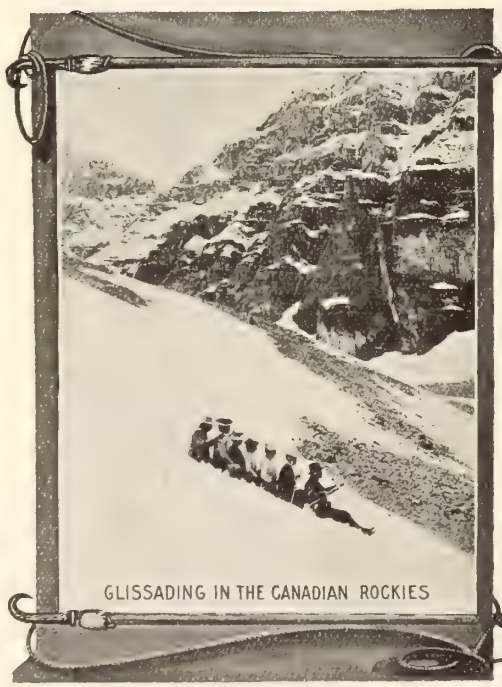

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12059. Oct. 21.—Authorizing town of Buckingham, Que., to lay sewer pipe under C.P.R. at Church St.

12060. Oct. 21.—Authorizing G.T.R. to build branch to Canada Refining and Smelting Co.'s premises, South Orillia tp., Ont.

12061. Oct. 12.—Ordering G.T.R. to install gates at Sherman Ave. and Lottridge St. crossings, Hamilton, Ont., appointing a watchman to operate same, and to build northerly two additional tracks, authorized by order 3370.

12062. Sept. 15.—Ordering C.P.R. to build bridge about 1,200 ft. west of present crossing at mileage 2.6, west of Lethbridge, Alta., and another at mileage 10.6.

12063. Oct. 21.—Authorizing town of Brantford, Ont., to lay sewer pipe under T.H. & B.R. on South Market St.

12064. Oct. 21.—Authorizing town of Meaford, Ont., to lay pipe under G.T.R. at St. Vincent St.

12065. Oct. 22.—Amending order 11822, Sept. 17, which authorized the erection of gates at C.P.R. crossing of Fourth St. west, Calgary, Alta., by providing that 20% of the cost be paid out of the Railway Grade Crossing Fund.

12066. Oct. 22.—Authorizing G.T.P.R. to build between secs. 7 and 12, tp. 44, r. 6, w. 4 m.; to close road allowance between south boundary of its right of way and north boundary of secs. 7 and 12, and divert highway to a crossing 415 ft. east of road allowance.

12067. Oct. 22.—Authorizing C.N.R. to cross C.P.R. Langdon branch at sec. 35, tp. 24, r. 27, w. 4 m., Alta.

12068. Oct. 22.—Relieving C.P.R. from providing further protection at crossing of Brock Road at North Claremont, Ont.

12069. Oct. 21.—Authorizing C.P.R. to open for traffic that portion of its line from mileage 9.56, London section, to a connection with G.T.R. in lot 7, con. 1, Etobicoke tp., Ont., and Y connections.

12070. Oct. 12.—Authorizing T.H. & B.R. to build branches in Hamilton, Ont., from west of Grant Ave. to east side of Wentworth St., and to west of Sherman Ave.

12071. Oct. 21.—Authorizing C.P.R. to cross C.N.R. Maryfield branch in the n.e. ¼ sec. 30, tp. 5, r. 16, w. 2 m., Sask.

12072. Oct. 22.—Ordering C.N.R. by Dec. 1, to erect fences according to provisions of Railway Act, along both sides of its right of way, where it is unfenced, between Maidstone and Paynton, Sask., and to install cattle guards.

12073. Oct. 22.—Authorizing Ottawa Electric Co. to erect wires across C.P.R. at Metcalfe Road.

12074. Oct. 24.—Approving revised location of part of C.N.R. Vegreville-Calgary branch through tps. 25-24, r. 25-27, w. 4 m., mileage 224.49 to 238.82.

12075. Oct. 10.—Authorizing city of Fort William, Ont., cross with its street railway the Fort William Terminal Ry. and Bridge Co.'s spur on Syndicate Ave.

12076. Oct. 22.—Amending order 11750, Sept. 9, which authorized Vancouver, Fraser Valley and Southern Ry. to build across certain highways in Vancouver, B.C.

12077. Sept. 22.—Ordering C.N.R. to build siding connecting its line with Tuxedo Park Co. and Canada Cement Co.'s premises, St. Boniface and St. Charles parishes, Man.

12078. Oct. 24.—Ordering C.N.R. to build highway crossing at easterly limit of lot 8, con. 1, Paipoonge tp., Ont.

12079. Oct. 24.—Dismissing application of A. Denis Co., Edmonton, Alta., for order that C.P.R. be required to carry hay from Eastern Canada at rates charged on grain from west to east.

12080. Oct. 24.—Approving location of Burrard Inlet Tunnel and Bridge Co.'s line from station 122-57.5 at Kootenay St. to station 154-86.9 at Burrard Inlet, near Seymour Creek, B.C.

12081, 12082. Oct. 24.—Authorizing city of Edmonton, Alta., to cross at rail level with its street railway, the Edmonton, Yukon and Pacific Ry. on Edward St., at two points, and to erect wires across E.Y. & P.R.

12083. Oct. 24.—Authorizing city of Port Arthur, Ont., to build highway across C.P.R. at Nelson and Clavet Sts.

12084. Oct. 25.—Authorizing Canadian Light and Power Co. to erect wires across Beauharnois Light, Heat and Power Co.'s wires at St. Louis Road, Beauharnois, Que.

12085. Oct. 24.—Authorizing Twin City Oil Co. to build overhead tramway across C.N.R. at Strathcona, Alta.

12086. Oct. 25.—Authorizing city of Brantford, Ont., to cross Brantford & Hamilton Electric Ry. at grade, at Alfred St.

12087. Oct. 25.—Approving location of C.P.R. station at Thessalon, Ont.

12088. Oct. 25.—Authorizing C.P.R. to remove station building at Sault Ste. Marie, Ont., to new location.

12089. Oct. 24. — Authorizing Sandwich East tp., Ont., to build drain along G.T.R. right of way from the Parent outlet between lots 143 and 144, con. 1, westerly to the Little River.

12090. Oct. 25.—Rescinding order 11202, July 21, authorizing crossing of Seymour Power & Electric Co.'s wires in Thurlow tp., Ont.

12091. Oct. 15.—Relieving O. & N.Y. Ry. from providing further protection at crossing of third highway south of Rideau River, con. 2, Russell Road, Gloucester tp., Ont.

12092. Oct. 25.—Authorizing G.T.R. to build new station at Amigari, near Fort Erie, Ont.

12093. Oct. 25.—Approving highway crossing road diversion in n.e. ¼ sec. 35, tp. 28, r. 21, w. 2 m., Sask.

12094. Oct. 26.—Approving location of portion of C.P.R. Regina branch from mileage 199.2 to crossing of C.N.R. spur to East Prince Albert, at mileage 232.4, Sask.

12095. Oct. 26.—Authorizing Shawinigan Cotton Co. to lay pipe under C.N.Q.R. between Shawinigan Falls Jct. and Shawinigan Falls.

12096. Oct. 25.—Authorizing Peterboro Radial Ry. to erect wires across G.T.R. at George St.

12097. Oct. 25.—Authorizing Ontario Distributing Co. to erect wires across G.T.R. at con. 3, Stamford tp., Ont.

12098 to 12102. Oct. 25.—Authorizing Ontario Hydro-Electric Power Commission to erect wires at five points.

12103. Oct. 25.—Authorizing C.N.R. and G.T.P.R. to operate trains over joint crossing near Riley, Alta., without being brought to a stop.

12104 to 12106. Nov. 25.—Approving plans of proposed culvert to be build under G.T.R. at three points in Lochiel tp., Ont.

12107. Sept. 22.—Ordering C.N.R. to haul pine and spruce logs any distance up to 150 miles from Winnipeg, from point, if any, where its line touches Rainy River to Winnipeg, at a rate not to exceed $2.50 per 1,000 ft. b.m.; also to file joint tariffs with Minnesota & Manitoba Ry., showing through rates from Minnesota points to Winnipeg, and disallowing $2 switching toll charged by C.N.R.

12108. Oct. 26.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Galt, Preston and Hespeler Electric Ry. at Joseph St., Preston.

12109. Oct. 26.—Approving C.N.R. revised location through tps. 25-24, r. 26-27, w. 4 m., Alta., mileage 233.39 to 237.62 (revised location) from junction with main line at Vegreville.

12110. Oct. 25.—Authorizing C.P.R. to build spur for Imperial Oil Co. in Moose Jaw, Sask.

12111. Oct. 26.—Authorizing C.P.R. to build spur for E. Patenaude, Outremont, Que.

12112. Oct. 26.—Relieving G.T.R. from providing further protection at crossing ¾ mile east of Tillsonburg, Ont.

12113, 12114. Oct. 27.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Tel. Co.'s and G.T.R. wires in Yarmouth tp. and New Hamburg tp. respectively.

12115. Oct. 26.—Authorizing G.T.R. to build branch and spur therefrom to D. J. McLean and Co.'s premises, near Blackwater Jct., Ont.

12116. Oct. 26.—Extending to Dec. 1 time within which White Pass and Yukon Ry. file its tariff of telegraph tolls, for approval, and authorizing it, meantime, to charge tolls previously authorized.

12117. Oct. 26.—Extending to Dec. 1 time within which Canadian Northern Telegraph Co. file its tariff of tolls for approval, and authorizing it, meantime, to charge tolls previously authorized.

12118. Oct. 28.—Relieving C.P.R. from providing further protection at highway crossing in lot 6, con. 1, mileage 39.91, Nassagaweya, tp., Ont.

12119. Oct. 27.—Authorizing T.H. & B.R. and G.T.R. to operate trains over crossing of G.T.R. north of Brant St. and east of McKinstry St., Hamilton, Ont.

12120. Oct. 26.—Extending to Dec. 1 time for approval of C.P.R. telegraph tolls between points west of and including Sudbury, Ont., to and from points west of Sudbury, from and to points east thereof, and east of and including Windsor, Ont.

12121. Oct. 26.—Extending to Dec. 1 time for approval of G.T.P. Telegraph Co.'s tariff of tolls between points in Canada, except betwen its local offices on its Ottawa division, and Quebec, and between them and Swanton, Vt.

12122. Oct. 27.—Approving C.P.R. plan showing location of standard bell to be installed at crossing of King St., Woodstock, N.B., ordering installation of same, and authorizing C.P.R. to operate trains over crossing without first being brought to a stop.

12123. Oct. 27.—Authorizing Essex Terminal Ry., Windsor, Essex and Lake Shore Rapid Ry., and C.P.R. to operate trains over crossing of W.E. & L.S.R.A. and C.P.R., authorized by order 1139, June 5, 1906, and crossing of Essex Terminal Ry. and W.E. & L.S.R. Ry. on Gravel Road, and crossing of Essex Terminal Ry. and C.P.R., just east of Gravel Road, Sandwich tp., Ont., without first being brought to a stop.

12124. Oct. 10.—Refusing application of G.T.P.R. for authority to build sidings adjacent to its main line in Fort William, Ont.

12125. Oct. 28.—Approving James Bay & Eastern Ry. revised location between mileage 14.39 and 14.93, Ashuapmauchouan tp., Que.

12126. Oct. 27.—Approving Algoma Central & Hudson Bay Ry. plans of standard frame and pile trestles.

12127. Oct. 28.—Relieving G.T.R. from providing further protection at crossing ¾ mile east of Tillsonburg, Ont.

12128. Oct. 28.—Authorizing city of Vancouver, B.C., to lay sewer under C.P.R. at Front St.

12129. Oct. 28.—Authorizing Waterville Water Works Co., to lay pipe under G.T.R. near Waterville, Que.

12130. Oct. 27.—Authorizing city of Brantford, Ont., to lay sewer under G.T.R. on George St.

12131. Oct. 27.—Authorizing Simcoe Ry. & Power Co. to erect wires across Bell Telephone Co.'s wires between lots 16 and 17, con. 3, Tay tp., Ont.

12132. Oct. 27.—Ordering G.T.P.R. to build shelter for passengers and freight at Reford, Sask.

12133. Oct. 26.—Extending until Dec. 1 time for temporary approval of G.N.W. Telegraph Co.'s tariff of tolls.

12134, 12135. Oct. 26-29.—Authorizing city of Vancouver, B.C., to lay sewer under C.P.R. at Park Drive and Salisbury Drive.

12136. Oct. 29.—Approving Hamilton Radial Ry. Standard Tariff of Maximum Freight Rates, C.R.C. 2.

12137. Oct. 29.—Extending until June 30, 1911, time within which spur for Standard White Line Co. at Beachville, Ont., may be completed.

12138. Oct. 28.—Authorizing city of Vancouver, B.C., to lay sewers under C.P.R. at Laurel St.

12139. Nov. 2.—Approving revised location of G.T.P.R. Alberta coal branch, mileage 31.77 to 37; location mileage 37 to 56.04.

12140. Oct. 29.—Authorizing C.P.R. to build spur for Continental Oil Co. in Saskatoon, Sask.

12141. Nov. 2.—Approving G.T.P. Branch Lines Co., plan, Sept. 19 required to be filed by order 11823, Sept. 19.

12142 to 12144. Nov. 2.—Authorizing Erindale Power Co. to erect wires across G.T.R. at three points near Toronto.

12145, 12146. Nov. 2.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires in Waterloo tp., and across C.P.R. telegraph wires in Hamilton.

12147. Nov. 2.—Authorizing Ottawa Electric Co. to erect wires across C.P.R. Ottawa and Prescott branch at Heron Road.

12148. Nov. 2.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at lot 4, con. 3, South Easthope tp.

12149. Nov. 2.—Authorizing Canadian Light and Power Co. to erect wires across Bell Telephone Co.'s wires at Woodlands, Que.

12150. Nov. 2.—Authorizing Ottawa Electric Co. to erect wires across C.P.R. at Fairbank Ave.

12151. Nov. 2.—Ordering Brandon, Saskatchewan and Hudson's Bay Ry. to build spur to Brandon Sandstone Brick Co.'s premises, Brandon, Man.

12152. Nov. 3.—Authorizing Canadian Light and Power Co. to erect wires across Bell Telephone Co.'s wires at Beauharnois, Que.

12153. Nov. 3.—Authorizing C.P.R. to use bridge 80.8 on its Windsor section, Ont.

12154. Nov. 2.—Authorizing C.P.R. to build spur for Metal, Limited; Hick-Sehl Hardware Co., and McMahon and Quinn, Lethbridge, Alta.

12155. Nov. 4.—Authorizing C.P.R. to build additional track across Third St. east, Olds, Alta.

12156. Nov. 2.—Authorizing Brantford Gas Co. to lay pipe under G.T.R. at Marlboro St., Brantford, Ont.

12157. Nov. 2.—Authorizing C.P.R. to use bridges 21.9 and 100.7 on its London section, Ontario Division.

12158. Nov. 2.—Authorizing C.P.R. to build bridge over McKellar River, Fort William, Ont.

12159. Nov. 3.—Authorizing town of Galt, Ont., to erect wires across G.T.R. at Kerr St.

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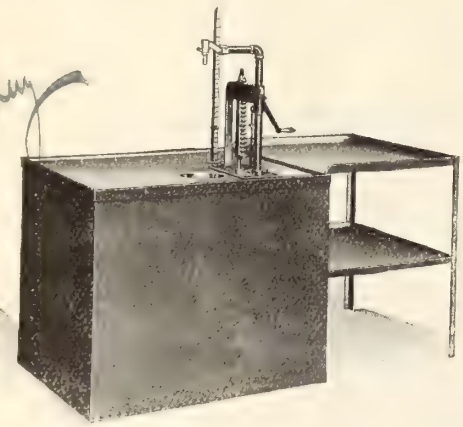

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12160. Nov. 2.—Authorizing city of Quebec to lay pipes under C.P.R. at Carillon St.

12161. Nov. 2.—Authorizing town of Orillia, Ont., to lay pipe under Georgian Bay and Seaboard Ry., in South Orillia tp., Ont.

12162. Nov. 4.—Authorizing C.P.R. to prevent undue delay to its passenger steamers between Owen Sound and Fort William, Ont., to do on the Lord's Day any work necessarily incidental to the loading or unloading of freight and its transfer to C.P.R. cars at Owen Sound and Fort William, and the coaling of its steamers at Owen Sound.

12163. Nov. 4.—Approving C.N.Q.R. station building at L'Assumption.

12164. Nov. 4.—Approving Chatham, Wallaceburg and Lake Erie Ry. Standard Passenger Tariff C.R.C. 7, showing maximum toll of 2½ c. a mile, or fraction thereof.

12165. Nov. 4.—Approving Hamilton Radial Ry. Standard Passenger Tariff C.R.C. 1.

12166. Nov. 4.—Dismissing application of Mutual Transit Co., for leave to unload and tranship freight from its vessels to C.P.R. trains, and do work incidental thereto, on the Lord's Day.

12167. Nov. 4—Authorizing C.P.R. to build bridges: 123.33 and 23.24 Chapleau section, Lake Superior Division, 8.16 Mimico River, London section, Ontario Division; 84.6, Nicomen Creek, Thompson section, British Columbia Division: 15.9, Michel Creek, Cranbrook section, Alberta Division; 36.6, Coal Creek, Cranbrook section, Alberta Division; 79.1, Nicomen Creek, Cascade section, British Columbia Division.

12168. Nov. 4.—Authorizing C.P.R. to use bridge 27.2 on its Orangeville branch, Ontario Division.

12169 and 12170. Nov. 4.—Authorizing city of Toronto to lay sewer under G.T.R. at two points.

12171. Nov. 4.—Authorizing town of Orillia, Ont., to erect wires across G.T.R. and Bell Telephone Co.'s wires at East St.

12172. Nov. 4.—Authorizing Canadian Light and Power Co. to erect wires across Bell Telephone Co.'s wires at Primeau Road, Caughnawaga, Que.

12173 to 12177. Nov. 4.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across G.N.W. Telegraph Co.'s wires and G.T.R. at Hamilton; across C.P.R. telegraph wires and G.N.W. Telegraph Co.'s wires in North Easthope tp., and across Bell Telephone Co.'s wires in Woodstock.

12178. Nov. 4.—Authorizing C.P.R. to build spur for the Excelsior Coal Mining Co., in s. w. ¼ sec. 30 tp. 1, r, 5, w. 2, m, at mileage 153.46, Portal subdivision.

12179. Nov. 4.—Approving for six months from date C.P.R. Standard Freight Mileage Tariff.

12180. Nov. 4.—Authorizing Esquimalt and Nanaimo Ry. to open for traffic the portion of its line from Wellington to Cameron Lake, B. C., mileage 77.3, to 107.6.

12181. Nov. 5.—Authorizing G.T.P. Branch Lines Co., to divert road in sec. 13, tp. 12, r. 16, w. 2 m, Assiniboia District, Sask.

12182. Nov. 5.—Authorizing C.P.R. to divert and change level of Silver Creek, Ont., to build culvert across G.T.R. right of way lands

12183. Nov. 5.—Authorizing C.P.R. to cross with its Moose Jaw north westerly branch, the C.N.R. located line, in sec, 17, tp| 30, r 14, w. 3 m., Sask.

12184. Nov. 5.—Amending order 12119, Oct. 27, which authorized T.H. & B.R. and G.T.R. to operate trains over G.T.R. crossing north of Brant street, Hamilton, Ont.

12185. Nov. 7.—Rescinding order 11767, Sept. 23, which authorized C.P.R. to open for traffic portion of its Kipp-Aldersyde Branch, from mileage 0 to 28.2, and limiting speed of trains over same to 30 miles an hour.

12186. Nov. 7.—Authorizing C.P.R. to build bridge 7.4 on its London sub-division, Ontario Division.

12187 to 12189. Nov. 7.—Authorizing C.N.O.R. to build between lots 9 and 10, broken front concession, Thurlow tp.; across road on lot 2, con. 1, Belleville, and across MacDonald St., between lots 7 and 8, broken front concession, Belleville.

12190. Nov. 7.—Authorizing C.N.R. to build across 20 highways west of second meridian.

12191, 12192. Nov. 7.—Authorizing C.N.O.R. to build between lots 291 and 295, and between lots 223 and 218, St. Benoit parish, Two Mountains county, Que.

12193. Nov. 7.—Authorizing Port Colborne village, Ont., to lay water pipe under G.T.R. at St. Arnaud St.

12194. Nov. 7.—Authorizing town of Pembroke, Ont., to lay water pipe under C.P.R. at MacKav St.

12195. Nov. 7.—Authorizing Port Colborne village, Ont., to lay water pipe under G.T.R. at Welland St.

12196. Nov. 7. — Authorizing Interurban Electric Co. to erect wires across C.P.R. switch extension at Symes Rd., Toronto.

12197, 12198. Nov. 7.—Authorizing Seymour Power and Electric Co. to erect wires across Bell Telephone Co.'s wires at two points in Sidney, tp., Ont.

12199 to 12205. Nov. 7.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across other wires at seven points.

12206. Nov. 3.—The equipment of cars with emergency tools. This order is given in full on another page.

12207. Sept. 19.—Ordering C.P.R. to build and operate extension of Clover Bar Coal Co.'s spur across its lands to Humberstone Coal Co.'s lands, in n. w. ¼ sec. 7, tp. 53, r. 23, w. 4 m.

12208. Nov. 7.—Authorizing G.T.P. Branch Lines Co. to build spur from its Melville-Regina branch to Colmer gravel pit, Yorkton District, Sask.

12209. Nov. 7.—Authorizing C.P.R. to build spur and branch for the Gros Falls Co. at mileage 2.22 from Piles Jct., Que.

12210. Nov. 8.—Authorizing Welland Telephone Co. to erect wires across M.C.R. between second and third crossings west of Stevensville station, Ont.

12211. Nov. 8.—Ordering Atlantic and Lake Superior Ry. within 60 days to build and maintain shelter for freight and pasengers at St. Jean de l'Evangeliste, Que.

12212. Nov. 8.—Authorizing C.N.O.R. to build between lot 38, con. 1, Sidney tp., and lot 1, broken front concession. Thurlow tp.

12213. Nov. 8.—Dismissing application of C.N.R. for approval of its location through tps. 38-39, r. 23-24, w. 4 m., mileage 21.38 to 36.49, from junction with Vegreville-Calgary branch.

12214. Nov. 8.—Authorizing G.T.R. to build branch to Chesley Chair Co.'s premises, Chesley, Ont.

12215. Nov. 8.—Approving plan of standard iron fire protection for decks of timber bridges; and authorizing G.N.R. to substitute same for style of protection required under clause 10 of order 11446.

12216. Nov. 3.—Dismissing application of Sandwich East tp., Ont., for order authorizing G.T.R. to allow it to build a drain on its right of way, from between lots 143 and 144, con. 1, westerly to Little River.

12217. Nov. 3.—Authorizing C.N.O.R. to build across road on lot 410, East North River range, St. Andrew's parish.

12218. Nov. 8.—Authorizing city of Peterboro, Ont., to lay sewer under G.T.R. at Smith St.

12219. Nov. 9.—Authorizing Ottawa Electric Co. to erect wires across C.P.R. near Rideau River, Ont.

12220. Nov. 7.—Approving revised location of part of C.P.R. Regina, Saskatoon and North Saskatchewan branch from mileage 26.35 to 28.56, Sask.

12221. Nov. 9.—Approving amended location of G.T.P. Branch Lines Co.s Regina-Boundary branch from mileage 0 to 10.407. Sask.

12222. Nov. 9.—Authorizing C.N.O.R. Co. to build a bridge over Moira River, Belleville.

12223. Sept. 27.—Authorizing the C.N.O.R. to connect temporarily with G.T.R. Midland branch, at Port Hope.

12224. Nov. 7.—Approving character and specifications of Parrott Drain to be built under P.M.R. in Harwich, tp., Ont.

12225. Rescinding order 5888, in the matter of the Trainmen's Association of Canada and ordering conditions re employment and protection of employes. This order is given in full on another page.

12226. Nov. 9.—Authorizing town of Walkerton, Ont., to lay pipe under Walkerton and Lucknow Ry. at Orange St.

12227.—Nov. 9.—Authorizing J. Auclair, of St. Hilaire, Que., to lay pipe across G.T.R. in lot 130.

12228. Nov. 10.—Authorizing Tilsonburg, Lake Erie and Pacific Ry. to change its branch line as located along Victoria St., Ingersoll, Ont.

12229. Nov. 9.—Authorizing Georgian Bay & Seaboard Ry. to build acros five highways in Medonte tp., one highway between Medonte and North Orillia tp., eight highways in North Orillia tp., and six highways in South Orillia tp., Ont.

12230. Nov. 9.—Ordering that C.P.R. comply with terms of order 7969, Sept. 1, 1909, to provide crossings on line dividing r, 1, northeast and r, 1, southwest at mileage 2.9 and 3.5, from Megantic, and build crossing at mileage 3.5, from Megantic, Que., within 30 days.

12231, 12232. Nov. 9.—Reporting to Governor in Council, for sanction, bylaw 24, of Quebec, Montreal and Southern and Napierville Jct. Rys.

12233. Nov. 10.—Authorizing Canadian Light and Power Co. to erect wires across Bell Telephone Co. wires at Chateauguay River crossing, Chateauguay, Que.

12234 to 12235.—Nov. 10.—Authorizing E con. 4, Dover East tp., to Paincourt, and Albert and D. Sirvois, of St. Hilaire N.B., to lay water pipes under Temiscouata Ry.

12236. Nov. 10.—Authorizing Chatham, Wallaceburg and Lake Erie Ry. to open for traffic portion of its line from main line in con. 4, Dover East tp., to Pain Court, and limiting speed of trains to 18 miles an hour.

12237. Nov. 10.—Authorizing C.P.R. to build spur for Superior Fuel & Coal Co., Winnipeg.

12238. Nov. 11.—Authorizing C.P.R. Co. to build additional track between s.e. ¼ sec. 29, and s.w. ¼ sec. 28, tp. 22, r. 23, w. 4 m. at Stobart, Alta.

12239. Nov. 11.—Authorizing Saskatchewan Government to build highway across C.P.R. in sec. 25, tp. 20, r. 11, w. 2 m.

12240. Nov. 11.—Authorizing Saraguay Electric and Water Co. to erect wires across Montreal Terminal Ry. on Prefontaine St.

12241 to 12248. Nov. 11.—Authorizing town of Maisonneuve, Que., to lay gas and water pipes under C.N.Q.R. at eight points.

12249. Oct. 12.—Authorizing T.H., & B, Ry. to build spurs from west of Grant Ave., on its main line easterly across Grant Ave., Wentworth St., Sanford Ave., and Sherman Ave., to east side of Wentworth St., and south of main line across Sanford Ave. to west of Sherman Ave., and west of Prospect St., Hamilton, Ont.

12250 to 12254. Nov. 11.—Temporarily approving Bell Telephone Co.'s agreements with Brompton Pulp and Paper Co., Tarentorus Telephone Co., J. H. Rogers and J. McLaughlin, Norwich, Ont., Urban and Rural Telephone Co., and Metcalfe Rural Telephone Association.

12255. Nov. 11.—Authorizing C.N.O.R. to build across lines from G.T.R. to Lehigh Valley Cement Works, Thurlow tp.

12256. Nov. 11.—Authorizing C.P.R. to build spur for Perrault, Audy Co., at mileage 8.64 from Place Viger station, Montreal.

12257. Nov. 11.—Authorizing C.P.R. to build spur across Jarvis St., and block 52. Winnipeg.

12258. Nov. 11.—Authorizing G.T.P. Branch Lines Co., to close road allowance between secs. 24 and 25 and between secs 25 and 30. within right of way limits, tp. 31, r. 24, w. 4, m.

12259. Nov. 11.—Authorizing C.P.R. to build spur for Wilson Box Co., at mileage 2.9 from St. John, N.B.

12260. Nov. 11.—Authorizing C.P.R. to build across Rama Road, in lot 30, con. 11, Mara tp., Ont.

12261. Nov. 11.—Authorizing C.P.R. to build spur for C. I. Kilburn, Saskatoon, Sask.

12262. Nov. 11.—Authorizing C.P.R. to build spur for the Canadian Nursery Co., in lot 40, Pointe Claire parish, Que.

12263. Nov. 11.—Approving location of Georgian Bay and Seaboard Ry. from mileage 74.25 to 87.65.

12264. Nov. 11.—Temporarily approving Bell Telepone Co.'s agreement with Maidstone tp.

12265. Nov. 11.—Relieving G.T.R. from providing further protection at crossing of three-quarter township line at lot 19, mileage 95¼, Drumbo, Ont.

12266. Nov. 11.—Authorizing. town of Maisonneuve, Que., to lay a gas pipe under C.N.Q.R. at First Ave.

12267. Nov. 12.—Approving temporary crossing by Toronto Ry., of C.P.R., C.N.R. and G.T.R. at Queen St.

12268 Nov. 12.—Authorizing G.T.R. to build spur to Milnes Coal Co.'s premises, North Toronto. Ont.

12269. Nov. 12.—Amending order 12211, Nov. 8, ordering Atlantic and Lake Superior Ry. to build shelter for freight and passengers at St. Jean de l'Evangeliste, Que., by substituting "Quebec Oriental," for "Atlantic & Lake Superior," in line 5 of the recital.

12270. Nov. 7.—Authorizing Trenton Electric & Water Co., to erect wires across Bell Telephone Co.'s wires at lot 36, con. 2, Sydney, tp., Ont.

12271. Nov. 14.—Authorizing C.P.R. to open for traffic portion of its Teulon branch, between mileages 47.7, and 74.5, Man.

12272. Nov. 14.—Authorizing C.P.R. to build spur for Bawlf Collieries Co., Bawlf, Alta.

12273 Nov. 14.—Authorizing Alberta Central Ry. to build branch at Rocky Mountain House, in tp. 39, r. 7, w. 5 m.

12274. Nov. 14.—Authorizing Seymour Power and Electric Co., to erect wires across Central Ontario Ry., near Anson Jct., Ont.

12275. Apr. 29.—Ordering, on application of the Mount Royal Milling Co., that rice, not otherwise specified in packages, in less than carloads, be included in first supplement to Canadian Classification 15, at fourth class instead of third class, as at present.

12276. Nov. 10.—Ordering that G.T.R. cease from interfering with any facilities now enjoyed by D. McManamy, Sherbrooke, Que., for handling traffic over its siding adjacent to his property

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Electric Headlight Saves Train

(From Daily Papers)

"Wednesday night B——— forgot to deliver an order to hold Eastbound Passenger Train No. 6, and only the fact that the Electric Headlight of the oncoming Passenger train was seen at a great distance by the Engineer of the Westbound Freight prevented a head end collision in the ——— Canyon near ———. The warning light was seen in time to enable the freight to get back on to the siding at ———."

PYLE-NATIONAL ELECTRIC HEADLIGHT CO.

CHICAGO

C.P.R. Betterments, Construction, Etc.

Sir Thos. G. Shaughnessy, President, on his return to Montreal, Oct. 30, from his annual trip of inspection of the line to the Pacific Coast, in company with other directors, said, in an interview, that he found everything in a satisfactory condition. Referring to work in hand or in prospect, he said:—"At present we are at work on 400 miles of new lines, and have made plans ready for the building of at least 400 miles additional next year. We are also about to commence the construction of a fine new hotel at Calgary, and on its completion we will put on a daily train service between Calgary and Field. We also intend to place another steamship on the Pacific as soon as we can get one built." With reference to Toronto he said he hoped very soon to announce some of the company's plans for the city and vicinity.

Truro to Tatamagouche Bay.—A press report from Prince Edward Island states that surveys have been made by the C.P.R. for an extension of the Dominion Atlantic Ry. Midland division from Truro to Tatamagouche Bay, near Brule, N.S., and that a site for a dock at Charlottetown, P.E.I., is being looked for, so as to operate a car ferry service from the mainland to the Island.

Digby, N.S.—C.P.R. engineers, officers of the Dominion Atlantic Ry. and Dominion Government engineers, were in Digby, Oct. 27, inspecting the shipping facilities there. A local press report states that everything is favorable for building tide elevators, and extensions to the freight sheds, so as to provide for increased business when the C.P.R. formally takes over the D.A.R.

Improvements at St. John, N.B.—The purchases of land by the company in St. John are reported to have been completed. The properties purchased are on Mill and Main streets, and the price of the three areas is said to have been $241,000.

Fredericton Improvements.—W. Downie, General Superintendent Atlantic Division, is reported to have stated Nov. 5 that the yard facilities at Fredericton, N.B., were insufficient to handle the growing freight business, and plans for new yards had been completed. He expected that construction would be started in the spring.

Orford Mountain Ry.—Application is being made to the Dominion Parliament to authorize the building of a line from near Mansonville, Que., to the International boundary line, and for other purposes.

Connection with Montreal Terminal Ry.—At a recent meeting of the Montreal board of control it was stated that the C.P.R. had started laying a track to connect with the Montreal Terminal Ry. between Forsythe and Moreau streets, for the building of which notice of application had been given to the Board of Railway Commissioners.

St. Lawrence Boulevard, Montreal.—The work on the steel superstructure carrying the C.P.R. tracks over the St. Lawrence boulevard, has been completed. The structure is wide enough to allow eight tracks to be laid.

Place Viger Improvements.—It was reported Nov. 1 that the buildings over a large area of the land acquired for the improvements in the yards at this station had been torn down, and that 12 new tracks leading into the area set apart for the new station had been laid. Some of these new tracks were used Nov. 1, when the lines leading into the present station were abandoned. The work on the Notre Dame St. viaduct is proceeding rapidly, and the steel work for the new station building is being rapidly got into place.

Hawkesbury to Cornwall.—A meeting of representatives of the municipalities interested is being arranged to discuss a project for building a line from Hawkesbury to Cornwall, Ont., running through Vankleek Hill, Alexandria and Martintown, to be operated by the C.P.R.

Ottawa Tunnel Proposals.—It was stated Nov. 10 that negotiations were in progress between the C.P.R. and the Canadian Northern Ry. with a view to their co-operation in the project for the building of a tunnel into the city. The City Engineer suggested that the C.P.R. should give other companies running rights over the Alexandria Bridge as a quid pro quo for permission to build the tunnel along the canal. It is proposed that the plan should be reported on by an independent engineer for the city, and the city engineer has recommended W. F. Tye, formerly Chief Engineer C.P.R., in connection with the matter. While the opinion at Ottawa is rather in favor of the proposed tunnel, opposition is being manifested in municipalities along the canal, and according to a local report of Nov. 15, a deputation representing the different interests is being arranged to interview the Government. The matter is to be considered by the Government Dec. 8.

Ottawa-Mattawin River.—A press report states that a contract has been let

Canadian Railway Prosperity.

The relatively happy position of Canadian railways, as compared with roads in the United States, is shown by the earning statements for September and three months of the year of 48 U.S. railways. These 48 U.S. railways show an average gain in gross for the month of only 5.70%, and net shows a decrease of 4.19%, while for the three months these roads show an average gross gain of 6.59% and an average net decrease of 6.80%. The showing of the Canadian roads, especially the Canadian Pacific and the Canadian Northern, is vastly different. They show gains in gross for September of 18.86% for the C.N.R., and 11.92% for the C.P.R., and in net of 22.37 and 13.97% respectively, while for the three months the C.P.R. gained 19.87% in gross and 24.92 in net, and the C.N.R. 31.18 and 33.11.

eight in North Orillia tp., and six in South Orillia tp. Location plans for the to Stewart and Hewitson, Port Arthur, Ont., for the concrete work for the bridge at the junction of the Ottawa and Mattawin rivers, at the Ontario-Quebec boundary near Mattawa. The bridge is 2,700 ft. long.

Brockville, Ont.—H. P. Timmerman, Industrial Commissioner, and other C.P.R. officials were in Brockville Nov. 10, looking into the business situation. This visit is connected locally with press reports that the company has abandoned, temporarily at any rate, its project for a line from Kingston to Toronto in favor of an extension of the Georgian Bay and Seaboard Ry., from Peterboro via Kingston to Brockville. In this connection Toronto papers state it has been officially announced that by Nov., 1911, all the wooden bridges between Smiths Falls and Toronto will be replaced by structures of steel or re-inforced concrete, and that the facilities at all stations will be increased.

Georgian Bay and Seaboard Ry.—The Board of Railway Commissioners has authorized the company to build its line across five highways in Medonte tp., one between Medonte and North Orillia tps., line between mileage 74.25 and 87.65 have been approved.

North Toronto.—A freight shed has been built at North Toronto, and considerable improvements have been made at the passenger station to meet the requirements since the new trains to Montreal have been put on.

West Toronto Yards.—The Board of Railway Commissioners has directed the construction of a subway under the tracks at Elizabeth St., within a year. The buildings on the site of the extension of the yards west of Elizabeth St. are being torn down, and the ground along the street is being cleared in preparation for the subway.

Lambton Westerly Second Track.—The station at Lambton, Ont., has been moved nearer Dundas St., and the second track, heretofore ending east of the station, is being extended to meet that recently laid westerly from the west end of the platform. The second track has been laid to the east bank of the Humber River, and the grading for the second track has been almost completed from the west bank of the river to east of Islington station, where a second track has been laid to a connection with the Islington-Mimico spur, and westerly to near Summerville.

Islington-Mimico Spur.—The Board of Railway Commissioners has authorized the opening for traffic of the line from mileage 9.56 from Toronto, near Islington, to a connection with the G.T.R. near Mimico, with Y connections.

Guelph Station.—Work was started Oct. 28 on the foundations of the new station at Guelph, Ont. The plans show a building 125 by 33 ft., with roof projections at each end. The foundations are being carried down to the rock, about 12 ft. below ground level. The cost of the building is put at $20,000, and the contract for the structure, which is to be of brick with slate roof, has been let to Wells and Gray.

The plans show a brick building with slate roof, having a frontage to the tracks of 122 ft., and a depth of 35 ft. at the office section, with covered areas at each end 30 by 22 ft. over all. The layout shows a general waiting room 75 by 32 ft., off which there is an office 16 by 20 ft., lavatories for men and women, each 10 by 20 ft. There are four entrances to this room. At one end is accommodation for baggage and express, the baggage room being 18 by 28 ft., and the express room 30 by 28 ft. The building will be lighted by electricity, and the heating apparatus will be installed in a basement under the baggage and express rooms.

Tillsonburg, Lake Erie and Pacific Ry.—The Board of Railway Commissioners has approved of a change in the location of the line along Victoria St., Ingersoll, Ont. Plans have been prepared for a station building on the corner of Thames and Carnegie streets..

St. Mary's and Western Ontario Ry.—A Stratford press report says it is likely that the project to build a line from St. Marys to Stratford will be abandoned, and that a line will be built from Embro through to Linwood, probably via Wellesley, and that the line to Gravel Bend will be located through Carlingford, Russeldale and Exeter.

London Improvements. — Work has been started on the improvements northeast of London, Ont. Several wells are being sunk to give the company its own water supply.

Toronto-Sudbury Branch.—Since the opening of the line from Bolton Jct., Ont., to Sudbury, the C.P.R. has been carrying out a work of grade reduction and general improvement on the line from West Toronto to Bolton Jct. The wooden trestles are being replaced by concrete and steel bridges, or concrete arches with solid embankments, curves have been cut out, and the gradient reduced over considerable distances. The

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largest bridge on the section, which, it is expected to complete this season, is over the Humber River, between Weston and Woodbridge. The rail level is 80 ft. above high water mark, and the bridge has a span of 285 ft. There were used in the construction of the bridge 2,000 cubic yards of concrete, and it is estimated that it will take about 140,000 yards of clay and other material to complete the embankment.

Bridge at Fort William, Ont.—The Board of Railway Commissioners has authorized the building of a bridge over the McKellar River at Fort William.

Teulon Branch.—The Board of Railway Commissioners has authorized the opening for traffic of the Teulon branch, in Manitoba, from mileage 47.7 to 74.5.

Second Track, Winnipeg to Regina.—We are advised that the second track has been completed between Winnipeg and Portage la Prairie, Man., and that some grading for a second track between Portage la Prairie and Brandon has been done. The second track is expected to be completed to Brandon in 1911. Nothing has been arranged with regard to the construction of a second track between Brandon and Regina, Sask.

Increasing Facilities at Brandon.—We are advised that nothing has been discussed as yet in regard to the building of a new station at Brandon, Man., although it is apparent that it will soon be necessary to provide increased facilities there.

Virden-McAuley Branch.—The Board of Railway Commissioners has authorized the opening for traffic of a section of 14 miles on the Virden-McAuley branch.

Hamiota to Birtle, Man.—The Minister of Railways has approved of the route plan of the proposed branch line between Hamiota and Birtle, Man., and it is said that construction will be gone on with next year.

Pheasant Hills Branch.—The Board of Railway Commissioners has authorized the opening for traffic of the section of this branch from mileage 430.39, at Wilkie, Sask., to mileage 561.63, at Hardisty, Alta. This completes the connection from the main line at Kirkella, Man., to a junction with the Calgary and Edmonton Ry. Wetaskiwin branch.

Regina and North Saskatchewan Branch.—The Board of Railway Commissioners has approved the revised location of the Regina, Saskatoon and North Saskatchewan branch from mileage 26.35 to 28.56. It has also approved the location plans of the line from mileage 199.2 to the crossing of the Canadian Northern Ry. spur to East Prince Albert, mileage 232.4.

Subway at Regina, Sask.—The civic authorities at Regina, Sask., have received an intimation from the Board of Railway Commissioners that, in connection with the recent order for the erection of a subway under the C.P.R. tracks, the city will be required to do all the excavating and paving, and to erect all substructures, drains and lights, and to pay abuttal damages, if any; while the C.P.R. is to provide all the land necessary and to build all the superstructures.

Calgary Yards, etc.—The new yards at Calgary, Alta., are practically completed. In the area taken in, 16 miles of additional track have been laid, and the new buildings comprise a 20-stall roundhouse, 40,000 gall. water tank, a 2,000-ton icehouse, and a new shed for outgoing freight, the old shed being given over for incoming freight. A new wing, two stories, is being added east of the main station house, and it is expected that next year a similar wing will be added at the west end

Bridges at Lethbridge.—The Board of Railway Commissioners has authorized the building of a bridge about 1,200 ft. west of the present crossing at mileage 2.6, west of Lethbridge, Alta., and another at mileage 10.6.

Vancouver, B.C.—W. Whyte, Vice President, on the occasion of his recent visit to Vancouver, is reported to have stated that the traffic there was growing so rapidly that enlarged station accommodation was imperative. The matter would be discussed in Jan., 1911, when the estimates for the year would be under consideration.

Esquimalt and Nanaimo Ry.—We are advised that work is being gone on with clearing the right-of-way from tidewater to Cowichan Lake, for the proposed branch to open up timber lands sold to the Empire Lumber Co. of New York. The final negotiations for the transfer of the lands are expected to be completed at an early date, when the building of the line will be gone on with. All the work for the building of the line will be let to Janse, McDonnell and Timothy.

The Board of Railway Commissioners has authorized the opening for traffic of the first 30 miles of the Alberni extension, viz., from Wellington to Cameron Lake. A passenger service was inaugurated Nov. 9, a train being run each way three days in the week. A stage is run between Cameron Lake and Port Alberni.

Representatives of the Songhees tribe of Indians and agents of the B.C. Government have reached an agreement by which the Indians will abandon the reserve in the centre of Victoria. It is expected that the city council will be able to so arrange matters that a portion of the reserve may be secured for joint terminal facilities for the C.P.R. and the Canadian Northern Ry.

C.P.R. Hotels.—We are advised that Sir Thos. G. Shaughnessy, President, during his recent trip to the West, authorized the erection of a hotel at Calgary, Alta., work on which will be started as soon as possible. It was also decided to enlarge the Royal Alexandra at Winnipeg, and to provide additional accommodation at Lake Louise, Banff, and Vancouver, B.C. We are also informed from another source that there was no foundation for the recent press reports that the company was about to build hotels at different points, so as to complete a chain of such along its line from the Atlantic to the Pacific.

Press reports state that an effort is being made to secure the erection of C.P.R. hotels at Gore Landing, Ont., and at Moose Jaw, Sask. Nov., pg. 933.)

Dominion Railway Subsidies.—Under the terms of the act granting aid to certain railways the Dominion Government has entered into the following contracts: For the building by the Atlantic, Quebec and Western Ry., of a line from Paspebiac to Gaspe, as near the shore as practicable, 102 miles. For the building by the Manitoulin and North Shore Ry., of a line from Little Current to Sudbury, Ont, 88 miles.

The annual meeting of the Vancouver branch of the Canadian Society of Civil Engineers was held Nov. 7, and the following elected for the current year: Chairman, G. H. Webster; Secretary and Treasurer, H. K. Dutcher; Executive Committee, C. E. Cartwright, J. C. Kennedy and H. Bayfield.

H. W. Brodie, Assistant General Passenger Agent C.P.R., Vancouver, B.C., writes:—"Will you kindly change my address on your mailing list from Winnipeg to Vancouver, so that I will continue to receive a copy of the Railway and Marine World, which I am always glad to have on my table."

Too Late for Classification.

Atlantic, Quebec and Western Ry.—A contract has been entered into between the Dominion Government and the company under the act granting aid to certain railways for the building of a line from Paspebiac to Gaspe, Que., as near the shore as possible, 102 miles. (Nov., pg. 909.)

British Columbia and Alaska Ry.—We are advised under date of Nov. 21, that the present officers and directors of the B.C. Ry. and Development Co., which owns the charter of the B.C. and A. Ry., are: President, J. Wolkenstein, New York; Vice President and General Manager, E. C. Harris; Second Vice President, C. G. Young; Secretary, Wm. C. Pratt; Treasurer, A. T. Sullivan; other directors, B. Brooks, J. C. Clifford, J. W. Kendrick, and S. D. Townsend.

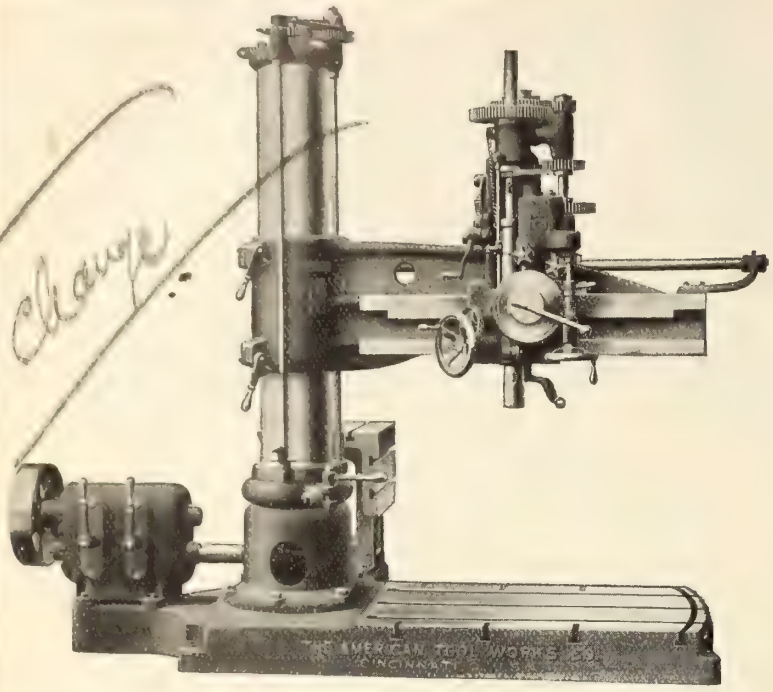
Reconnaissance surveys are said to have been completed for the whole line, and location surveys for the greater part of the distance between Lytton and Fort George have been completed. The route is from Vancouver through Lytton and Lillooet to Fort George, thence following the valley of the Stuart River. Stuart Lake and Tacla Lake and Middle River to North Tacla Lake by way of Fort Connelly thence following the Skeena and Stikine Rivers to Telegraph Creek, and northerly to Teslin Lake to the northern boundary of British Columbia, or in the alternative by the most feasible route between Lytton and Teslin Lake. The surveys have been done under the direction of L. M. Rice and Co., Vancouver, B.C., and Seattle, Wash. (Nov., pg. 909.)

Manitoulin and North Shore Ry.—The Dominion Government has entered into a contract with the company, under the act granting aid to certain railways for building a line from Little Current, thence crossing the C.P.R. near Nairn, to Sudbury, Ont., 88 miles. (Nov., pg. 911.)

Southern Central Pacific Ry.—The Dominion Parliament is being asked to authorize the building of the following additional lines: from where the projected main line crosses the North Saskatchewan River in Alberta, northwesterly, crossing the Athabasca River, to Dunvegan on the Peace River; thence to Parsnip River, southerly to Nechaco River, southwesterly to Dean's Channel, or to Gardener's Channel, B.C.; from the Elk River, B.C., easterly to the Waterton River and on to the International boundary, near Coutts, Alta. An extension of time is also asked for the building of its projected railway from Vancouver, northerly and easterly by way of the Kootenay Pass to the Old Man River, and thence north easterly through Saskatchewan, to Hudson Bay, at least 100 miles north of Fort Churchill. A. T. Thompson, Ottawa, is solicitor for the applicants.

In an interview at Winnipeg, Nov. 17, Jas. Conmee, M.P., said the line is projected to run north and south from Bermis on the C.P.R. Crow's Nest Pass line, the northern line to run to Calgary and Edmonton, and on to the Peace or Pine River pass, thence to the Pacific Coast on Gardner Canal; and the southern line to run to the International boundary. A subsidy in aid of construction was voted to the company last session of the Dominion Parliament. Mr. Conmee who is interested in the company, says the line will be built with all possible speed, and he expects that about 250 miles will be under construction within the next 18 months. (July 1909, pg. 481.)

J. R. Cowans, General Manager Cumberland Ry., and Coal Co. has been removed to Montreal, where he will have charge of the office work, a local manager taking over the work at the collieries at Springhill, N.S.



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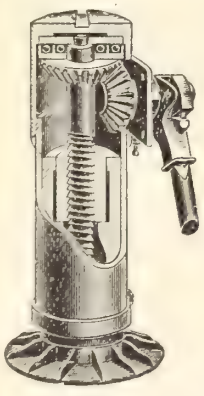
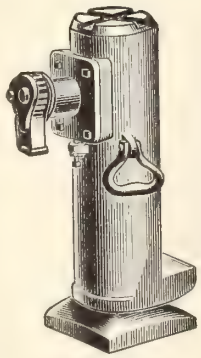


Sectional View



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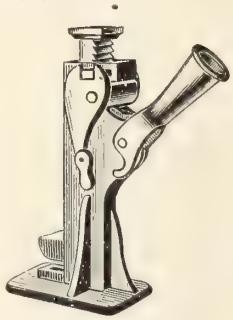

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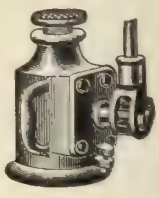
Traversing Jack



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Canadian Northern Ry. Construction, Etc

James Bay and Eastern Ry.—The Board of Railway Commissioners has approved location plans for this projected railway between mileage 14.39 and mileage 14.93, in Ashuapauchouan tp., Lake St. John county, Que. A company with this title was incorporated last session of the Dominion Parliament to build a line from James Bay, easterly to a junction with the Quebec and Lake St. John Ry. near Roberval, Que. The provisional directors are associated with the Mackenzie, Mann & Co., Ltd.

Canadian Northern Quebec Ry.—The mayor of Quebec was reported Oct. 28, as having given instructions to the city solicitors to push the action against the company for the return of $200,000 granted to the Great Northern Ry., one of the companies amalgamated in the C.N.Q. Ry., on condition that its shops be located in the city.

We are officially advised that the company has purchased the property at the corner of St. James St. and Dollard Lane, Montreal. It is intended to make some alterations in the existing buildings in the near future, with a view to having all the company's offices in Montreal located there. This will include the general freight and passenger department, the steamship department and the express department. The price paid for the property is said to have been $175,000.

In an interview at Ottawa, Nov. 10, W. Mackenzie, President, said work was progressing favorably on the new section of the line between Hawkesbury, Ont., and Montreal, which it is expected will be opened for traffic next fall.

The Dominion Parliament is being asked to authorize the company to build a line from Rawdon northerly to a junction with the National Transcontinental Ry., and from St. Jerome to St. Eustache, Que.

Bay of Quinte Ry.—Application is being made to the Dominion Parliament to authorize the company to enter into agreements with the C.N. Ontario Ry. and the Ontario and Ottawa Ry., for any of the purposes specified in sec. 361 of the Railway Act.

Brockville, Westport and North Western Ry.—Application is being made to the Dominion Parliament to authorize the company to enter into agreements with the C.N. Ontario Ry. and the Ontario and Ottawa Ry. for any of the purposes specified in sec. 361 of the Railway Act.

Canadian Northern Ontario Ry.—In an interview at Ottawa, Nov. 10, W. Mackenzie, President, is reported to have said that the construction of the Toronto-Ottawa line was now within 90 miles of Ottawa, and he expected the whole would be completed by next fall.

The matter of the entrance of the line into Ottawa was before the Board of Railway Commissioners, Nov. 3, when the company's application for a temporary crossing of the Hurdman road was considered. The application, it was stated, was made for the purpose of establishing a connection for freight purposes with the Ottawa and New York Ry., which could be used during certain hours only. The mayor had expressed approval, but the city solicitor was present to oppose the application. The matter was adjourned in order to permit a formal assent to be obtained from the city council. The arrangement which the company proposes, which is now under consideration, is that the permission to use the crossing be restricted to two years.

In the course of a recent interview, D. D. Mann, Vice President C.N. Ry., is quoted as stating that the Toronto-Trenton section of the line from Toronto to Ottawa will be opened for traffic about June 1, 1911. The section is about 100 miles long and the grading is completed, with the exception of some rather heavy cuttings between the Don and Cobourg, but this is not likely to delay the work very seriously, as the bridge work has been progressing rather slowly owing to the non-delivery of the steel work. There are a large number of these bridges along the route, the most important being:—At the point of junction with the Sudbury line; west fork of Rouge River, 500 ft. steel viaduct; east fork Rouge River, 180 ft. bridge; crossing of Bowman's Creek; Dixie Creek, 850 ft. steel viaduct; Greenwood Creek, 545 ft.; Oshawa Creek, 430 ft.; Stephen's Mill pond, 650 ft. steel viaduct; Port Hope, 840 ft. steel bridge. The last three bridges are not yet built. Track has been laid on various portions of the line between the Don Valley and Cobourg, and between Cobourg and Trenton tracklaying has been completed, and a good deal of the ballasting done. At Trenton a steel viaduct is being erected, and when this is completed a connection will be made with the Central Ontario Ry., which has come under the control of Mackenzie, Mann & Co. There will be 15 stations on the line, the most important being at Oshawa, Bowmanville, Port Hope and Cobourg. Jex & Co., Cobourg, have the contract for the erection of the stations at Port Hope and Cobourg.

There has been a change in the location of the line to Trenton from that originally laid out. The route originally surveyed crossed the Central Ontario Ry. just south of Frankford, and then proceeded in a direct line easterly, crossing the Bay of Quinte Ry. at Mud Lake, the Kingston and Pembroke Ry., at Vernon, and the Brockville, Westport and Northwestern Ry., at Newboro, thence working northerly to Ottawa. By an amended plan the route was changed, and starting at the boundary of Haldimand and Cramahe tps., the location now being followed is more southerly, crossing the G.T.R. near Brighton, and keeping along the lake shore, crosses the G.T.R. again at Shannonville, and works north and east to Mud Lake. With the taking over of the Bay of Quinte Ry. a further change in the route has been made. The route now approved leaves the location last mentioned near Shannonville, and proceeds south and east to Deseronto, joining up with the Bay of Quinte Ry., which line will be utilized as far as Harrowsmith, and a new route has been located from that point, joining up with the original survey at Portland. Some part of the present line from Harrowsmith to Sydenham is to be used. The Board of Railway Commissioners has authorized the building of a bridge across the Moira River at Belleville, on five instead of seven piers, as originally planned, and has authorized the Bay of Quinte Ry. to move its tracks from its yard at Napanee.

Press reports state that the company's agents are purchasing land for a right of way from Ottawa to Smiths Falls, Ont., and that the projected line from Ottawa to Key Harbor will branch off from the Toronto line, about four miles southwest of the capital.

At a meeting of the board of trade of North Bay, Ont., Nov. 8, the question of the building of a line from Key Harbor to North Bay, 88 miles, by the C.N.R., was under consideration. The president of the board and the mayor reported having had an interview with W. Mackenzie, President C.N.R., Nov. 3, when he expressed a willingness to undertake the building of such a line. A committee was appointed to see what steps could be taken locally to further the project.

The Dominion Parliament is being asked to pass an act authorizing the company to build the following branch lines:—From Washago to Kincardine; from Arnprior to Gananoque, from Pembroke to Port Hope or Cobourg; from Pickering tp. to Owen Sound; from about 10 miles east of Toronto to Hamilton, London and Windsor, with a branch from London to St. Thomas and Sarnia, and a loop north of Toronto in Scarboro and York tps.; from the International bridge near Fort Erie northwesterly to Goderich; from between Dunnville and Port Dover to Owen Sound or Meaford; from Washago to Midland; from Hawkesbury to an unnamed point in Leeds or Lanark county, and from Parry Sound to North Bay.

A route map has been filed at the Brantford registry office showing a line through Brant county east and west, passing through Brantford.

The plan of the proposed entrance of the C.N.O. Ry.'s Toronto-Ottawa line into Toronto shows that it will cross the Don River from the east and approach the Toronto-Sudbury line, north of St. Clair Ave., and west of Woodbine Ave. From there it will parallel the C.N.O.R. existing line, crossing the river five times, to the road from Deer Park, where it will bear away easterly, and run almost due south, crossing the Don again, and then keeping along the eastern bank to south of Queen St., thence turning westerly to the land acquired for yards, etc., along Cherry St. When the matter came before the Minister of Railways, Nov. 2, the company's solicitor was informed that an arrangement should be reached with the C.P.R. as to the location of the tracks. The question was again before the Minister of Railways, Nov. 21; the general route plan was approved and the settlement of the details was left to the Board of Railway Commissioners.

Canadian Northern Ry.—The cut off which gives the C.N.R. a straight line from Slate River to Kakabeka, Ont., was used for the operation of trains Oct. 26. The new route not only cuts out a heavy gradient, but also effects a saving of two miles in distance.

Grading on the Greenway-Wakopa, Man., branch is almost completed, and the bridges and culverts are all in. Rails and ties were being delivered at Adelpha, the present end of track, Nov. 10, and it was expected that 12 miles of track will be laid this season.

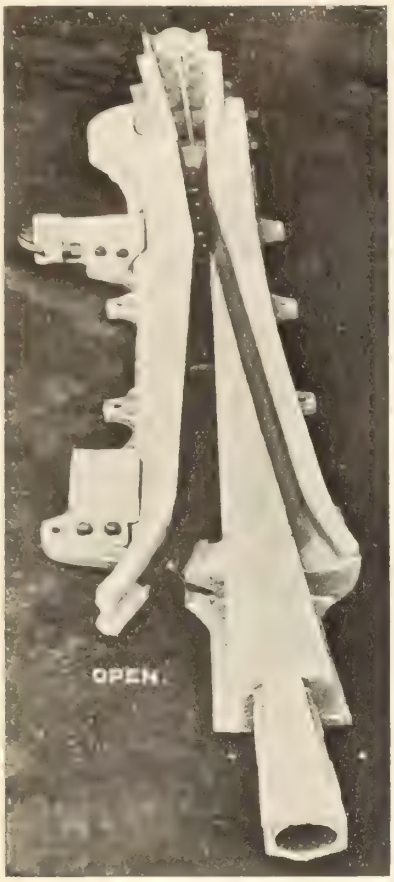
Grading was resumed Nov. 1 on the line which will enter Moose Jaw, Sask., and the gangs are now working near New Warren, and will enter Moose Jaw from the south. The Cowan Construction Co. has the contract, and was reported to have 300 teams at work Nov. 1.

Grading on the line from Prince Albert to North Battleford, Sask., has reached a point 30 miles from the latter place, but no more grading will be done this season. Track is expected to be laid to the end of grading this season.

The Board of Railway Commissioners has approved the revised location of the Vegreville - Calgary branch, mileage 224.49 to 238.82 from the junction with the main line at Vegreville, Alta.

A press report states that the company is making surveys for a new line from near Lac Ste. Anne, Alta., to the crossing of the Athabasca River at Fort Assiniboine. This is one of the lines for which the Alberta Government has guaranteed the company's bonds.

Canadian Northern Branch Lines.—The Dominion Parliament is being asked to incorporate a company with this title to build the following lines:—From Grosse Isle northerly to Grand Rapids, with a branch to Stonewall; from Winnipeg westerly and northerly to Ethelbert, Man.; from Yorkton northerly to Hudson Bay Jct., Sask.;



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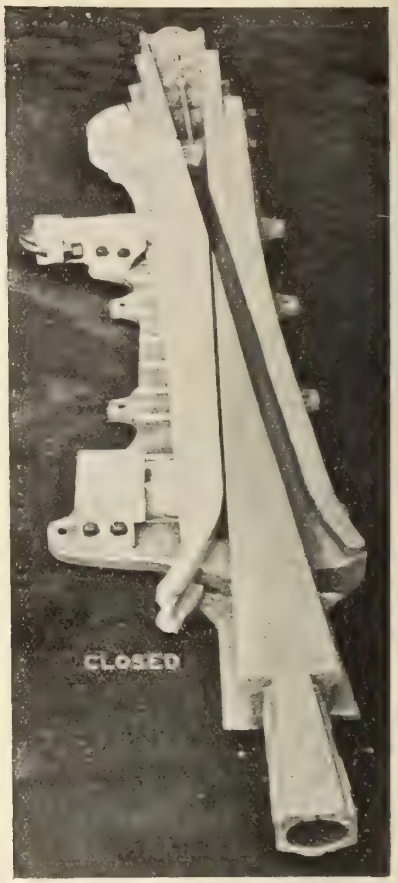

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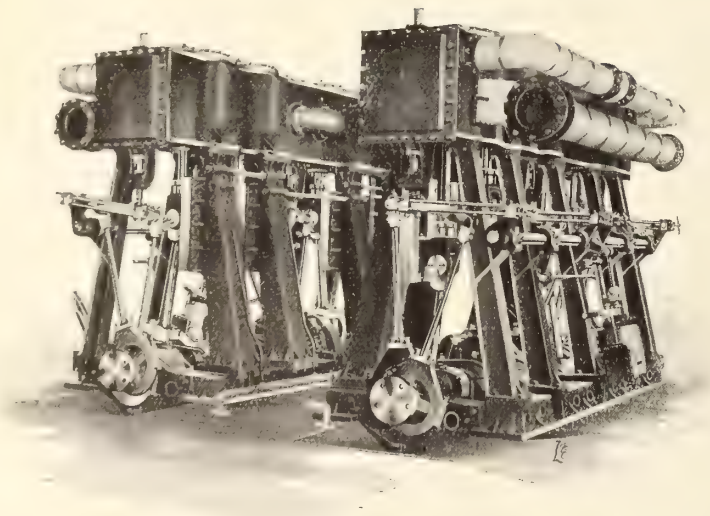

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from Craven northeasterly to Hudson Bay Jct., Sask.; from Craven easterly to the C.N.R. Rossburn Branch, east of Yorkton, Sask.; from Craven northerly through Humboldt, to Prince Albert, Sask.; from the Craven-Hudson Bay Jct. to between Davidson and Aylesbury; from between Brancepath and Kinishno northeasterly to Pas Mission, Sask.; from the Craven-Hudson Bay line in tp. 40, range 7, west of the second meridian, to Jack Fish Lake, northwest of North Battleford, Sask.; from near Moose Jaw northwesterly to the Vegreville-Calgary line between Camrose and Stettler, Alta.; from the International boundary near range 7, west of the 4th meridian, northerly and easterly to west of Battleford, Sask.; from Macleod northeasterly to the Saskatoon-Calgary line of the C.N. Ry., near ranges 1 to 4, west of the 4th meridian; from the Maryfield-Lethbridge line of the C.N. Ry., ranges 1 to 4, west of the 4th meridian, westerly via Cardston to Pincher, Alta.; from the Maryfield-Lethbridge line, ranges 1 to 4, west of the 4th meridian, northwesterly via Taber to a junction with the proposed Moose Jaw-Camrose-Stettler line; from the Maryfield-Lethbridge line, ranges 1 to 10, west 4th meridian, to tps. 20 to 23, range 6, west 5th meridian; from Lloydminster northwesterly and westerly to Bruderheim, Alta.; from the Edmonton and Slave Lake Ry. north of Morinville, to tp. 26, range 8, west 5th meridian; from near Fort Pitt northwesterly to Athabasca River, Alta.

The Canadian Northern Alberta Ry. runs westerly from St. Albert, north of Edmonton. The location plans for the first 70 miles were approved some months ago, and construction is now being proceeded with. The route map for the section from the termination of the first 70 miles, as far as the Yellowhead Pass, was approved by the Minister of Railways Nov. 2, with the stipulation that the line must not be built through any Grand Trunk Pacific Ry. townsites.

Press reports from Edmonton, Alta., state that a new company has been formed to take over the whole of the construction work for the C.N.R. lines between Edmonton and the Rocky Mountains, and that Jos. Mackenzie and C. J. Merry are at the head of the new company.

Press reports from Edmonton, Nov. 21, state that a proposition is before the Alberta Legislature which will assure the building of a railway into the Peace River country, and to the Yukon boundary within the next two years. The building of the line is expected to be started in the spring, the Northern Construction Co. being mentioned as having the contract. One of the dispatches stated that the assent of the Lieut.-Governor to the act, which had been rushed through the Legislature, was expected to be given Nov. 22.

Canadian Northern Western Ry.—Application is being made to the Alberta Legislature to incorporate a company with this title to build a line from Edmonton or Strathcona to the boundary between Alberta and British Columbia, near the Pine or Peace River Pass; from some point on the line between Edmonton and Calgary to Rocky Mountain House, thence to the Brazeau and Macleod Rivers, and on to a junction with the C.N.R. west of Edmonton, with power to build branch lines.

Canadian Northern Pacific Ry.—Grading is reported to be making satisfactory progress on the mileage under contract in the Fraser River Valley. It is expected to have the grading completed from New Westminster to Hope early in the summer of 1911, when tracklaying will be started. Survey parties are in the field near Lytton for the purpose of securing an alternative route through Fraser Canyon. The route originally surveyed was objected to by the C.P.R., and the present party was sent out under the charge of C. Hoard, with C. E. Cartwright as Consulting Engineer, at the instance of the two companies, to endeavor to secure another location. A contract was reported let Nov. 5, for the clearing of 1,000 acres of the Port Mann townsite. The clearing is to be completed by Mar. 15, and the brush burned by June 15, 1911. The construction of a wharf at Bon Accord is being proceeded with.

Vancouver Island.—The Premier of British Columbia, in a recent interview, gave details of the route selected for the first section of the line on Vancouver Island, which will ultimately be extended from end to end of the line, and form part of the C.N.R. transcontinental system. The plans provide for 153 miles instead of the 100 miles contemplated and provided for in the programme of the session of 1910. Victoria is the southern terminus, and the line will cross the Esquimalt and Nanaimo Ry. at the southeastern corner of Langford Lake, and passing the head of Pedder bay, run on to Sooke Inlet, via Mathieson Lake. Sooke Inlet will be crossed at its mouth, and the river followed on its west bank to Sooke Lake, where the line will swing easterly to Shawinigan Lake, thence north, crossing Koksilah River, about eight miles from its mouth, thence the line reaches Cowichan River, about four miles above Duncan, reaches the lake near the mouth of Mud Creek, thence northerly to the Nitinat River, Coleman Creek, and along the Alberni canal to Alberni. Engineers are in the field along the greater part of the route, and it is said tenders will be asked for as soon as the necessary data is available. A press report states that a contract has been let to the Hub Construction Co. for the building of this line. (Nov., pg. 939.)

Locomotive Engineers' Requests.

The Board of Railway Commissioners has made the following order, 12287, Nov. 3, re the resolutions passed by the Dominion Legislative Board of the Brotherhood of Locomotive Engineers at a sitting held in Ottawa, March 29-April 2 (as published in full in the Railway and Marine World for October). Upon the reading of the resolutions and the reports and recommendation of its operating officers, and upon the hearing of the matter in the presence of counsel for the Grand Trunk, Canadian Pacific, Michigan Central, and Canadian Northern Railway Companies, the International Brotherhood of Locomotive Engineers being represented at the hearing, the evidence offered, and what was alleged, it is ordered that the requests contained in the said resolutions be refused, with the exceptions following, viz.: —That railway companies subject to the Board's jurisdiction be required to equip their locomotives with air bell ringers; such equipment to be installed within six months from the date of this order; that the consideration of the question of the removal of snow-cleaning devices from locomotives stand pending the receipt by the Board of additional information upon the subject, such information to be furnished by and on behalf of the applicants.

The International Society of Railway Financial Officers held its third annual convention at Old Point Comfort, Va., early in Nov., when Frank Scott, Treasurer G.T.R. and G.T.P.R., the retiring President spoke on some features of railway finances. He was elected to the executive committee for a two year period.

National Transcontinental Railway.

The speech from the throne at the opening of the Dominion Parliament, Nov. 7, contained the following paragraph: "Marked progress is being made in the construction of the N. T. Ry., and a large quantity of grain is this season finding an outlet from the West to the Great Lakes over this new highway. It is hoped that ere long a satisfactory arrangement can be made for the operation of the finished portions of the line, pending the completion of the road from Moncton to Winnipeg."

The Department of Railways and Canals in its report for the year ended Mar. 31, gives considerable information as to the progress of construction the National Transcontinental Ry., from facts supplied by the Commission, the report of which has been prepared for submission to Parliament. The line to be built under the Commission's control extends from Moncton, N.B., to Winnipeg, Man., 1,804.84 miles. The entire line is under contract, and grading has been completed for 1,106 miles, 698.7 miles of track have been laid on the main line, together with 114.5 miles of siding. The work is covered by 21 contracts, and 60.1% of the whole has been done. The construction work has been divided into six districts, and the report shows progress, as follows:—

DISTRICT A.—Moncton to Quebec boundary, 256.51 miles. Grading completed 246 miles; track laid, 155.91 miles; 81.07% of the work completed. Expenditure during the year, $4,996,543.26.

DISTRICT B.—Quebec boundary to Weymontachi, 507.22 miles. Grading completed 358.25 miles; track laid 216.4 miles; 64.87% of work completed. Expenditure on construction, $5,313,240.10; on transport, $14,169.14.

DISTRICT C.—Weymontachi to east of Abitibi Lake, 192.91 miles. Grading completed 13 miles; 5.31% of work done. Expenditure on construction, $360,-264.18; on transport, $26,691.28; on location, $6,948.04.

DISTRICT D.—East of Abitibi Lake to near Missinaibi River, 216.11 miles. Grading completed, 127.5 miles; track laid, 57.9 miles; 36.89% of work done. Expenditure on construction, $3,479,-414.94; on transport, $27,286.12.

DISTRICT E.—Near Missinaibi River to west of Lake Nipigon, 255.19 miles. Grading completed, 41.5 miles; 20.58% of work done. Expenditure on construction, $857,325.09; on transport, $10,249.70.

DISTRICT F.—West of Lake Nipigon to Winnipeg, 376.80 miles. Track laid as far as Lake Superior Junction, and work in progress easterly. The work on this division embraces the laying out of yards, and the building of locomotive and other shops at Springfield, about six miles east of Winnipeg. The track connecting the line with the Canadian Northern Ry.'s Dundee branch was laid in Oct., 1909, and 46.7% of the work of constructing the station buildings, etc., over this distance has been completed. The substructure of a double track bridge over the Red River at Winnipeg is under contract, and six of the piers have been completed. The foundations of all the terminal shop buildings are completed, and about 2,500 tons of the general steel work erected; 82.21% of the whole work has been done. Expenditure during the year on construction, $4,648,295.23; on transport, $11,982.58.

The amount expended upon the six districts during the year was $19,968,-126.86, bringing the total expenditure to Mar. 31 up to $71,918,843.88.

C. M. Hays President G.T.R., and G.T.P. Ry., accompanied by a number of officials met the Dominion Minister of Public Works at St. John, N.B., recently and went over the site selected for ter-

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minals at Courtenay Bay.. At a dinner subsequently at the Union Club, St. John, Mr. Hays said by its agreement with the Government the Company was compelled to build an all-Canadian line, and to do all its business through Canadian ports. The only Canadian ports on the east were Montreal, Quebec, St. John and Halifax. If the proper scheme of development was carried out at these ports there would be no other port necessary. The company was coming to St. John, and he hoped that it would not be more than a year hence. The plans for the development of the port had been prepared by L. Costo, of the Department of Public Works, and with the co-operation of the Dominion Government, St. John and the G.T.P. Ry., these plans would be carried through. The Minister of Public Works in a speech, stated that he had gone very fully into the question of the development of Courtenay Bay, and had made substantial progress in an agrement that would justify the Government in making large expenditures for the purpose of starting the work. It would be necessary for St. John to convey to the Government its rights on the Courtenay Bay foreshore in order to enable the work to be progressed with. The work proposed to be done was for the general good of Canada and in the fulfilment of the national idea of Canadian trade over Canadian railways and through Canadin ports.

Before returning to Montreal the party went over the section of the N.T.R., in New Brunswick, and in interviews Mr. Hays is reported to have stated it was probable that for some time the company would use the I.C.R. tracks from Moncton to St. John. The matter of securing the N. B. Central Ry. from Chipman to Norton had been discussed, but it was felt that the gradients were too heavy, and that it would probably be cheaper to build a new line. The N.T.R. Commissioners completed an inspection of the line in New Brunswick, Oct. 30. The estimates for the payments required for work done on the six contracts in the province during Oct. were $224,578.13.

The speech from the throne at the opening of the Dominion Parliament, Nov. 17, contained the following paragraph: "The construction of the bridge across the St. Lawrence river at Quebec, the largest work of its kind ever undertaken, has been receiving the careful attention of my Government, and the utmost care is being observed so that success may be assured. The sub-structure is now under contract. Tenders for the erection of the substructure have been received from four responsible companies, and are now being considered. It is expected that the contract will shortly be awarded and the work pushed forward to completion."

Referring to the Quebec Bridge the report of the Department of Railways for the year ended Mar. 30, says: The expenditure for the preparation of plans salaries, etc., was $111,788.02; to which is added $355,279.07, paid for acquiring the Quebec Bridge and Ry. Co.'s stock and $31,765.44. attending the commission of inquiry into the causes of the collapse of the old structure, making the total expenditure since the collapse $498,832.53. There is, however, a credit of $100,000, the amount paid to the Government by the contractors for the collapsed bridge, under an agreement of Mar. 12. in settlement of all claims for damages, arising out of the collapse of the bridge, together with the value of the material in the old bridge and the manufactured material at the bridge site. The Government on its part, relinquished its lien on the plant at the bridge site, and on all steel and manufacturing material for the bridge at the contractors' work at Phoenixville, Pa.

The members of the board of engineers for the bridge visited the site Nov. 4, and inspected the damaged caisson in the dry dock at Levis. It was arranged to hold another meeting Nov. 23, when it was expected to reach a decision as to whether the caisson can be repairer or a new one will have to be built. In an interview H. E. Vantelet stated that the damage to the caisson would not retard the building of the bridge. The caissons required for the substructure work on the south shore would be built in the spring. It was expected that the putting up of the substructure would be started next fall. The work of clearing away the fallen steel had been nearly completed. The Minister of Railways stated Nov. 8. that no decision had been reached with regard to the contract for the superstructure. "It must be understood," he added, "that in a work of such magnitude it is not so much a question of price as the scientific character of the designs. These are being carefully gone over."

Respecting the terminals in Quebec, S. N. Parent. Chairman N.T.R. Commission, in an interview Nov. 12, said the Commissioners obtained possession of the Champlain market site Nov. 1, and all tenancies of stall, etc., would be terminated by Feb. 1, 1911. The buildings on the site would be demolished as speedily as possible. Meanwhile the clearing of the right of way for the line from the market to the bridge site was being gone on with, and plans for laying out the terminals were being prepared.

We are advised that freight only is being handled on the N.T.Ry. between Graham, Ont., and Winnipeg, and that no time table has been issued. The G.T. Pacific Ry. started operating its passenger trains from Fort William to Graham, Oct. 21, instead of to the actual terminal of the Lake Superior branch as formerly. The commissioners have under consideration tenders for the erection of icehouses at Graham, Ont., and Redditt and Springfield, Man., to be completed Feb. 1911.

GRAND TRUNK PACIFIC RAILWAY.

The report of C. Schreiber, Chief Engineer for the Government for the building of the Western Division of the line, extending from Winnipeg, Man., to Prince Rupert, B.C., 1,751 miles, upon the work done during the year ended Mar. 31, says the Prairie section, extending from Winnipeg to Wolfe Creek, 915 miles, is graded; track has been laid, and the structures built. Sidings aggregating 140.5 miles have been laid at 138 stations. Of the main line 474 miles have been fully ballasted, 350 have received a first lift of about five inches of ballast, and there remained only about 35 miles of skeleton track between Entwistle and Wolfe Creek. There have been erected 732 miles of double fence, 793 miles of a four-wire, and 122 miles of a two-wire telegraph line; 11 interlocking plants have been installed at the crossings of other railways; and water services have been introduced at 47 points. Round houses have been built as follows:—Rivers, 18 stalls, with machine shop; Melville, 12 stalls, with machine shop; Watrous, Biggar, Wainwright, 12 stalls each; Edmonton, 18 stalls, with machine shop; two stall engine houses have been built at Portage la Prairie and South Saskatoon. The other buildings erected include four divisional station houses, 26 way station houses, 54 section houses, 66 tool houses, 79 bunk houses, five coaling plants, 80 permanent and 22 temporary loading platforms, 18 stock yards. There have also been built 115 grain elevators at stations on the line.

On the Mountain section extending from Wolfe Creek to Prince Rupert, 836 miles, location plans and profiles have been approved by the Minister of Railways and the Board of Railway Commissioners from Wolfe Creek westward for 289 miles, and from Prince Rupert eastward for 409 miles, leaving a gap of 138 miles for which location plans have not yet been approved. Of the 289 miles westerly from Wolfe Creek, only 179 miles have been put under contract, and of this the first mile involved some very heavy work, a cutting of over 130,000 cubic yards having to be taken out. The crossing of Wolfe Creek is by a bridge 622 ft. long and 130 ft. above highwater mark, and a mile distant is the crossing of McLeod River, which necessitates a bridge 1,052 ft. long and 125 ft. high.. Of the 409 miles westerly from Prince Rupert, 240 are under contract. On this mileage grading, etc., had been well advanced on the first 100 miles when the inspection was made, but very little had been done on the next 140 miles, which carries the line to Aldermere. A wharf and warehouse had been built at Prince Rupert.

In a recent interview at Montreal, E. J. Chamberlain, Vice-President and General Manager, is reported to have said the company was anxious to get the business from its western lines over its eastern lines as quickly as possible. As to the entrance into Montreal he said the shortest route would be by building from the N.T.R. to about 25 miles west of Ottawa, and then reaching Montreal over the old Canada Atlantic Ry. In a subsequent interview, Nov. 2, Mr. Chamberlain said he had been somewhat misquoted. One way in which the Montreal connection would be affected was by building a line from about 200 east of Abitibi to the Canada Atlantic Ry. between Ottawa and Arnprior. The G.T.P.R. owns a charter for building such a line. Press despatches dealing with the original report says that the suggested line would leave the N.T.R. about 150 miles east of Cochrane, the junction with the Temiskaming and Northern Ontario Ry., keep to the west of Queen Victoria Lake, and come down between the Gatineau and Conlonge rivers, effecting a junction with the Canada Atlantic Ry. near Carp, Ont. The Montreal Chambre de Commercc has passed a resolution condemning this proposal and asking the Quebec Government to undertake the construction of a direct line from Montreal to the N.T.R. as a government work.

A resolution was passed by the Port Arthur, Ont., city council, Nov. 8, for the purpose of endeavoring to bring the negotiations with the G.T.P.R. for a line to the city to an immediate conclusion.

The first span of the superstructure of the bridge across the Red River at the foot of Lombard St., Winnipeg, was completed, Nov. 10.

The question of the entrance of the branch line, which is to reach the International boundary, was before the Regina city council, Nov. 9, but no decision was reached. Track laying is being proceeded with on the sections of the line under construction, and the Board of Railway Commissioners has approved the amended location plans from mileage 0 to 10.47 of the extension southerly from Regina to the International boundary.

The Minister of Railways Nov. 2, approved of the plans for the entrance of one of the company's branch lines into Prince Albert, Sask.

With respect to the work west of Edmonton, it is expected to have track laid to Prairie Creek by the end of the year, on the main line, and to have made considerable progress with the branch line to the Brazeau River country. The coal fields are situated about 50 miles from Edson, and the revised location plans for the section from mileage 37 to 56.04 have just been passed by the

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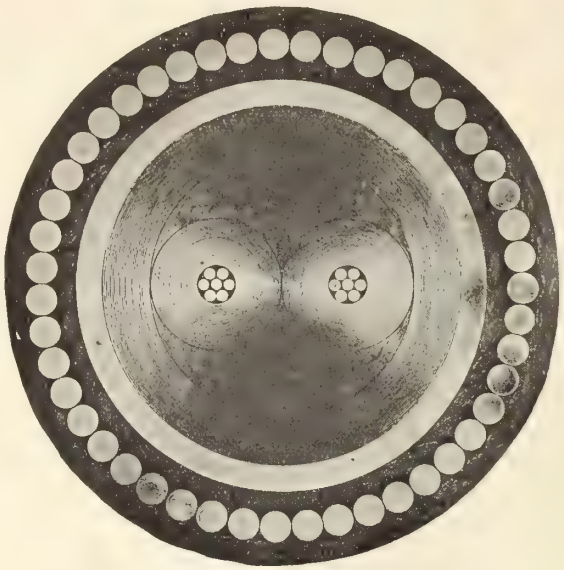

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Board of Railway Commissioners. The Dominion Government has had a geological survey at work on the Rocky Mountain country during the summer and D. B. Dowling, who returned to Ottawa, Nov. 14, reported that there were considerable deposits of coal along the route of the railway 200 miles west of Edmonton, one at Jasper Park, and another near Brule Lake. The question of the route of the line in the vicinity of Fort George is not yet settled, as the reserve has not been given up by the Indians. From this point the branch to Vancouver will probably start and it is expected that this will traverse the Lillooet district to Agassiz, and parallel the C.P.R. to Vancouver. In the Prince Rupert district considerable damage was done to the line by storms, Oct. 23, one big trestle bridge being blown down; and two miles of track washed out. We were officially advised Nov. 12, that the first 100 miles of the main line from Prince Rupert easterly was being ballasted, and that if the weather continued favorable it was expected to have this finished by Dec. 31.

The G.T. Pacific Branch Lines Co. is applying to the Dominion Parliament for authority to build the following additional lines: From between range 21 and range 28 west of the second meridian, westerly to between tp. 29, and tp. 37, joining up with another branch line; from near Moose Jaw, in a generally westerly direction to Calgary, or near there, joining up with one or other of already authorized branch lines from the G.T.P. Ry. between ranges 9 and 13 west of the fourth meridian south westerly and westerly to a junction with a line passing through tps. 39, 40, or 41; from the line passing through range 24 west third meridian, and range 2, west fourth meridian, northwesterly and westerly to the G.T.P. Ry. in ranges 21, 22, 23, 24, or 25; from the G.T.P.Ry., between range 21 and range 25, west of the fourth meridian, southerly and southeasterly to a connection with the line passing through tps. 46, 47 or 48; from the G.T.P. Ry. between range 27 and range 23 west of first meridian, westerly to the branch line passing through tps. 18, 19, 20, or 21; from between range 12 and range 16 west of sixth meridian, southerly to the International boundary between range 10 and range 18, west of the second meridian. (Nov., pg. 919.)

Machine Drawing is the title of a book dealing with the principles of graphic expression as illustrated by machine drawing, together with the technique of drafting, dimensioning, and sketching, by G. C. Anthony, D.Sc., Dean of the School of Engineering, Tufts College. This is a re-issue of Dr. Anthony's former book, revised in the light of the experience of those who used it in teaching and with the illustrations redrawn, and others added. The book is practical, consequently it is largely used for teaching purposes. The price is $1.50, and the publishers are D. C. Heath & Co., Boston, Mass. It can be obtained through the Railway and Marine World's book department.

At a meeting of the Canadian Accountants' Association in Montreal, Nov. 14, there was an interesting discussion on the questions of claims against railways. The discussion was opened by Mr. Finlayson, who dealt with the subject from the claimant's point of view, and Jas. Cherry, C.P.R., and Copeland G.T.R., protected the railways' side of the question. It was stated that the C.P.R. deals with about 55,000 claims a year, and the G.T.R. with an average of 160 claims a day. Claims for damage against railways have increased largely during the last few years.

G. T. R. Betterments, Construction, etc.

Shops at Richmond, Que.—The roundhouse which the company is building at Richmond, Que., will be of concrete, with wooden frame roof, with stalls for 18 locomotives. Each stall is 90 ft long, and is provided with a pit 66 ft. long. A wheel shed 100 ft. long and a machine shop 48 by 125 ft, with boiler room 27½ by 26 ft. to accommodate two return flue boilers, are attached. An elevated track conveys coal to bins 25 by 12 ft. The distance between the centre of the doorposts is 14 ft. The house and shop are heated with hot air throughout, generated in the machine shop and forced through overhead piping by a large fan situated in the machine shop. The size of piping runs from 5 ft. to 3½ ft. Down spouts 2 by 3 ft. between every second pit conveys the hot air to pits. The machine shop equipment consists of one engine and one air compressor; two lathes, one planer, one drill, one heater, one fan, and one engine to operate the same; and the necessary pumps. The lay-out provides for four cinder pits, two being 100 ft. long, one 120 ft. and one 150 ft.—with G.T.R. cinder hoists, and an 80 ft. turntable. The roundhouse is also equipped with two drop pits, one for driving wheels and one for small wheels.

Lachine, Jacques Cartier and Maisonneuve Ry. Co.—Application is being made to the Dominion Parliament to declare the line, which the Quebec Legislature incorporated a company with this title to build, to be a work for the general advantage of Canada, and extending the time within which it may be built.

Bonaventure Station.—Press reports Nov. 1, stated that the G.T.R. had acquired all the land necessary for the purpose of "providing Montreal with big passenger terminals to replace the present inadequate Bonaventure station," and that the first steps in the actual work had been taken that day when the dismantling of the buildings on a portion of the land had been begun. We were officially advised Nov. 12, that while the company may replace Bonaventure station at an early date, no definite move has been made in that connection.

Chateau Laurier Hotel, Ottawa.—It was reported Nov. 12, that the walls of the building were completed, the roof on, and practicaly the whole of the exterior work completed. The heating apparatus, etc., is being installed, and other interior work is being progressed with. It is expected that the building will be completed and furnished ready for opening by the fall of 1911.

Ottawa Station Annex.—In connection with the annex which is being built at the Central Station, as part of the new union station, a coniform concrete chimney, which we are informed is the first to be built in Canada, is under construction. The shaft is 169 ft. high, with diameter at base of 12½ ft., and at top of 7 ft. The shaft is being re-inforced by vertical bars and horizontal rings. The vertical bars are of sufficient strength to take up all the tensile stresses caused by wind pressure and reach partly down into the structure of the foundation, thus forming a perfect anchorage for the chimney. J. G. Siegfried, C.E., is the structural engineer, with M. M. Campbell, C.E., inspector in charge of construction.

Ottawa, Rideau Valley and Brockville Ry.—An Ottawa press dispatch states that it is proposed to start work at once on its proposed line from Ottawa to Brockville, via the Rideau River valley.

Belleville Roundhouse and Yards.—The new roundhouse which is under construction, will have a capacity of 42 stalls, each 90 ft. deep, with a wheel shed and machine shop annex. The roundhouse is expected to be completed this year. In connection with this work the yards have been extended and re-arranged. The highway at the back of the station which crosses the Northern Division main line, is to be closed from west of the roundhouse to lot 12, where the yard ends, and a new highway is to be opened up from that point, running northwesterly until it reaches the northern boundary of the yard, thence to a connection with a projected street west of the northern division lines.

Toronto Belt Line.—Considerable progress is reported to have been made with the reconstruction of the section of the old Belt Line, from Fairview to Yonge St., which the G.T.R. proposes to bring into use once more. Ties have been put in where necessary, and a lot of ballast put down. The bridge across Yonge St. has been reconstructed and a start has been made on the reconstruction of the Dufferin St. bridge.

Holmedale Industrial Spur, Brantford.—In conference with the mayor of Brantford, Ont., Nov. 4, C. M. Hays, President, made an arrangement to build a spur line to the Holmedale district by a route in the rear of the Institution for the Blind. An agreement to this effect is to be submitted to the city council, and the work will be gone on with as soon as it is approved of. One of the points arranged at the conference was that when built this Holmedale spur will form part of a new route for the G.T.R. Tillsonburg branch line.

Guelph Freight Sheds.—The G.T.R. is applying for authority to build freight sheds on its Cardigan street property, from the C.P.R. to Norwich St., 340 ft.

Goderich Station.—The comparatively new station built at Goderich, Ont., was destroyed by fire, Nov. 6. The station agent stated Nov. 11, that he expected that a new station would be ready by the end of the year. The foundations and walls of the burned building will be used so far as possible. The ruins are being cleared away and material is being received from the London, Ont., shops for the new building.

The Imperial Privy Council heard arguments in London, Eng., Nov. 22, in the appeal of the provinces of Saskatchewan and Alberta from the decisions of the Canadian courts in the C.P.R. lands taxation case. The case has been before the courts for years.

The Montreal city council has issued a permit to Transportation Limited Company, for the erection of a $1,000,000 building on St. Francois Xavier St., between Notre Dame and St. James St., Montreal. Ross and McFarlane, Montreal, are the architects, and P. Lyall and Sons are the contractors. The building is to be completed by May, 1911.

An Ottawa dispatch states that the question of regulating the tariff of tolls upon international freight traffic between Canada and the United States is one that cannot be decided by concurrent legislation, but must be regulated by treaty. The question has been under discussion by J. P. Mabee, Chief Commissioner, Board of Railway Commissioners, and the Chairman of the Interstate Commerce Commission.

The Board of Control, according to a Winnipeg despatch of Nov. 15, alleges that the C.P.R. is neglecting to perform its part of the agreement under which the city granted exemption from taxation, and is considering what action should be taken in order to abrogate the agreement. Alleged inadequate accommodation at the stockyard is the special ground for complaint. The agreement provides that in case any dispute arises between the city and the company an arbitration board is to be appointed.

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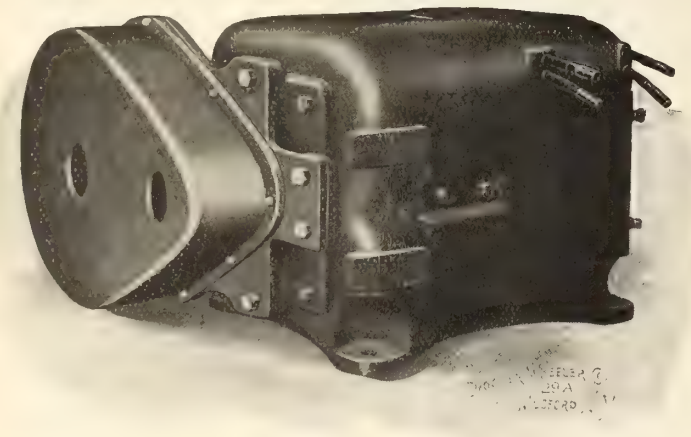

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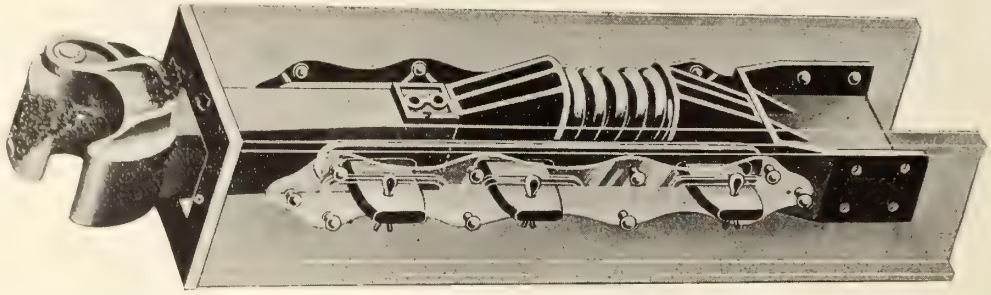

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MAINLY ABOUT PEOPLE.

Lord Strathcona has subscribed $25,000 to the Vancouver Y.M.C.A. building fund.

D'Arcy Tate, Solicitor G.T.P.R., Winnipeg, has been appointed a K.C. by the Ontario Government.

F. C. Salter, European Traffic Manager G.T.R., has been elected a Fellow of the Royal Colonial Institute.

J. R. Shaw, of C.P.R. passenger staff at Yokohama, Japan, arrived in Montreal on furlough, Oct. 24.

W. Mackenzie, President Canadian Northern Ry., has given $10,000 to the Winnipeg Y.M.C.A. building fund.

J. H. Plummer, President Dominion Steel Corporation, has been elected Vice President Canada Life Assurance Co.

Jas. Oborne, General Superintendent Ontario Division, C.P.R., left Toronto, Nov. 8, for a two months trip to Europe.

C. Stackhouse, B. Sc., a travelling inspector of locomotives for the C.P.R., was married Oct. 25 at Riverfield, Que.

Miss Margaret Angus, sister of R. B. Angus, of the C.P.R. directorate, Montreal, died in Victoria, B.C., Nov. 17, aged 82.

G. J. Bury, General Manager C.P.R. Western Lines, Winnipeg, was in Montreal and Toronto, early in Nov., on a business trip.

T. Skinner, director C.P.R. and Deputy Governor Hudson's Bay Co., sailed from Quebec Nov. 4, on the Empress of Ireland for Great Britain.

Hugh Sutherland, Executive Agent Canadian Northern Ry., Winnipeg, was among the exhibitors at the Chicago Horse Show, Nov. 22 to 26.

J. P. Quilty, at one time a station agent on the Intercolonial Ry., has been appointed chief of the rate bureau, Boston and Maine Rd., Boston, Mass.

Miss R. Burpee, daughter of T. C. Burpee, Engineer of Maintenance of Way Intercolonial Ry., was married recently at Sheffield, N.B.

W. F. Bleecker, C.P.R. outside ticket agent at Marmora, Ont., died there recently. He was a member of the Canadian Ticket Agents' Association.

G. G. Foster, K.C., Vice President, of the Orford Mountain Ry., a C.P.R. controlled railway, has been elected a director of the Montreal Street Ry.

G. Wright, a subcontractor on the Canadian Northern Ry., near Deloraine, Man., was shot and seriously injured by a discharged laborer, Nov. 9.

Lord Strathcona has given $200,000, making $500,000 in all, to the Strathcona Trust, for the encouragement of physical training in Canadian public schools.

P. H. McFadden, who recently resigned the position of Superintendent Prairie Division, G.T.P.R., at Melville, Sask, has we are advised, entered Great Northern Ry. service.

W. E. Mullins, General Manager of the Northern Ry. of Costa Rica, South America, and formerly in the G.T.R. service, arrived in London, Ont., for a holiday, Oct. 24.

W. W. Jones, a superannuated employe of the Intercolonial Ry., who died at Halifax, N.S., Nov. 1, aged 81, is said to have sold the first passenger ticket issued at Richmond station.

Jas. Black, for a number of years G.T.R. boiler inspector, died in Montreal, Oct. 27, aged 82. W. D. Robb, Superintendent of Motive Power, G.T.R. married one of his daughters.

G. I. Evans, Mechanical Engineer, C.P.R. Angus Shops, Montreal, was presented with a cabinet of silver by the officials of the mechanical department recently on the occasion of his marriage to Miss A. Peel.

J. Barnet, accountant in the General Superintendent's office, Canadian Northern Ry., Winnipeg, was presented with a travelling bag, by the office staff on the occasion of his recent retirement from the service.

R. Muirhead was presented with $100 and a cut glass water set by the employes at the G.T.R. Simcoe St. freight sheds Nov. 24, on his promotion to the position of passenger yardmaster at Union Station, Toronto.

Judson Harmon, who was Receiver of the Pere Marquette Rd. prior to its recent reorganization, has been re-elected Governor of Ohio, an office which he has already held for one term.

Miss N. Davis, daughter of J. T. Davis, of M. P. and J. T. Davis, contractors for the substructure of the Quebec Bridge, was married at St. Colombe de Sillery, Que., Nov. 8, to C. M. Hart, of Montreal.

J. C. Whitchelo, C.P.R. outside ticket agent at Parry Harbor, Ont., died there, Nov. 9, aged 76. He was a member of the Canadian Ticket Agents' Association, and both he and his wife attended the annual meetings for years.

D. Thomas, who died at Point St. Charles, Que., Oct. 23, was engaged in bridge and other construction work on the G.T.R., from the time of his arrival in Canada in 1853, until his retirement from the service in 1899.

H. L. Loughlin, Chief Engineer of the Twin City and Lake Superior Rd., who died recently at Minneapolis, Minn., was for a number of years engineer of maintenance of way of the Minneapolis, St. Paul and Sault Ste. Marie Ry.

T. Howell, the recently appointed Immigration Agent of the Canadian Northern Ry., left Toronto, Nov. 8, for Great Britain to organize the work of the company's agents there for next season.

R. S. Richardson was presented with a purse of money by the staff of the Superintendent's office of the Canadian Northern Quebec Ry. Joliette, Que. Nov. 8, on his leaving the company's service.

J. J. Warren, President of the Kettle Valley Lines, and of the Okanagan Land Co., has joined with his fellow directors of the latter company in presenting a site for the Anglican Church of All Saints at Okanagan Centre, B.C.

A. Hawkes, Superintendent Canadian Northern Ry. Publicity Department, who had charge of the delegation of merchants from Bristol, Eng., during their tour through Canada, was presented with a silver rose bowl, by the delegates on their return to Bristol.

F. W. Brunskill, who died at Forward, Sask., recently, was engaged for some time with G. H. Strevel, and the Cowan Construction Co., and latterly had been taking contracts on his own account along the Canadian Northern Ry. in Saskatchewan.

F. H. McGuigan, jr., engineer in local charge of the grade separation works on the G.T.R., between Bathurst St. and Mimico, Toronto, was thrown off a handcar near the Sunnyside crossing, Nov. 16, and received injuries to one of his knees.

J. E. Muhlfeld, formerly in the G.T.R. and Intercolonial Ry. service, and for some years Mechanical Superintendent Baltimore and Ohio Rd., has been appointed Vice President and General Manager Kansas City Southern Ry., Kansas, Mo.

H. G. Elliott, Assistant General Passenger Agent G.T.R., was presented with a gold fob and a set of furs for Mrs. Elliott by transportation and other friends at a dinner, Oct. 27, in connection with his transfer from Montreal to Chicago, Ill.

W. A. Cooper, General Superintendent C.P.R. Dining and Sleeping Cars, was elected for a third term as President of the American Association of Dining Car Superintendents at the annual convention recently held at Minneapolis, Minn.

A. Whittaker, who died at Windsor, Ont., Oct. 24, aged 77, was at one time locomotive foreman on the old Great Western Ry., at Windsor, and was continued in the same position when that line was taken over by the G.T.R. He had retired from railway work for some years.

Jas. McLaughlin, who has been on the Trent Valley Canal engineering staff at Campbellford, Ont., for some time, was entertained at dinner there Nov. 22, and presented with a travelling bag, etc., on leaving to take a position with the Department of Railways and Canals, at Ottawa.

Lord Strathcona has been re-elected President, and Sir H. Montagu Allan, R. B. Angus, E. B. Greenshields, C. M. Hays, C. R. Hosmer, Sir Thos. G. Shaughnessy, Sir Wm. C. Van Horne, Jas. Ross, and Hon. R. Mackay have been re-elected directors of the Royal Trust Co.

J. T. Thompson, a locomotive driver of over 50 years experience, died at Toronto, Nov. 8, aged 77. He was in G.T.R. service during the Fenian raid, and later ran one of the first trains from Toronto to Orangeville for the Credit Valley Ry., now part of the C.P.R. He was on the C.P.R. superannuation list for some years.

T. Hoben, Assistant Superintendent Canada Eastern Division Intercolonial Ry., was recently presented with a purse of gold by the station agents and telegraph operators on the line; with an address and travelling bag by the conductors, and with a gold-headed cane by the employes at Gibson, N.B., station in connection with his approaching retirement after 40 years active railway service.

H. G. McMicken, European Traffic Agent in London for the Great Northern Ry., U.S.A., is one of the advisory board of the Canadian Mills and Timber, Limited, which issued a prospectus in London recently offering 500,000 shares at four shillings a share. The company is incorporated in British Columbia, its properties being inside Quatsino Sound, on the northwest coast of B.C.

The directorate of the Royal Trust Co., Montreal, as recently elected, includes Sir Thos. G. Shaughnessy, President C.P.R.; Sir Wm. C. Van Horne, R. B. Angus, C. R. Hosmer, and Lord Strathcona (President of the company), directors of the C.P.R.; C. M. Hays, President G.T.R. and G.T. Pacific Ry., and Sir H. Montagu Allan, of the Allan Line Steamships.

H. W. Brodie, whose promotion from the position of Assistant General Passenger Agent, Winnipeg, to that of General Passenger Agent Western Lines west of Revelstoke, Vancouver, B.C., was announced in our last issue, was entertained to dinner by railway officials in Winnipeg, Nov. 8, and presented with a case of pipes, and Mrs. Brodie with a silver set. The clerks in the station and down town ticket offices presented him with a cut glass punch set.

The engagement is announced of Miss Grace Mackenzie, youngest daughter of Wm. Mackenzie, President Canadian Northern Ry., to Count Jacques de Lesseps, the aviator, and son of the late Count Ferdinand de Lesseps, who projected and superintended the construction of the Suez Canal, and who after-

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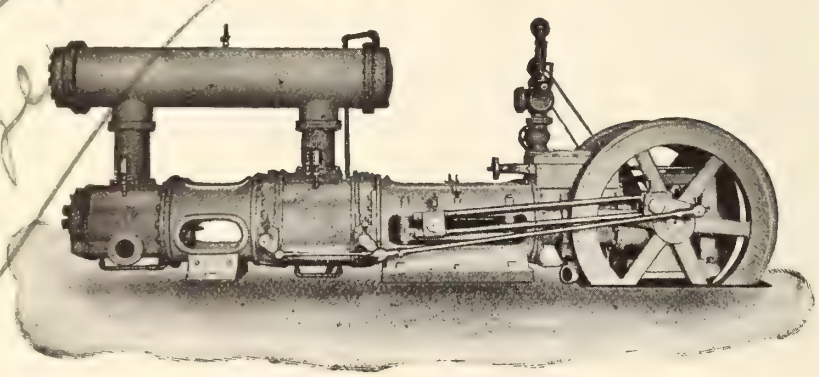

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wards formed a company for the construction of the Panama Canal, which, however, was unsuccessful, the work subsequently being taken over by the U.S. Government.

Capt. H. W. Shepherd, who died at Montreal, Oct. 31, aged 86, was connected with marine interests at Montreal and Ottawa for over 60 years. He first commanded the Lady Simpson, one of the first steamboats on the inland waters, and at one time or another had command of nearly all the steamboats plying between Montreal and Carillon, until about four years ago, when he retired. He was for many years President of the Ottwa River Navigation Co., which owns the Carillon and Grenville Ry.

A. B. Calder, General Agent Passenger Department C.P.R., Seattle, Wash., was entertained to dinner, Nov. 8, by a number of friends on the occasion of his leaving for Chicago, Ill., where he has been transferred in a similar capacity.

James Leitch, K.C., Chairman Ontario Railway and Municipal Board, was compelled to return to Toronto from Niagara Falls, where he was hearing an expropriation application by the Victoria Park Commission, Nov. 16, on account of a sudden illness..

J. E. Robitaille, whose appointment as Accountant and Auditor Ha Ha Bay Ry., Chicoutimi, Que., was announced in our last issue, was born at Quebec, Que., Feb. 17, 1870, and entered railway service Jan. 1890, since when he has been, to Oct., 1897, freight cashier and accountant G.T.R., Quebec; Oct. 1907 to May 1902, Freight and Passenger Agent Quebec Southern Ry., St. Hyacinthe, Que.; May 1902 to Aug. 1910 Assistant Auditor and Car Accountant, Bay of Quinte Ry., Thousand Islands Ry., Oshawa Electric Ry., and Deseronto Navigation Co., Deseronto Ont. He is Acting Adjutant of the Ninth Brigade Canadian Field Artillery.

J. W. Herrold, who has been appointed General Agent Algoma Central and Hudson Bay Ry., at Sault Ste. Marie, Ont., was born at Hibbardsville, Ohio, Apr. 12, 1875, and entered railway service in July 1892, since when he has been, to 1894 clerk in freight office Kanawha and Michigan Ry., Athens, O.; 1894 to 1895, ticket agent same road, Athens, O.; 1895 to 1898, cashier and chief clerk K. and M.R., and Hocking Valley Ry., Athens, O.; 1898 to 1904, Freight and Passenger Agent same companies, Athens. O.; 1904 to Oct. 5, 1910, Agent K., and M. Ry., in charge of freight and passenger traffic and yards at Charleston, W. Va.

Canada has now several Grand Old Men, and T. C. Keefer, the eminent engineer, who has rendered great service to the country through the practice of his profession, is one of them. He has now reached his ninetieth year. Of U. E. Loyalist stock, he is a thorough Canadian. He early took an interest in the transportation question, and was concerned in the building of our canal system. He also took part in railway construction, and helped to survey for the Grand Trunk and for the Victoria Bridge. An active life in the service of Canada brought Mr. Keefer the title of C.M.G., which he had well earned.—Mail and Empire.

H. W. Brodie, whose appointment as General Pasenger Agent Western Lines, C.P.R. west of Revelstoke with office at Vancouver, B.C., was announced in our last issue, was born at Fredericton, N.B., June 8, 1874, and entered railway service, Jan. 1, 1895, since when he has been, to July 1895, junior clerk and stenographer C.P.R. Passenger Department, St. John, N.B.; July to Aug. 1895, in a similar capacity at Boston, Mass.; Aug. to Feb. 1898, stenographer to Assistant General Passenger Agent, C.P.R., Toronto; Feb. 1898 to Oct. 1899, chief clerk in same office; Oct. 1899 to Feb. 1903, chief clerk to General Passenger Agent Western Lines, C.P.R., Winnipeg; Feb., 1903, to Oct., 26, 1910, Assistant General Passenger Agent, Western Lines C.P.R., Winnipeg.

C. E. McPherson, whose appointment as Assistant Passenger Traffic Manager Western Lines, C.P.R., Winnipeg, was announced in our last issue, was born at Chatham, Ont., June 7, 1861, and entered railway service in 1876, since when he has been, to 1882, ticket clerk G.T.R., Toronto, and subsequently, Travelling Passenger Agent same road; 1882 to 1886, Asistant General Agent, Chicago, Rock Island and Pacific Ry., in Canada; 1886 to 1887, General Travelling Agent C.P.R.; 1887 to 1889, District Passenger Agent, C.P.R., Boston, Mass.; 1891 to June, 1895, Assistant General Passenger Agent, C.P.R., St. John, N.B.; June 1895 to June 1899, Assistant General Passenger Agent, C.P.R., Toronto; June, 1899 to Oct. 26, 1910, General Passenger Agent, Western Lines, C.P.R., Winnipeg.

M. B. Dube, who was recently appointed locomotive foreman G.T.P.R. at Graham, Ont., was born in Quebec, Que., Sept. 6, 1877, and entered railway service Sept., 1891, since when he has been, to 1893, messenger G.T.R., Gorham, N. H.; 1893 to 1902, in G.T.R. shops, Gorham, N.H.; 1902 to Jan. 31, 1904, in charge motive power and car department, Gorham shops; Jan. 31 to Apr., 1904, night foreman G.T.R. shops, Belleville, Ont..; Apr., 1904, to Jan. 1, 1907, in G.T.R. shops, Gorham, N.H.; Jan. 1 to Mar. 1, 1907, locomotive foreman G.T.R., Madawaska, Ont.; Mar. 1, 1907, to Apr. 20, 1908, locomotive foreman G.T.R., Coteau Jct., Que.; Apr. 20, 1908, to Dec. 22, 1909, locomotive foreman G.T.R., Island Pond, Vt.; Jan. 1 to Oct. 1, 1910, locomotive foreman G.T.P.R.

D. Crombie, who has been appointed Assistant to the First Vice President G.T.R., at Montreal, was born at Hamilton, Ont., May 13, 1864, and entered railway service in 1883, since when he has been, to 1887, telegraph operator G.T.R.; 1887 to 1889, ticket clerk same road, Chatham, Ont.; 1889 to 1890, train dispatcher same road, London, Ont.; 1890 to 1892, train dispatcher, Flint and Pere Marquette Rd., Saginaw, Mich.; 1892 to 1894, car distributor same road; 1894 to Jan. 1, 1900, Car Service Agent same road; Jan. 1, to July 1900, Superintendent Car Service Pere Marquette Rd.; July 1900 to Apr. 1906, Superintendent of Transportation same road, Detroit, Mich.; Apr. 1906 to Oct. 1907, Master of Transportation G.T.R. Middle Division, London, Ont.; Oct. 1907 to Nov. 22, 1910, Assistant to General Transportation Manager, G.T.R., Montreal.

Frank Grundy, Vice President Quebec Central Ry., died at Sherbrooke, Que., Nov. 15. Born at Bury, Lancashire, Eng., in 1836, he entered railway service in 1850 as clerk in the Manchester, Sheffield & Lincolnshire Ry. (now the Great Central Ry.), and subsequently was with the Oxford, Worcester and Wolverhampton Ry. (now a part of the Great Western Ry.), and from 1863 to 1889 he was Manager of the Mid-Wales Ry., Brecon, and of some other small railway and dock works. In 1889 he was appointed General Manager of the Quebec Central Ry. by the bondholders, retiring in 1905, when he became Vice President. He was also President of the Temiscouata Ry., and director of the Eastern Townships Bank. Three of his sons are engaged in railway service, the eldest with the Egyptian Government; G. G., as General Manager of the Temiscouata Ry., and E. O., as General Passenger Agent, Quebec Central Ry.

F. W. Morse, formerly Vice President and General Manager Grand Trunk Pacific Ry., has been appointed General Manager Toledo, St. Louis and Western Rd., and Chicago and Alton Rd., with office in Railway Exchange Building, Chicago. The circular announcing his appointment is signed by G. H. Ross, Vice President. and approved by T. P. Shonts, President. The Toledo, St. Louis & Western and Chicago & Alton lines form a part of what is known as the Hawley group, the other lines in the group being the Minneapolis and St. Louis Rd., and the Iowa Central Rd. The Toledo, St. Louis and Western Rd. has a mileage of 450.7, extending from Toledo to St. Louis, with a number of branch lines; and the Chicago and Alton Rd. has a mileage of 1,004.67, extending from Chicago to St. Louis, with lines through Peoria and Roadhouse into St. Louis, from Roadhouse through Mexico to Jefferson City, and from Mexico to Kansas City.

C. B. Foster, whose appointment as General Passenger Agent C.P.R. Western Lines, Revelstoke and east, with office at Winnipeg, was announced in our last issue, was born at Kingston, Kings county, N.B., Sept. 30, 1871, and entered C.P.R. service in April, 1891, since when he has been, to Oct., 1892, stenographer in Passenger Department, St. John, N.B.; Oct., 1892, to Sept., 1893, senior clerk Passenger Department, St. John, N.B.; Sept., 1893 to July, 1899, Travelling Passenger Agent, St. John, N.B.; July, 1899, to Feb. 8, 1902, chief clerk Passenger Department, St. John, N.B.; Feb. 8, 1902, to Nov. 22, 1904, District Passenger Agent, St. John, N.B.; Nov. 22, 1904, to Sept. 8, 1908, District Passenger Agent, Toronto; Sept. 8, 1908, to Oct. 31, 1910, Assistant General Passenger Agent, Vancouver, B.C.

W. G. Brownlee, whose portrait appears on the first page of this issue, was born at Lawrenceville, Ill., Sept. 9, 1858, and entered railway service in 1877, since when he has been, to 1879, operator Ohio, Mississippi Ry.; 1879 to 1881, operator and train dispatcher Union Pacific Ry.; 1881 to 1884, train dispatcher and Trainmaster Denver and Rio Grande Rd.; 1884 to 1887, train dispatcher Union Pacific Rd., Laramie, Wyo.; 1887 to 1889, train dispatcher same road, St. Louis, Mo.; 1892 to Feb., 1900, Division Superintendent same road, St. Louis, Mo.; Feb., 1900, to May, 1901, Assistant Superintendent Eastern Division G.T.R., Belleville, Ont.; June, 1901, to Mar., 1902, Superintendent Eastern Division, same road, Montreal; Mar., 1902, to Dec., 1904, Superintendent Western Division same road, Detroit, Mich.; Jan., 1905, to April, 1907, Superintendent Middle Division same road, Toronto; April, 1907, appointed General Transportation Manager, same road, with office at Montreal.

Railroad Administration.—In a 300-page volume with a number of charts and diagrams, Ray Morris, brings together a large mass of information covering the executive work involved in building and operating railroads. The problems discussed are largely those of organization, and in this volume the author endeavors to show how the railway executive so organizes its forces as to apply them to the best advantage. The non-technical reader is given the manager's viewpoint towards the problems of actual railway administration in the United States, with some idea of certain comparative conditions in other countries. Divisional versus departmental organization is discussed, also British railway organization. In the appendices the unit system of railway organization, and the railway organization in France are reviewed. The volume is published by D. Appleton & Co., New York, at $2 net and may be obtained from the Railway and Marine World's book department. .

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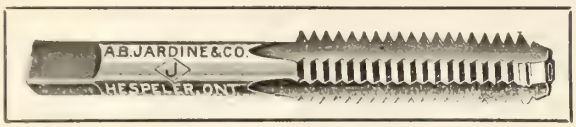

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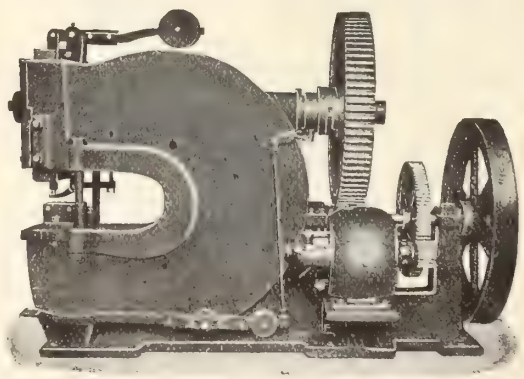

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Railway Rolling Stock Notes.

The G.T.P.R. has ordered one rotary snow plow with 12ft. cut, scoop wheel type, from the Montreal Locomotive Works.

Henri Menier, Anticosti Island, has received one four-coupled locomotive from the Montreal Locomotive Works, for use on the railway on the island.

The Michigan Central Rd. has received six Pacific type and five six-coupled locomotives from the Montreal Locomotive Works.

The Canadian Northern Ry. has ordered six sleeping cars from the Canadian Car and Foundry Co., Montreal, and 10 second class coaches from the Crossen Car Manufacturing Co., Cobourg, Ont.

The Intercolonial Ry. has received one second class sleeping car from the Silliker Car Co., Halifax, N.S., and two baggage cars from the Canadian Car and Foundry Co., Montreal, and has ordered 15 tank cars from the Canadian Car and Foundry Co., Montreal.

The Canadian Northern Ry., between Oct. 15 and Nov. 15, received the following additions to rolling stock:—One baggage car, 95 box cars, from the Canadian Car and Foundry Co., Montreal; 20 refrigerator cars, 10 box cars, from the Crossen Car Manufacturing Co., Cobourg, Ont., and one combination second class and baggage coach and 25 box cars from the Silliker Car Co., Halifax, N.S.

The C.P.R., between Oct. 13 and Nov. 15 received the following additions to rolling stock:—175 box cars, six flat cars, two vans, two first class cars, six flangers, seven horse cars, four D10 and two switching locomotives from its Angus shops, Montreal; 184 steel coal cars from the Canadian Car and Foundry Co., Montreal, and one wrecking crane from the U.S.

The G.T.P.R. has received the final lot of its order for 1,000 box cars, nos. 311325 to 312234; 87 refrigerator cars, nos. 340149 to 340236, and 76 flat cars, nos. 361300 tc 361375, from the Canadian Car and Foundry Co., Montreal, and four ten-wheeled locomotives, nos. 620 to 623, from the Montreal Locomotive Works, being part lot of an order for ten.

The C.P.R. between Oct. 13 and Nov. 15, ordered the following rolling stock:—One baggage and smoking car, one pile driver, 89 box cars, one refrigerator (passenger) car, eight stock cars, four flat cars, six steel coal cars, three vans and one ballast car, from its Angus shops, Montreal; 12 G1 and G2 locomotives from the Montreal Locomotive Works; 10 D10 locomotives from the Canadian Locomotive Co., Kingston, Ont., and 50 steel tank cars in the U.S.

Following are the chief details of the five all steel snow plows, which the C.P.R. is having built by the Canadian Car and Foundry Co., Montreal, as mentioned in our Oct. issue:—

Weight, complete with trucks, estimated	43,500 lbs
Height from rail to top of cupola	14 ft. 10½ in
Height from rail to top of roof	11 ft. 6⅜ in.
Length over all	32 ft. 1 in.
Centre to centre of trucks	18 ft
Width, extreme	9 ft 2½ in

The International Ry. of New Brunswick has ordered one ten-wheeled locomotive from the Montreal Locomotive Works, of which the following are the chief details:—

Weight in working order	110,500 lbs.
Weight on drivers	84,500 lbs.
Weight on engine tank	26,000 lbs.
Wheel base, engine and tender	47 ft. 6¾ in.
Wheel base, driving	10 ft. 6 in.
Wheel base, engine	20 ft. 8 in.
Cylinders	18 in. by 24 in.
Boiler, type	Extended wagon top
Boiler pressure	160 lbs.
Tubes, no. and diar.	198 2 in.
Tubes, length	12 ft. 3 in.
Brake	Westinghouse American
Tank capacity	3,500 imp. gals.

The Toronto, Hamilton and Buffalo Ry. has ordered one ten-wheeled locomotive from the Montreal Locomotive Works, of which the following are the chief details:—

Weight in working order	188,000 lbs.
Weight on drivers	142,000 lbs.
Weight on engine tank	46,000 lbs.
Wheel base, driving	15 ft. 10 in.
Wheel base, engine	26 ft. 10 in.
Wheel base, engine and tender	55 ft. 6 in.
Valve gear	Walschaert
Cylinders	23 in. by 26 in.
Boiler pressure	170 lbs.
Boiler, type	Extended wagon top
Tubes, no. and diar.	188 2 in.
Tubes, length	14 ft. 9 in.
Superheater	Vaughan-Horsey
Brake	Westinghouse American
Tank capacity	5,500 U.S. gals.

Following are the chief details of the 12 Pacific type locomotives, which the C.P.R. has ordered from the Montreal Locomotive Works:—

Weight in working order (5)	218,000 lbs.
(7)	220,000 lbs.
Weight on drivers (5)	136,000 lbs.
(7)	138,000 lbs.
Weight on trailer	34,500 lbs.
Weight on engine tank	47,500 lbs.
Wheel base, driving	13 ft. 0 in.
Wheel base, engine	33 ft. 7 in.
Wheel base, engine and tender	60 ft. 0 in.
Valve gear	Walschaert
Cylinders	21 in. by 28 in.
Boiler, type	Extended wagon top
Boiler pressure	200 lbs.
Tubes, no. and diar.	193 2¼ in. 22 5 in.
Tubes, length	19 ft. 6 in.
Superheater	Vaughan-Horsey
Brake	Westinghouse American
Tank capacity	5,000 imp. gals.

Following are chief details of the six sleeping cars which the Canadian Northern Ry. is having built by the Canadian Car and Foundry Co., Montreal:

Length over end sills	72 ft. 6 in.
Width over side sills	9 ft. 10½ in.
Height, top of sill to bottom of plate	6 ft. 9 in.
Width of deck opening	5 ft. 6 in.
Vestibule	Pullman wide type
Vestibule diaphragms	Ajax
Inside finish	Smoke room, Blanchet wood, remainder mahogany
Trimmings	Statuary bronze
Lighting	Commercial Acetylene Co.
Steam heating	Gold system
Platform	Standard steel
Body bolsters	Cast steel
Brakes	Westinghouse P1612
Trucks	C.N.R. Standard six wheel
Wheel base	10 ft. 6 in.
Wheels	36 in.. steel tired
Axles	Steel.
Brake beams	Simplex standard
Journal boxes	McCord m.i.
Side bearings	Susemihl frictionless

Following are the chief details of the four all steel hopper cars which the Canada Cement Co. is having built by the Canadian Car and Foundry Co., Montreal, as mentioned in our Oct. issue:—

Capacity	100,000 lbs.
Length inside	36 ft. ¼ in.
Length over end sills	31 ft. 6 in.
Centre to centre of trucks	21 ft. 9 in.
Width over side stakes	10 ft. 1½ in.
Width inside	9 ft. 6 in.
Height, top of rail to top of brake mast	10 ft. 6 11-16 in.
Height, top of rail to top of side	10 ft.
Height, top of rail to centre of drawbar	2 ft. 10½ in.
Airbrakes	Westinghouse KD 812
Couplers, type	R. E. Janney cast steel
Couplers	Shank, 5 x 7 in.; end, 6½ in.
Draft gear	M.C.B. twin spring.
Truck wheel base	5 ft. 6 in.
Height from rail to bearing face of centre plate	2 ft. 3⅝ in.
Bolsters and brake beams	Simplex.
Side bearings	Susemihl telescoping lever.
Wheels	Cast iron, 33 in.
Journal bearings	Canadian Bronze Co.
Journal boxes	McCord m.i.
Truck type	Diamond arch bar.

Following are the chief details of the 18 D10 ten wheeled locomotives, which the C.P.R. has ordered from the Canadian Locomotive Co., Kingston, Ont.:—

Weight on drivers	141,000 lbs.
Weight, total	190,000 lbs.
Wheel base, rigid	14 ft. 10 in.
Wheel base, engine, total	26 ft. 1 in.
Wheel base, engine and tender	54 ft. 10¼ in.
Heating surface, firebox	180 sq. ft.
Heating surface, tubes	2,238 sq. ft.
Heating surface, superheater	408 sq. ft
Heating surface, total	2,826 sq. ft.
Driving wheels, diar.	63 in.
Driving wheel centres	Cast steel
Driving journals	Main 9½ by 12 in.
Others	9 by 12 in.
Cylinders	21 in. by 28 in.
Boiler, type	Radial stayed
Boiler pressure	200 lbs.
Tubes, no. and diar.	240 2 in., 24 5 in.
Tubes, length	14 ft 5 in.
Brakes	Westinghouse ET.
Valve gear	Walschaert
Superheater	Vaughan-Horsey
Weight of tender, loaded	134,000 lbs.
Capacity, water	5,000 imp. gals.
Capacity, coal	10 tons
Truck, type	Outside equalized
Wheels, diar.	36 in.
Wheel, type	Steel tired, cast steel centre
Journals	5½ in. by 10 in.
Brake beams	Simplex high speed

Following are the chief details of the 60 steel ore cars, which the Canada Iron Corporation is having built by the Canadian Car and Foundry Co., Montreal, as mentioned in our Oct. issue:—

Capacity	100,000 lbs.
Length over end sills	26 ft. 7¾ in.
Length over striking plates	28 ft. 8 in.
Centre to centre of trucks	19 ft. 3 in.
Width over side sills	10 ft. ⅝ in.
Width over stakes	10 ft. ⅜ in.
Height from rail to top of floor	2 ft. 5⅝ in.
Height from rail to top of side	9 ft. ⅝ in.
Height from rail to top of brake mast	9 ft. 8⅜ in.
Height from rail to centre of drawbar	2 ft. 10½ in.
Length inside	26 ft. 7⅛ in.
Width inside	9 ft. 6 in.
Height inside	6 ft. 7 in.
Doors, type	Horizontal, side hung.
Door openings	5 ft. 11¼ in. by 3 ft. 2⅞ in.
Number of hopper doors	2.
Couplers, type	R. E. Janney
Couplers	shank, 5 x 7 in.; end, 8½ in.
Air brakes	Westinghouse HD 1012
Trucks, type	Diamond arch bar, rigid.
Wheel base	5 ft. 6 in.
Height from rail to top of centre plate	2 ft. 2⅞ in.
Brake beams	Simplex, inside hung.
Side bearings	Susemihl centreing lever.
Journal boxes	McCord m.i., M.C.B. 5½ x 10 in.
Journal bearings	Canadian Bronze Co.
Bolsters	Simplex.
Wheels	M.C.B. 33 in., 700 lbs. c. i.

Following are the chief details of the 50 all steel hopper cars and of the 12 steel Hart-Otis cars which the Dominion Coal Co. is having built by the Canadian Car and Foundry Co., Montreal, as mentioned in our Oct. issue:—

Capacity	100,000 lbs.
Length inside	36 ft. ¼ in.
Length over end sills	31 ft. 6 in.
Centre to centre of trucks	21 ft. 9 in.
Width over side stakes	10 ft. 1½ in.
Height, top of rail to top of brake mast	10 ft. 6 11-16 in.
Height, top of rail to top of side	10 ft.
Height, top of rail to centre of drawbar	2 ft. 10½ in.
Air brakes	Westinghouse KD 812.
Couplers, type	R. E. Janney.
Couplers	Shank, 5 x 7 in.; butt. 6½ in.
Draft gear	M.C.B. twin spring.
Width inside	9 ft. 6 in.
Truck wheel base	5 ft. 6 in.
Height from rail to bearing face of centre plate	2 ft. 3⅝ in.
Bolsters	Simplex.
Brake beams	Simplex, inside hung.
Side bearings	Susemihl telescoping lever.
Wheels	Cast iron, 33 in.
Journal bearings	Canadian Bronze Co. 5½x10 in.
Journal boxes	McCord m.i.
Truck type	Diamond arch bar.

Following are the chief details of the 100 steel frame automobile cars, which the C.P.R. is having built by the Canadian Car and Foundry Co., Montreal:—

Capacity	80,000 lbs.
Length inside	36 ft.
Length over buffer blocks	38 ft. 1¼ in.
Centre to centre of trucks	26 ft. 10 in.
Width over eaves	9 ft. 9 in.
Height from floor to under side of carline	8 ft. 4½ in.
Side door, clear opening	7 ft. 11¾ in. by 10 ft.
End door clear opening	7 ft. 10½ in. by 7 ft. 6 in.
Width over side posts	9 ft. 3½ in.
Width clear inside	8 ft. 6½ in.
Height, top of rail to top of brake mast	13 ft. 10 in.
Height, top of rail to eaves	12 ft. 7 9-16 in.
Height, top of rail to centre of drawbar	2 ft. 10½ in.
Height, top of rail to bottom centre sill	2 ft. 4 in.
Under frame and side framing	Steel.
Lining of wood	sides 1½ in., ends and floor 1¾ in.
Air brakes	Westinghouse KC 812.
Couplers	[illegible] with Farlow completely reinforced slot.
Truck	Specially designed, low.
Height from rail to bearing face of centre plate	2 ft. ⅝ in.

A HISTORY OF THE PAY-AS-YOU-ENTER CAR

AND ITS LESSON

The following cities are using Pay-As-You-Enter Cars: Chicago City Railway, 839 cars; Chicago Railways, 1,328; Public Service Corporation of New Jersey, 466; New York City Railway, 555; Third Avenue Railroad, New York, 550; International Railway, Buffalo, 200; Buffalo & Lake Erie Traction Co., 10; Washington Ry. & Elec. Co., Washington, D.C., 100; Capital Traction Co., Washington, D.C., 51; Municipal Traction Co., Cleveland, Ohio, 180; United Rys. Co. of St. Louis, Missouri, 310; Portland Ry., Lt. & Pwr. Co., Portland, Ore., 25; Columbus Ry. & Lt. Co., Columbus, Ohio, 10; Wichita R.R. & Lt. Co., Wichita, Kan., 14; Jacksonville Elec. Co., Jacksonville, Fla., 5; Dallas Elec. Co., Dallas, Texas, 20; Houston Elec. Co., Houston, Tex., 41; Northern Texas Trac. Co., Ft. Worth, Texas, 25; Ithaca Street Ry., Ithaca, N.Y., 2; Peoria Street Ry., Peoria, Ill., 13; Urbana & Champaign Ry., Champaign, Ill., 3; Mutual Lt. & Water Co., Brunswick, Ga., 4; Rochester Ry. Co., Rochester, N.Y., 25; Ft. Dodge, Des Moines & So. R.R. Co., 2; Muskogee Elec. Trac., Muskogee, Okla., 6; Union Traction Co., Dubuque, Ia., 4; Topeka Ry. Co., Topeka, Kas., 12; United Rys. & Elec. Co., Baltimore, Md., 32; Detroit United Ry., Detroit, Mich., 225; Cincinnati Traction Co., Ohio, 50; Montreal Street Railway, 400; British Columbia Elec. Ry., 30; Calgary Street Railway, 18; Metropolitan Street Ry., Kansas City, Mo., 50; Edmonton Radial Ry., 4; San Antonio Traction Co., San Antonio, Tex., 6; Rockford & Int. Ry., Rockford, Ill.; Cairo Street Ry. & Lt. System, 6; Des Moines City Railway, Iowa, 12; Macon Ry. & Lt. Co., Macon, Ga.; Virginia Ry. & Power Co.; Columbia Elec. St. Ry. & Lt. & Power Co., Columbia, S.C.; Aurora, Elgin & Chicago Ry., Chicago, Ill.; Wichita Falls Traction Co., Wichita Falls, Tex.; Ottawa Electric Ry. Co., Ottawa; Bloomington & Normal Ry. & Lt. Co., Bloomington, Ill.; Corsicana Transit Co., Corsicana, Tex.; Compania Electrica y de Ferrocarriles, Mexico; The Milwaukee Elec. Ry. & Lt. Co., Milwaukee, Wis.; Springfield Street Ry. Co., Springfield, Mass.; Lynchburg Traction Co., Lynchburg, Va.; Chicago & Southern Traction Co., Chicago, Ill.; Calumet & South Chicago Ry. Co., Chicago, Ill.

THE LESSON

taught by this widespread use of Pay-As-You-Enter Cars is obvious. Increased Revenue, Accident Elimination and Schedule improvement have been demonstrated in every case. Isn't all this sufficient to show that it always pays to operate the Pay-As-You-Enter Car? Why not remodel some of your present cars?

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Wheel base .... 5 ft. 6 in.
Bolsters .... Simplex.
Brake beams .... Simplex, inside hung.
Side bearings .... Susemihl.
Wheels .... Cast iron, 33 in., 695 lbs.
Journal bearings. .Canadian Bronze Co., 5 x 9 in.
Journal boxes .... McCord m.i.
Truck type .... Diamond arch bar.

Following are the chief details of the two experimental drop bottom box cars for grain, which the C.P.R. is having built by the Canadian Car and Foundry Co., Montreal, as mentioned in our Oct. issue:—

Capacity .... 80,000 lbs.
Length over buffer blocks .... 38 ft. 5 in.
Length over end sills .... 37 ft. 5 in.
Length inside .... 36 ft.
Width inside .... 8 ft. 6½ in.
Width over eaves .... 9 ft. 9 in.
Height from rail to centre of drawbar, 2 ft. 10½in.
Height from rail to top of running board, ... 13 ft. 9¾ in.
Height from rail to top of brake mast, 14 ft. ¼ in.
Centre to centre of trucks .... 25 ft. 10⅝ in.
Number of drop doors .... 14.
Number of convertible doors ....6.
Couplers,.... Simplex cast steel, style A, knuckle p.
Air brakes .... Westinghouse KC 1012.
Draft gear .... M.C.B. twin spring.
Under frame .... Steel.
Floor .... Convertible drop bottom.
Trucks, wheel base .... 5 ft. 4 in.
Height from rail to bearing face of centre plate, ... 2 ft. 5 in.
Bolsters .... Simplex.
Brake beams .... Simplex, inside hung.
Side bearings .... Susemihl telescoping lever.
Wheels .... Cast iron, 33 in., 695 lbs.
Journal boxes .... McCord m.i.
Journal bearings .... Canadian Bronze Co.
Truck type .... Diamond arch bar.

The second car is of the following dimensions, with other particulars, as in the first:—

Length over buffer blocks .... 38 ft. 1¼ in.
Length back to back of end sills .. 36 ft. 11½ in.
Width overall ....9 ft. 3½ in.
Height from rail to top of running board, ... 13 ft. 4¾ in.
Height from rail to top of brake mast, 13 ft. 10 in.
Centre to centre of trucks ....26 ft. 10 in.
Number of drop doors ....8.
Number of convertible doors ....8.

Railway Finance, Meetings, Etc.

Alberta Ry. and Irrigation Co.—Approximate net profits from all sources, exclusive of land sales, for Sept., $26,-900, against $39,020 for Sept., 1909. Cumulative net profits for three months ended Sept. 30. $72,781.

Alexander Gibson Ry. and Manufacturing Co.—The date of the sale of the property of this company in the counties of York, Carleton and Northumberland, N.B., under orders of the Master of the Supreme Court, is Feb. 22, 1911. The sale has been ordered upon the petition of the Royal Trust Co. and others under a trust mortgage deed of Nov. 1, 1909.

Algoma Central and Hudson Bay Ry.—The Dominion Parliament is being asked to confirm the conversion of 50,-000 shares of the company's capital stock from common stock into 5% non-cumulative preferred stock.

Atlantic and Lake Superior Ry.—The holders of preference certificates, certificates of participation, deferred certificates and ordinary certificates of participation have been notified to meet at 21 Leadenhall St., London, Eng., Dec. 6, for the purpose of approving a partial distribution of assets among the four classes of certificate holders.

Canadian Pacific Ry.—At a meeting of directors, Nov. 14, a dividend of 2% was declared on the common stock for the quarter ended Sept. 30, being at the rate of 7% per annum from revenue, and 1% from land sales. The dividend is payable Dec. 31 to shareholders of record Nov. 30. This is the first quarterly dividend, payments heretofore having been half yearly. Application has been made to the London, Eng., Stock Exchange to list a further £2,678,227 of C.P.R. 4% stock.

Dominion Atlantic Ry.—Gross earnings for Sept. $165,200, against $173,-465 for Sept. 1909. Aggregate gross earnings for three months ended Sept. 30, $473.400, against $475,202 for same period 1909.

Guelph Junction Ry.—Returns received by the Guelph, Ont., city council from the C.P.R. show that a profit of $9,355.37 was made for the three months ended Sept. 30, against $7,492.26 for the corresponding period of 1909.

Quebec and Lake St. John Ry.—Total earnings for Oct., $63,544.31, against $52,982.85 for Oct. 1909. Aggregate total earnings for 10 months ended Oct. 31, $505,329.50, against $497,733.06 for same period 1909. The average earnings per mile for Oct., were $222.65, and for the 10 months ended Oct. 31, $185.98, against $1,781.98 and $1,752.98 for similar periods, respectively, 1909.

Quebec and New Brunswick Ry.—Following are the officers and directors for the current year:—President, Hon. J. Costigan; other directors, J. A. Guy, L. A. Gagnon, A. Lawson and J. M. Stevens.

Quebec Central Ry.—Gross earnings for Aug., $131,806.55; expenses $80,125,-20; net earnings $51,681.35, against $101,821.89 gross earnings; $64,399.42 expenses; $37,422.47 net earnings for Aug. 1909. Aggregate gross earnings for two months ended Aug. 31, $255,-877.44; expenses $157,626.36; net earnings $98.251.08, against $209,233.25 gross earnings; $131,842.46 expenses; $77,390,-79 net earnings for same period 1909.

St. Mary's and Western Ontario Ry.—A meeting of the holders of second mortgage bonds will be held in the offices of the trustee, J. Munro, Embro, Ont., Dec. 6. for the purpose of considering what steps shall be taken in view of the default of the company to pay interest on these bonds, and to take such action in connection with the matter as shall be deemed advisable. The company's line between St. Marys and Embro, Ont., is leased to the C.P.R. at a rental equal to 4½% interest on first mortgage bonds. together with the right to purchase the common stock at any time within 12 years from 1909 for the sum of $25,000.

Temiscouata Ry.—Profits for Aug., $4,558, and for eight months ended Aug. 31, $31,032.

The London Financial Times says:—"The Temiscouata Ry. was recently described by a well known member of the Stock Exchange as a concern whose prospects ranged between splendid possibilities and schemes for the protection of the debenture holders. Just at present the former of these two alternatives is being adopted by some of those who follow the affairs of the undertaking. That is to say, the prospects are regarded as having considerably improved. For 1909-10 a distribution of 7% was made on the consolidated mortgage income bond certificates. and there are rumors that for 1910-11. a more substantial rate of distribution will be announced, while in some quarters it is suggested that an interim payment will be made. There is nothing in recent traffics to support this view; nevertheless, purchases are being made of the income bond certificates at the current price of £32. The chief thing to remember in connection with this property is that its physical condition has undergone a very great improvement during recent years, and it is understood that the line is now in a generally more efficient state than for a long time past."

White Pass and Yukon Ry.—Gross earnings for Sept., $233,900, against $249,854 for Sept. 1909. Aggregate gross earnings for three months ended Sept. 30., $676,087, against $726,111 for same period 1909.

Protection of Railway Employes.

The Board of Railway Commissioners passed the following order, 12225, Nov. 9:—Re application of the Trainmen's Association of Canada, for a revision of order 5888, Dec. 16, 1908, making provision for the protection of railway employes. It is ordered as follows:—

1. Whereas subsec. 3 of sec. 264 of the Railway Act provides that "there shall also be such a number of cars in every train equipped with power or train brakes that the engineer of the locomotive drawing such train can control its speed, or bring the train to a stop in the quickest and best manner possible, without requiring brakemen to use the common hand brake for the purpose." Therefore, at least 85% of the number of cars in every train shall be equipped as above required.

2. When more than one engine is attached to a train, the engineer of the leading engine shall operate the brakes.

3. Every road locomotive engine shall be equipped with a step or steps and hand holds on both sides of and at or near the rear ends of tenders; footrests shall be provided on the pilot of every such engine, sufficiently wide for a man to stand on; every switching or yard engine shall be equipped with foot-boards and head-lights on the front and rear ends of the engine and tender, such foot-boards to be not less than 10 ins. wide; the back of such foot-boards shall be protected by a board not less than 4 ins., and if cut in the centre, the inner ends shall be protected in like manner.

4. No light engine shall be run against the current of traffic a greater distance than 25 miles in any one direction without a conductor in addition to the engineer and fireman.

5. No railway company shall permit any employe to engage in the operation of trains, or handle train orders, without first requiring such employe to pass an examination on train rules and undergo a satisfactory eye and ear test by a competent examiner.

6. (a) Locomotive engineers must be at least 21 years of age, undergo a satisfactory eye and ear test by a competent examiner, and pass an examination on train rules and regulations and the proper care and operation of locomotives and air brakes. (b) Conductors must be at least 21 years of age, undergo a satisfactory eye and ear test, and pass an examination on train rules and regulations and the operation of air brakes. (c) Telegraph or telephone operators engaging in the operation of trains or handling train orders must be at least 18 years of age; write a legible hand, and pass an examination on train rules and regulations. Telegraph operators must be able to send and receive messages at the rate of not less than 20 words a minute. (d) Train dispatchers must be at least 21 years of age, be familiar with the line over which they have charge, and pass an examination on train rules and regulations. (e) Railway companies shall, within 90 days from the date of this order, file with the Board a copy of each examination paper for the examinations herein required to be passed by the employes of such railway company.

7. All railway companies shall strictly conform to the rules and regulations from time to time approved by the Master Car Builders' Association, governing the loading of lumber, logs and stone upon open cars, and the loading and carrying of structural material, plates, rails and girders; and no material of any kind shall be carried upon the roofs of cars.

8. (a) All open drains crossing tracks in railway yards shall be safely covered for at least five feet from the gauge side of each rail, except in times of

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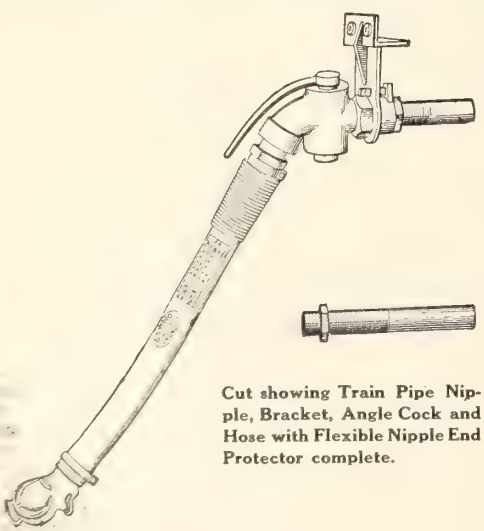

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flood, when temporary open drains may be provided, if necessary. (b) No semaphores, signals, poles, high or intermediate switchstands, or piles of material, erected or placed in future, shall be nearer than 6 ft. from the gauge side of the nearest rail. (c) No structure over 4 ft. high shall hereafter be placed within 6 ft. from the gauge side of the nearest rail without first obtaining the approval of the Board. (d) Where semaphores, signals, poles, high or intermediate switchstands, or piles of material are nearer than 6 ft. from the gauge side of the nearest rail, the same shall be dealt with as follows:—(1) Semaphores, signals, poles, or high or intermediate switchstands shall, within two years from this date, be either removed or changes made so that the same shall not be nearer than the said 6 ft.; or high and intermediate switchstands shall be changed to low or dwarf signals or switchstands. (2) Piles of material shall, within six months, be removed to a greater distance than the said 6 ft. (e) Water stand-pipes shall not be nearer than 2½ ft. from the widest engine cab, and the spout of the stand-pipe shall, when not in use, be fastened parallel with main track, and enginemen are required to see that this is done after using any such pipe.

9. Order 5888 is repealed.

10. Every person or company offending against any of the foregoing provisions shall forfeit and pay $50 for every such offence.

Great Northern Ry. Lines in Canada.

In the company's annual report for the year ended June 30, reference is made to its Canadian lines, as follows:—

The Manitoba Great Northern Ry. is the title of a company authorized by the Manitoba Legislature to take over the lines and charter rights of the Midland Ry. of Manitoba. To pay for these two lines—one from the International boundary to Portage la Prairie, and the other from the International boundary to Morden—the company issued $2,040,000 of stock, which was subscribed and paid for in cash at par by the G.N. Ry. This sale left the M. Ry. of Man., which is controlled jointly and equally by the G.N. Ry. and the Northern Pacific Ry., divested of all its railways, but owning valuable properties in Winnipeg, which have not been developed, for terminal purposes. The G.N. Ry. investment in these properties is $1,253,043.06.

The Winnipeg city council has the question of the terminals under consideration, and is desirous of ascertaining when it is proposed to proceed with the work. The company was granted an exemption from taxation on the understanding that the terminals were to be built immediately.

Brandon, Saskatchewan and Hudson Bay Ry.—An additional $20,000 of the company's capital stock was issued to and paid for at par by the G.N. Ry., the proceeds being used to pay for additions and improvements completed to the line during the year.

It has been reported frequently recently that there was a likelihood of the line being sold to the Grand Trunk Pacific Ry., but this is denied by officers of both companies.

Crow's Nest Southern Ry.—There was issued $30,000 of additional capital stock during the year, which was subsidized and paid for in cash by the G.N. Ry. The proceeds of the issue were used in repaying advances of $19,393.32 made for betterments during 1908-09 by the G.N. Ry., and the balance used for additions and improvements to the property during 1909-10.

Nelson and Fort Sheppard Ry.—During the year there was expended on additions and improvements on the line $2,094.64, advanced by the G.N. Ry.

Red Mountain Ry.—Repairs, etc., on this line during the year were done to the value of $767.84, which was supplied by the G.N. Ry.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—During the year the G.N. Ry., advanced to the V.V. and E. Ry. and Nav. Co., $1,742,355.21 for construction purposes and to pay for property acquired. In partial repayment of advances previously made them has been issued to the G.N. Ry. the fully paid capital stock at par to the amount of $10,000,000. It is proposed to apply to the Dominion Parliament for authority to issue additional common stock, to be issued to the G.N. Ry. in liquidation of its account.

The President's report showed that 40.91 miles of an extension from Keremeos to Princeton had been opened for traffic on Dec. 23, 1909. A branch line was under construction from Oroville, Wash., southerly to Pateros, 78 miles, which was expected to be opened in the spring of 1911. Grading was being carried on from Princeton westerly to Tulameen, and from Abbotsford, near Sumas, easterly to Chilliwack, B.C.

The Board of Railway Commissioners, Oct. 28, directed the construction of a subway at Montrose Ave., Abbotsford, the cost to be met by a grant of 20% from the Dominion Railway Grade Crossing fund, but not to exceed $5,000; the British Columbia Government consenting to pay 48% of the cost, the balance of 32% to be paid by the railway.

The question of acquiring foreshore rights at False Creek, Vancouver, by the city corporation is being brought before the Provincial and Dominon Governments, in order that the terms of the agreement between the city and the G.N. Ry. may be carried out. The terminals which it is proposed to erect on the site will be used not only by the G.N. Ry., but by the Canadian Northern Ry. and the Grand Trunk Pacific Ry.

New Westminster Southern Ry.—Additions and betterments completed on the line during the year cost $10,304.70, which was paid by the G.N. Ry. (Nov., pg. 927.)

Thomas Tait's Resignation.

Australian papers received since our last issue went to press give further information as to Mr. Tait's resignation of the chairmanship of the Victorian Railway Commission. In his letter to the Minister of Railways he stated that he had advised the Premier confidentially in June last that it was his intention to continue in office until the completion of his second term of appointment, in April, 1911, but that private and family affairs might render it necessary for him to leave Australia before the end of 1910. The necessity had arisen, and as he desired to visit India before returning to Canada, he had arranged to sail from Melbourne on Nov. 30. His resignation had been withheld pending the completion of the enquiry into the accident at Richmond. In announcing the resignation the Premier said, amid cheers, that whatever difference of opinion there might be about Mr. Tait, they all recognized that he was a man of really great ability, who thoroughly understood railway matters, and who in many ways rendered the State of Victoria excellent service, which would be remembered long after he left. He was a strong and fearless man, who never desired to do an injustice to anyone. It would be a long time before Victoria could get a stronger man, and they would have to go far before they could get as competent and able a man to fill his place.

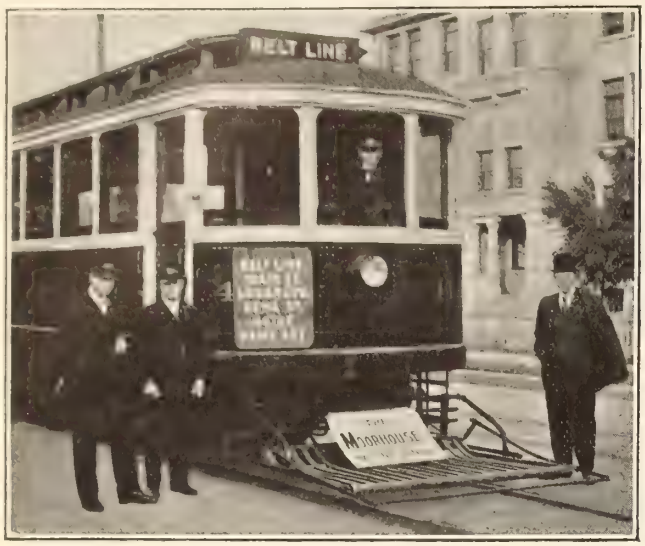
That recent accidents on the Victorian railways had anything to do with Mr. Tait's resignation is emphatically contradicted. The investigation board found that the Richmond accident, the most serious one, was due to contraventions of regulations by employes, and no fault was found with the administration.

In an interview at Melbourne, just after his resignation was announced, Mr. Tait said:—I have been working since I was 15 years old, and since I was 21, when I was Assistant Superintendent of a prairie section of the C.P.R., I have had the burden of more or less serious responsibility. I am not an old man yet by any means—I am only 46 years of age—but I have had, I think, my share of responsible and strenuous work, and I now propose to take it easy, which, fortunately, I am in a position to do. I am looking forward with keen anticipation and pleasure to spending the next summer season in Canada, at a summer residence which I own on an island in the Muskoka Lakes, in the highlands of Ontario—a place I am very fond of. It is not likely that I will resume active railway work again. I shall be occupied to some extent with my personal affairs in Canada, but should I find time hanging heavily on my hands it is possible I may take on some work of an advisory or expert character, and I hope from time to time to do a good deal of travelling.

The Melbourne Argus says:—"Mr. Tait's resignation will excite feelings of surprise and regret in the minds of all who are capable of appreciating the value of the work he has done during his seven years service. The tributes of admiration paid to his administration by leading members of the House were remarkable for their sincerity. The commanding personality of the Chief Commissioner seemed to be before their eyes as they spoke, and the generous warmth of their language showed they were conscious that Victoria is about to lose the services of a public official of high merit. On such an occasion responsible members could not but recollect the condition of the railways when Mr. Tait assumed control of them, in 1903, and contrast it with the state in which he is leaving them. During the preceding six years there was an average daily loss of about £730. For the six years ending June 30, 1909, they returned the Treasury an average profit of over £350 a day. Against facts like these it should be impossible to argue. They speak for themselves. Mr. Tait was told that the appalling drift must be stopped, and the task was not a promising one. He could not reduce wages; he could not increase hours; it was equally impossible to raise fares and freights. Expenditure on lines and rolling stock had, moreover, been kept down to the lowest possible point, so nothing could be saved in maintenance. Everything depended on the skill of the management. Mr. Tait certainly had the help of a succession of excellent seasons, but even allowing for that factor in his favor he must be admitted to have done splendidly. Not only has a ruinous annual deficit been transformed into a handsome annual profit, but the lines have been built up, and the rolling stock has been immensely improved and increased."

A demonstration in Mr. Tait's honor was held in Melbourne, Nov. 3, at which he made an important speech. On Nov. 24 the Premier and other members of the Government entertained him at a farewell parliamentary dinner, when the Premier said the resignation was entirely voluntary and greatly regretted by the Government.

We are advised that Mr. Tait may arrive in Canada in March or April, but not later than July.



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Atlantic Quebec and Western Railway.

The financial prospects of the Atlantic, Quebec and Western Ry., operating and building a line in the Gaspe Peninsula of Quebec, are involved in the failure of A. W. Carpenter, carrying on business in London, and elsewhere in the United Kingdom and the Isle of Man, as the Charing Cross Bank. A receiving order was made Oct. 17 in the London Bankruptcy Court, upon the debtor's own petition, and the order of adjudication was made the same day. The debtor denies insolvency and says he filed his petition in consequence of threats of criminal proceedings against him in relation to the investment of the bank's funds in a Canadian railway. A statement of affairs, prepared by the debtor, was filed Oct. 24, showing liabilities of about £2,500,000, almost entirely due to about 25,000 depositors, with assets of £133,000 in cash, £60,000 in book debts, and properties valued at £156,000. The latter include shares in various properties; 40,000 acres of timber lands and other properties in the Gaspe Peninsula; but does not include shares in the New Canadian Co., which is constructing the Atlantic, Quebec and Western Ry., £300,000 of mortgage debentures, and all the common stock of the railway company. It is estimated that the bank has provided altogether about £1,250,000 for the building of the line, and the other railways owned by it. The bank has also large interests in South Africa, which are not included in the statement of affairs. A meeting of depositors was held in London Nov. 2, when it was stated that the official receiver disclaimed any responsibility for the figures in the statement of affairs, and that the value of the bulk of the Canadian assets, and of the whole of the South African assets was doubtful. Sir Clifton Robinson, who died suddenly in New York, Nov. 6, had consented, on the invitation of the creditors, to make an inspection and report of the railway properties in Canada, but had not been able to do anything at the time of his death. While nothing was done, an opinion was expressed by certain of the creditors, that it might be necessary to raise money to complete the railway, in order that the money already expended might not be entirely lost. A meeting of creditors, called by the Official Receiver, was held in London, Nov. 21, and the public examination of the debtor was fixed for Jan. 26, 1911.

The history of railway building and operation in the Gaspe peninsula has been a chequered one. The first line to be built was the Baie Des Chaleurs Ry., which in 1897 was taken over by the Atlantic and Lake Superior Ry., an ambitious scheme promoted by C. N. Armstrong, who had been engaged in railway promotion and construction works in various parts of Ontario and Quebec. The A. and L.S. Ry. proposed to take over the Baie des Chaleurs Ry., extending from Metapedia, on the Intercolonial Ry., to New Carlisle; the Great Eastern Ry. and some other short lines in different parts of Quebec, connect them up and to extend the line to some point on Lake Superior. A steamship was put on to run between New Carlisle and Liverpool, Eng., which was unsuccessful, and the whole concern was taken over, July, 1900, by the bondholders, C. R. Scoles being appointed Manager. The Baie des Chaleurs Ry. was the only line taken over by the A. and L.S. Ry., and the bondholders, with Dominion Government aid, made improvements on the line to New Carlisle, and extended it to Paspebiac, completing this work in 1902-03. The Carpenters, who had been for years interested in oil and timber lands in the Gaspe Peninsula, subsequently became interested in the railway projects, and when the Atlantic, Quebec and Western Ry. was given a charter by the Dominion Parliament in 1905, the New Canadian Co. was formed, with C. B. K. Carpenter, son of the proprietor of the Charing Cross Bank, as Managing Director, and entered into a contract for building the lines authorized. The capital of the New Canadian Co. was fixed at £100,000, in shares of £1 each, and of these 49,493 are fully paid up, the remaining 50,507 having 5s. each paid. Under this contract the line has been completed as far as Port Daniel, and construction is well advanced to Gaspe Harbor. Meanwhile the affairs of the Baie des Chaleurs Ry. and of the Atlantic and Lake Superior Ry. were before the courts, not only in Canada, but in England, and several suits had to be fought out before a settlement was effected in 1907, when what is known as the A. and L.S. Ry. Trust Fund was formed. In Sept., 1909, the holders of the trust fund certificates authorized the sale of the line, and an order-in-council was passed July 10, 1910, confirming the transfer to the Quebec Oriental Ry., a company chartered by the Quebec Legislature, and controlled by the A.Q. and W. Ry. The line, which is involved in the liquidation of the bank, includes therefor the following:—The original Baie des Chaleurs Ry., Metapedia to New Carlisle, 98 miles; section from New Carlisle to Paspebiac, built by the Atlantic and Lake Superior Ry., two miles, and the section from Paspebiac to Gaspe Harbor, under construction by the A.Q. and W. Ry., of which 37 miles are completed and in operation.

The A., Q. and W. Ry. is authorized to issue $5,000,000 of common stock, and of this $1,500,000 was to be allotted to the contractor—the New Canadian Co.—as the work progressed. The company is authorized to build a line from Gaspe Bay through the centre of the peninsula to Amqui, on the Intercolonial Ry., thence southerly to Edmundston, to a connection with the C.P.R. and the National Transcontinental Ry., and a line from Gaspe Harbor, skirting the coast to Paspebiac, on the A. and L.S. Ry., with power to take over that line. The Dominion Government has voted a subsidy, on the usual conditions, not to exceed $6,400 a mile, and because of the unusual number of bridges on the coast route, an additional $250,000 for bridges, while the Quebec Legislature has voted 4,000 acres of land for 150 miles of the coast line.

At a general meeting of shareholders in London, Oct. 28, the Earl of Ranfurly, President, said he hoped that at their next meeting he would be able to report the successful opening of the railway, thus placing in direct rail communication with the interior Gaspe Harbor, destined, as they believed, to become in the near future one of the great ports of the Dominion of Canada. The engineers-in-chief, Sir Douglas Fox and Partners, had certified that 78% of the work on the coast line had been completed, leaving 22% to complete at the end of Sept., since which time considerable progress had been made. Possession had been obtained of the whole of the land, and construction was being carried out in the most substantial and efficient manner. The line was in operation up to mile 37, and would be open for traffic as far as mile 61 in November, and through to Gaspe before this time next year. At Gaspe Harbor the Government were constructing a large wharf at which there would be sufficient depth of water to accommodate ocean steamers. The company had already received $365,568 on account of cash subsidies, and was now in a position to claim a considerable further amount. It had also received official notification that it was entitled to 188,197 acres of land, and in November, when a further 24 miles of line were open, they would have earned under the terms of the subsidy agreement a further large acreage.

A Railway to Hudson Bay.

The speech from the Throne at the opening of the Dominion Parliament, Nov. 17, contained the following paragraph: "The construction of a railway to Hudson Bay, which has occupied the attention of the people for many years, has assumed practical shape. Already a contract has been awarded for the construction of a bridge forming part of this railway, across the Saskatchewan River at Pas Mission, and the work is in progress. During the present session, a measure will be laid before you providing for the prosecution and completion of this work with all possible speed. The connection of the great west with the eastern portions of Canada and also with the overseas markets by this new rail and ocean route, will not only open up a new section of Canada, but will greatly assist in the development of trade, and thus benefit both producers and consumers."

In dealing with the surveys for the proposed railway from Le Pas Mission, on the Saskatchewan River, to Hudson Bay, the report of the Department of Railways for the year ended March 31, refers to the engineers' reports and estimates presented to Parliament last session, a summary of which was given in our Jan. issue, pg. 17, and Feb. issue, pg. 97, at the close of the year, Mar. 31. It was reported that location plans and profiles of the proposed line for about 75 miles from Le Pas were prepared, and that further location work was in progress to Split Lake, 150 miles from Le Pas. Split Lake is the point to which the line can be built independently of any question as to whether the terminus on the Bay be at Port Nelson or Fort Churchill.

J. L. Armstrong, Chief Engineer in charge of surveys, was in Ottawa, Nov. 15, conferring with Minister of Railways. He is reported to have stated that the surveys for the first 200 miles have been completed, and active work on the construction of this mileage could be gone on with at once. Surveys for the route from Split Lake to Fort Churchill or Port Nelson, had not been completed. The location of the terminus on Hudson Bay will largely be determined by the hydrographic surveys now being made.

The Winnipeg Board of Trade passed a resolution recently asking the Dominion Government to undertake the building of the line as a national work, and to provide for its operation under a commission, and to make it available for the use of all Canadian lines. (Nov., pg. 917.)

Canadian Ticket Agents' Association.—Three errors occurred in the report of this Association's meeting at Quebec in our last issue. The number of members present was stated at 113, instead of 118; Alderman Cannon, pro-Mayor, was reported as having spoken in French, instead of in English, and F. W. Churchill, C.P.R. Ticket Agent, Collingwood, was omitted from the list of those elected as members of the executive committee.

A Victoria, B.C., dispatch of Nov. 25, said D. D. Mann, Vice President Canadian Northern Ry. was there arranging for construction of a line from Victoria, via Sooke to Alberni and that tenders for clearing the right of way would be invited immediately. It also stated that the C.P.R. would proceed at once with the Esquimalt and Nanaimo Ry., Cowichan Lake branch.

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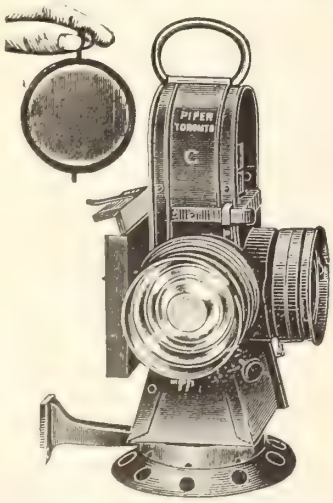

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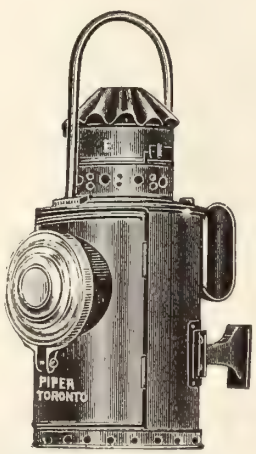

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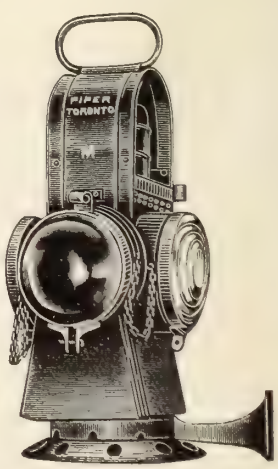

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Orders by Railway Commissioners.

(Continued from pg. 1023)

12277. Oct. 12.—Ordering C.P.R. to remove switch off Bridge St. Port Burwell Ont.

12278, 12279. Nov. 14. Authorizing Ontario Hydro-Electric Power Commission to erect wires across G.T.R. at Springford station grounds and across C.P.R. Mimico spur, Etobicoke tp.

12280. Nov. 15.—Authorizing Trenton Electric and Water Co. to erect wires across G.T.R. between Trenton and Belleville, Ont.

12281. Nov. 14.—Authorizing Hinton Electric Co. to erect wires across C.P.R. Westminster branch at Coquitlam station, Mount Cook, B.C.

12282. Nov. 14.—Authorizing Seymour Power and Electric Co. to erect wires across Bell Telephone Co.'s wires in Seymour tp., Ont.

12283. Nov. 14.—Authorizing Nipissing Power Co. to erect wires across G.T.R. at Callendar, Ont.

12284. Nov. 15.—Authorizing city of Toronto to lay sewer under G.T.R. on Front St.

12285. Nov. 14.—Authorizing city of Hamilton Ont., to lay a sewer under G.T.R. at Sherman Ave.

12286. Nov. 14.—Authorizing N. St. C & T. Ry. to build temporary siding at Niagara Falls, Ont., from Victoria Ave. to southwest corner of South and Victoria St.

12287. Nov. 3.—Dismissing application with exceptions of Dominion Legislative of Engineers' Brotherhoods. This order is given in full an anotner page.

12288. Nov. 15.—Authorizing C.P.R. to build additional track across Westminster Ave., Montreal, West. Que.

12289. Oct. 10.—Dismissing application of city of Fort William, Ont., for authority to cross C.P.R. Copp industrial spur, with its street railway.

12290. Sept. 8.—Ordering G.N.R. to adopt, not later than Jan. 1, 1911, rates and minimum weights of C.P.R. Special Mileage Tariff, C. R. C. 1112, effective Feb. 20, 1909, to apply on lumber, etc., on New Westminster Southern Ry., and also on other railways operated by it in British Columbia.

12291. Nov. 15.—Authorizing Simcoe Ry. and Power Co. to erect wires across G.T.R. in Tay tp., Ont.

12292. Sept. 22.—Ordering C.N.R. and G.T.P.R. to build connection between their respective tracks at Tuxedo Park Co., and Canada Cement Co.'s properties, St. Boniface, Man.

12293 to 12295. Nov. 16.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at three points in Hamilton.

12296 to 12297. Nov. 15. — Authorizing Mount McKay and Kakabeka Falls Ry. to operate its cars over crossing of C.P.R. and C.N.R. at Yonge St. Fort William, Ont., without first being brought to a stop.

12298. Oct. 12.—Dismissing application of Hamilton & Toronto Sewer Pipe Co., for order directing G.T.R. to provide switch from its main line between Hamilton and Dundas to applicant's premises.

12299. Nov. 16.—Rescinding order 12127, Oct. 28, re G.T.R. crossing ¾ mile east of Tillsonburg, Ont.

12300. Nov. 16. — Authorizing C.N.O.R. temporarily to cross G.T.R. at Cobourg, Ont.

12301. Sept. 20.—Ordering C.P.R., G.T.R., and C.N.Q.R. to publish and file tariffs, to be effective not later than Jan. 1, 1911, reducing export rates to Montreal on lumber from points in Quebec, north and east of Montreal, so that same difference shall exist between present domestic rates on lumber to Montreal and said rates for export, as existed between old domestic rates and old rates for export.

12302. Nov. 16.—Ordering C.P.R., within 90 days to install improved type of electric bell at William St. crossing, Carleton Place, Ont.

12303. Nov. 17.—Ordering G.T.R., within 90 days to install electric bell at St. Clair Ave. crossing, Toronto.

12304. Nov. 15.—Authorizing G.T.R. to take for additional facilities certain lands in Richmond Que.

12305. Nov. 17.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires near Jane St., Swansea.

12306, 12307. Nov. 17.—Authorizing city of Toronto to lay sewer under C.P.R. and C.N.O.R. on Eastern Ave., and under G.T.R., G.T.R Belt Line and C.P.R. at Don Esplanade.

12308. Nov. 15.—Removing discrimination complained of by residents of Kingsville, Cottam, and Essex, Ont., by advancing one-way fare between Cottam and Essex from 10 to 15c. and reducing one-way fare between Cottam and Kingsville from 20 to 15c.

12309. Oct. 13.—Dismissing application of Palgrave village, Ont., for order directing G.T.R. to provide a subway at County Road crossing.

12310. Nov. 13.—Extending for such time as G.T.R. may desire to raise its tracks at Hog Bay, near lots 13 and 14, con. 5, Tay tp., Ont., time within which Georgian Bay and Seaboard Ry. may use trestle at that point.

12311. Nov. 12.—Ordering C.P.R. to place inner guard on inner side of inner rail of curve and limit speed of trains to 20 miles an hour on Horseshoe Curve at Caledon Mountain, Ont.

12312. Sept. 8.—Ordering G.N.R. to operate its morning train between Point Guichon and Cloverdale, B.C., as before July 2, and to build not later than Nov. 15, a road to its Hazelmere station across its right of way.

12313. Nov. 17. Ordering C.P.R. to install improved electric bell at Lake Ave. crossing, Carelton Place, Ont.

12314. Nov. 2.—Approving location of C.P.R. proposed station in Woodstock, N.B.

12315 to 12319. Nov. 18.—Authorizing Stratford Light and Heat Commission to erect wires across G.T.R. at five points in Stratford, Ont.

12320. Nov. 18.—Ordering that C.N.R. shall require its employes to precede and flag all movements of cars or engines over McDonald spur crossing, Peace Ave., Edmonton, Alta.

12321. Nov. 18.—Ordering C.P.R., within 90 days to install improved electric bell at Cote des Neiges road crossing about 500 ft. east of mileage 48, Hochelaga Co., Que.

12322. Nov. 18.—Rescinding order 10427, Apr. 29.

12323. Nov. 12.—Authorizing C.P.R. to build bridge 50.37 on its North Bay Section, Lake Superior Division, Ont.

12324. Nov. 18.—Rescinding order 9873, Mar. 14, respecting G.T.R. crossing one mile north of Mount Forest, Ont., and ordering G.T.R. within 90 days to install improved signal electric bell there.

12325. Nov. 19.—Approving location of C.P.R. second track, grade revision, and highway crossings from mileage 74 to 124, Smith's Falls Section, Ont.

12326. Nov. 19.—Authorizing C.P.R. to build bridge 85.17, on district 2, Schreiber section, Lake Superior Division, Ont.

12327. Nov. 19.—Approving location of C.N.R. through tps. 54-53, r. 3-7, w. 5, m. mileage 31.34 to 62.47, Alta.

12328. Nov. 19.—Approving location of C.P.R. Weyburn-Lethbridge branch from sec. 8, tp. 9, r. 14, w. 3 m., Sask., at mileage 200, to sec. 25, tp. 3, r. 1, w. 4 m., Alta. at mileage 316.78.

12329. Nov. 19.—Authorizing C.N.O.R. to build between lots 403 and 417, East North River range, St Andrew's parish.

12330. Nov. 19.—Amending order 10891, June 13, which approved revised location of C.P.R. (Ontario and Quebec Ry.), from mileage 19 in Quebec to mileage 74 Ontario.

12331. Nov. 18.—Authorizing C.N.Q.R. to open for traffic, its lines between Lorette and Quebec Bridge.

12332. Nov. 18.—Authorizing C.N.O.R. to build between lots 208 and 211, con. 1, Chatham, tp., at station 431.46.

12333. May 12, 13.—Ordering C.N.R. to keep station at La Broquerie Man., open, and properly heated for passengers; and dismissing application for appointment of permanent agent.

12334. Nov. 19.—Approving revised location of C.N.O.R. from mileage 58.42 to 62.00 from Sudbury Jct., at Kalace Lake.

12335. Nov. 19.—Authorizing G.T.R. to cross with its deviated line, Kingston road, Brighton tp., Ont.

12336. Nov. 19.—Relieving G.T.R. from providing further protection at second highway crossing south of Tottenham, Ont.

12337, 12338. Nov. 19. — Authorizing town of Maisonneuve, Que., and Montreal Water and Power Co., to lay pipes under Montreal Terminal Ry. on Aird Ave.

12339 to 12341. Nov. 19.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires in Brantford and North Oxford and across G.T.R. in Hamilton.

12342. Nov. 21.—Approving location of G.T.R. Regina-Moose Jaw branch from east line of sec. 26, tp. 17, r. 20, to east line of sec. 28, tp. 17, r. 23, w. 2 m., Assiniboia District, Sask., mileage 0 to 20.3.

12343. Nov. 21.—Authorizing C.N.R. to open for traffic deviation of its main line from mileage 12.2 Slate River to Kakabeka Falls, on Port Arthur subdivision, Ont., 9.76 miles.

12344. Nov. 21.—Recommending for approval of Governor in Council, rules and regulations governing G.T.R. Transportation Department.

12345. Nov. 21.—Approving C.N.R. location through tps. 29 to 32, r. 9, w. p. m., Man., mileage 127.92 to 151.10, from abandoned junction with C.P.R. main line, Winnipeg.

12346. Nov. 21.—Authorizing C.N.O.R. to erect telegraph wires across North River Electric Co.'s wires at station 534-98.5, St. Andrews parish.

12347. Nov. 21.—Approving plan of Sept. 23 showing C.N.O.R. standard crossing over highways and rescinding order 10096, April 7.

12348. Nov. 21.—Authorizing C. E. Dewey, General Freight Agent, and J. W. Hanley, General Passenger Agent Central Vermont Ry., to prepare and issue tariffs of tolls for all traffic carried on its railways or vessels.

12349. Nov. 21.—Authorizing C.P.R. to use bridges 4.9 and 12.2 on its Eganville section, Ont.

12350. Nov. 21.—Authorizing C.N.R. to build spur between Ninth and Tenth Sts. from McTavish Ave. to Princess St., Brandon, Man.

12351. Nov. 21.—Approving plan of Sept. 21, showing C.N.O.R. standard crossing over highways and rescinding order 10091, April 7.

12352. Nov. 22.—Authorizing Trenton Electric and Water Co. to erect wires across G.T.R. at lot 36, con. 2, Sidney tp., Ont., and rescinding order 12280, Nov. 15.

12353. Nov. 22.—Approving location of C.N.R. through tps. 30-27, rs. 8-9, w. 3 m., Sask., mileage 25.81 to 45.54.

12354. Nov. 22.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at lot 9, con. 2, Dorchester tp.

12355. Nov. 24.—Authorizing C.P.R. to build a spur for Lumber Manufacturers' Yards, Moose Jaw, Sask.

12356. Nov. 23.—Authorizing C.N.O.R. to build bridge over Trent River, in Trenton.

12357 to 12359. Nov. 23.—Authorizing Niagara, St. Catharines & Toronto Ry. to erect wires across Bell Telephone Co.'s wires at three points in Thorold tp., Ont.

12360, 12361. Nov. 23.—Authorizing Seymour Power and Electric Co. to erect wires across G.T.R. between Stirling and Campbellford, and near Belleville, Ont.

12362 to 12372. Nov. 23.—Authorizing town of Maisonneuve to lay pipes under C.N.Q.R. at Second Ave., and under Montreal Terminal Ry. at Fifth, Third, Fourth, Second, and First Aves.

12373. Nov. 23.—Authorizing city of Montreal to lay sewer under C.N.Q.R. and Montreal Terminal Ry. at St. Antoine Boulevard, Tetreaultville.

12374. Nov. 23.—Authorizing Niagara, St. Catharines & Toronto Ry. to erect wires across Bell Telephone Co.'s wires at Ormonde St., Thorold, Ont.

12375, 12376. Nov. 23.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across M.C.R. at lot 28, con. X.S., Norwich, and across Bell Telephone Co.'s wires at Sherman Ave., Hamilton.

12377. Nov. 24.—Approving alteration of small portion of Western Canada Power Co.'s line, from Ruskin to Stave Falls, B.C., being an extra width of 25 ft. on each side of its right of way, required from J. MacDonald, between stations 67 and 71.

12378. Nov. 24.—Authorizing C.P.R. to build spur for Continental Oil Co., Bengal, Alta.

12379. Sept. 13.—Authorizing C.N.Q.R. to temporarily connect with National Transcontinental Ry. at Cap Rouge, mileage 9.4 from Quebec Bridge; the temporary connection to be protected by semaphore to be installed by C.N.Q.R.

12380 to 12382. Nov. 24.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at three points.

The London Stock Exchange has listed £2,678,227 Canadian Pacific fours; Duluth, Winnipeg and Pacific, £950,000 fours; Mexican Light & Power, $1,500,000 sevens, and Minneapolis, St. Paul and Sault Ste. Marie, $3,600,000 bonds.

Sir Thos. Shaughnessy has issued his annual circular to C.P.R. employes offering two free scholarships in McGill University to employes under 21 years of age and to minor sons of employes. These scholarships cover four years' tuition in the faculty of applied science, and are subject to competitive examination.

An Edmonton, Alta., press dispatch of Nov. 25, said that a caucus of Government supporters in the Legislature had endorsed Premier Sifton's proposal to abandon the Alberta and Great Waterways Ry. project and to use the $7,400,000 obtained by the sale of bonds in liquidation of the provincial debt and for other purposes of general benefit to the whole province.

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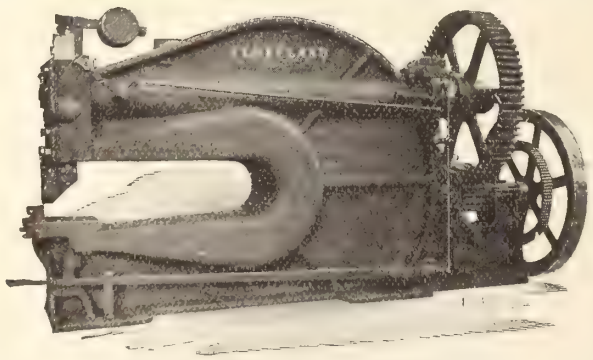

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Vanadium Alloy Rivet Sets
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Hand Backing Out Punches
Rivet Busters
Standard Punches
and Dies

We will send to Structural Iron Workers and Boiler Makers, etc., on request, Handbook No. 4, which contains useful information regarding Standard Tools of all descri tions for the shop.

The Cleveland Punch & Shear Works Co.

CLEVELAND, OHIO

TRANSPORTATION APPOINTMENTS.

The information under this head, which is almost entirely gathered from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Algoma Central and Hudson Bay Ry.—J. W. Herrold heretofore agent Kanawha and Michigan Ry. Charleston, West Virginia, has been appointed General Agent, A.C. and H.B.R., with office at Sault Ste. Marie, Ont.

W. M. Hugill has been appointed Chief Dispatcher at Sault Ste. Marie, Ont., vice F. Robinson, Trainmaster and Chief Dispatcher, appointed Superintendent Manitoulin and North Shore Ry., at Sudbury, Ont.

Canadian Northern Ry.—J. H. McKinnon, heretofore in Assistant General Passenger Agent's office, Winnipeg, has been appointed Travelling Passenger Agent Toronto, vice Osborne Scott, transferred to Winnipeg.

Osborne Scott, heretofore Travelling Passenger Agent, Toronto, has been appointed chief clerk to Assistant General Passenger Agent, Winnipeg.

Canadian Pacific Ry.—G. C. Wells, heretofore Assistant General Passenger Agent, Eastern Lines, has been appointed Assistant to Passenger Traffic Manager, and in addition to other duties will have charge of the Passenger Rate Bureau. Office, Montreal.

M. A. Fullington, formerly Resident Engineer, District 1, has been appointed Resident Engineer, District 4, Ontario Division. Office, Toronto. This is a new position on District 4.

P. Coakley, heretofore Roadmaster Guelph and Goderich subdivision, Guelph, Ont., has been appointed Roadmaster Windsor subdivision, Ontario Division, vice A. Cameron, transferred. Office, London, Ont.

J. Garstang was on Oct. 29, appointed acting Roadmaster Guelph and Goderich subdivision, Ontario Division, Guelph, vice A. Coakley transferred, and, on Nov. 9, A. Cameron, heretofore Roadmaster Windsor subdivision, was appointed Roadmaster, Guelph and Goderich and Listowel subdivisions, Ontario Division, vice J. Garstang. Office, Guelph, Ont.

A. C. Bleecker has been appointed outside ticket agent at Marmora, Ont., vice W. F. Bleecker, deceased.

The outside office at Parry Harbor, Ont. has been closed and no appointment made to fill the position occupied by the late J. C. Whitchelo.

O. Bibby has been appointed Superintendent's Accountant at North Bay, Ont., vice W. K. P. Kennedy, transferred.

A. C. Shaw, heretofore General Passenger Department, Chicago, Ill., has been appointed Assistant General Passenger Agent Winnipeg.

J. A. McLean has been appointed Chief Train Dispatcher District 1, Saskatchewan Division, vice N. S. Fraser, resigned. Office, Moose Jaw.

G. Sandstrom has been appointed Roadmaster Last Mountain subdivision and the portion of the Lanigan subdivision between Strassburg and Lanigan, District 2, Saskatchewan Division, vice G. Vanalstyne, resigned.

J. D. Muir, heretofore acting Locomotive foreman at Red Deer, Alta. has been appointed locomotive foreman there, vice J. G. Norquay, assigned to other duties.

W. North has been appointed foreman blacksmith, Revelstoke shops, vice J. Ryecroft, transferred.

A. B. Calder, heretofore General Agent Passenger Department, Seattle, Wash., has been appointed General Agent Passenger Department, Chicago, Ill., vice A. C. Shaw, promoted.

E. E. Penn, heretofore General Agent Passenger Department, San Francisco, Cal., has been appointed General Agent Passenger Department, Seattle, Wash, vice A. B. Calder, transferred.

G. M. Jackson has been appointed General Agent Passenger Department, at San Francisco, Cal., vice E. E. Penn, transferred.

Dominion Atlantic Ry.—O F. Walford has been appointed Secretary, vice R. L. Campbell, transferred.

Grand Trunk Pacific Ry.—P. Harrity has been appointed General Roadmaster in charge of Road and Bridge and Building Departments. Office, Fort William, Ont.

H. McCormick, heretofore general foreman, Fort William, Ont., has been appointed Roadmaster between Fort William and Pelican, including Fort William and Graham terminals. Office, West Fort William, Ont.

J. Abbott, Chief Dispatcher, Lake Superior Division, has been transferred from Fort William to Graham, Ont.

D. W. Steeper heretofore Trainmaster, Lake Superior Division, at Fort William, Ont., has been appointed Trainmaster, with jurisdiction between Westfort, Ont., and Springfield, Man. Headquarters, Graham, Ont.

M. B. Dube has been appointed locomotive foreman at Graham, Ont.

J. R. Morton has been appointed acting locomotive foreman at Redditt, Ont.

J. Ness has been appointed car foreman at Portage la Prairie, Man., vice A. Possnett, transferred.

A. Possnett, heretofore car foreman at Portage la Prairie, Man., has been appointed car foreman at Springfield, Winnipeg.

A. C. Loudon, heretofore construction foreman at Gainford, Alta., has been appointed locomotive foreman at Springfield shops, Winnipeg.

W. W. Yeager, heretofore locomotive foreman at Wainwright, Alta., has been appointed locomotive foreman at Edmonton, Alta., vice A. Bell, transferred.

A. Bell, heretofore locomotive foreman at Edmonton. Alta., has been appointed locomotive foreman at Wainwright, Alta., vice W. W. Yeager, transferred.

W. J. Marchen, Roadmaster from west end of Edmonton yard to end of steel, has had his headquarters changed from Edmonton to Edson, Alta.

The following agents have been appointed: St. James, Man., E. W. Dewey; Atwater, Sask., A. Kurtz; Melville, Sask., A. Donnelly; Uno, Man., R. Marshall; Raymore, Sask., W. P. Kenefick; Clavet, Sask., R. E. Patterson; Young, Sask., A. B. Dowling; Tofield, Alta., C. H. Cress; Lake Superior Jct., Ont., V. D. Sibbard; W. O. Junct., Ont., N. A. Phillips; Yorkton, Sask., A. E. Hoffered; Springfield, Man., J. S. Agnew; Redditt, Ont., W. Gotro; Graham, Ont., G. H. W. McCullough.

Grand Trunk Ry.—D. Crombie, heretofore Assistant to General Transportation Manager, has been appointed Assistant to First Vice President. . Office, Montreal.

F. W. Bergman has been appointed Manager of the Chateau Laurier, Ottawa.

As the installation of the new terminal facilities at Belleville, Ont., will necessitate several changes, no one has been appointed as locomotive foreman to succeed J. Gibson, who was recently appointed Assistant Master Mechanic at Deering, Portland, Me. W. Cahill is acting as locomotive foreman at Belleville in the meantime.

R. Muirhead, heretofore freight foreman of Simcoe St. sheds Toronto has been appointed Passenger Yard Master, G.T.R., Union Station, Toronto.

R. M. Nielson has been appointed Soliciting Freight Agent, Kansas City, Mo., vice F. L. Norman, now Commercial Agent Seattle, Wash.

The following agents have been appointed; St. Agapit, Que., J. L. A. Couture; Sutton Ont., J. Hutchings; Callander, Ont., A. S. Quinlan; London East, Ont., W. J. Moore; Hyde Park, Ont., C. Sampson; Bell River, Ont., J. W. Millen; Shallow Lake, Ont., H. Rose; Wiarton Ont., G. Mann. The outside agency at Port Carling, Ont., has been closed.

Intercolonial Ry.—As stated in our last issue, we were officially advised that G. R. Joughins, Superintendent of Motive Power, has resigned, and that the resignation would be considered at the regular meeting of the Government Railway Managing Board during the second week of November. Although the meeting was held, it has not been possible to secure any official information as to what action, if any, was taken in regard to the resignation. The daily press in Moncton and elsewhere in the Maritime Provinces has had a good deal to say about the matter, much of it no doubt being for political effect. It is stated that the resignation has not been accepted and that Mr. Joughins is to be given leave of absence for a change and rest.

T. Hoben, Assistant Superintendent at Gibson, N.B., will be placed on the superannuation list Jan. 1, 1911. We are officially advised that, on account of this change, there will be no change in titles nor location of headquarters, and there is no present intention of filling the position.

New York Central and Hudson River Rd.—E. J. Wright heretofore Assistant Superintendent Western Division, Syracuse, N.Y., has been appointed Superintendent Hudson Division, Albany, N.Y., vice F. T. Slack.

H. E. Brown has been appointed Assistant Superintendent Western Division, Syracuse, N.Y., vice E. J. Wright, promoted.

D. Fleming has been appointed Assistant Superintendent Hudson Division, New York City, vice H. E. Brown, transferred.

Wabash Rd.—A. F. Helm, heretofore Trainmaster at Decatur, Ill., has been appointed Superintendent Detroit and Buffalo Divisions, vice W. C. Heth, acting Superintendent, assigned to other duties. Office Detroit, Mich.

The G.T.P. Telegraph Co., has opened offices, at Change, Clearwater, Dona, East Lake, Graham, Lake Superior Jct., Lost Lake, Mack, Malachy, Oscar, Quorn, Raith, Redditt, Willett, Walsh Lake, Westfort, West Ontario Jct., Ont.; Dott, Elma, Springfield, Vivian, Man., all of which are stations on the National Transcontinental Ry. east of Winnipeg.

C. H. Mackay, President Commercial Cable Co., recently stated that the company had been at work for some time, formulating a plan by which the rates for cablegrams sent by the general public, as distinguished from code messages, would be reduced by about one half. This would involve a proportionate decrease in the land charges in Europe, and thus the co-operation of those countries would have to be obtained.

Notice is hereby given that the Lachine, Jacques Cartier & Maisonneuve Railway Company will apply to the Parliament of Canada, at the next session thereof, for an Act declaring the railway which the Company is by its Act of incorporation, chapter 99 of the Statutes, passed by the Legislature of the Province of Quebec in the year 1909, authorized to construct a work for the general advantage of Canada, and providing that the said railway may be commenced and completed within two years and five years respectively from the passing of the Act hereby applied for.

Dated at Montreal this 19th day of October, 1910.

W. H. BIGGAR,
Solicitor for Applicant.

SECOND HAND EQUIPMENT

LOCOMOTIVES, CARS
STEAM SHOVELS, ETC., ETC.
LOCOMOTIVE AND CAR REPAIR PARTS

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Steel Rails.
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FOR STEAM AND ELECTRIC RAILWAYS.

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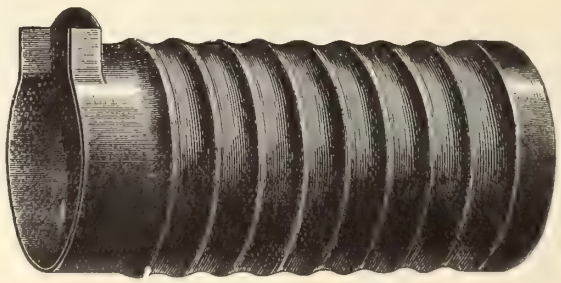
MORISON Suspension Furnaces

The Universally satisfactory record of "THE MORISON" proclaims it the best furnace made.

With Plain Ends or Flanged to any required shape.



For Land and Marine Boilers

Uniform Thickness, Easily Cleaned, Unexcelled for Strength, Unsurpassed for Steaming Capacity.

Manufactured by

THE CONTINENTAL IRON WORKS, WEST AND CALYER STS. BOROUGH OF BROOKLYN. Near 10th and 23rd St. Ferries. NEW YORK

Old Northern Railway Rolling Stock.

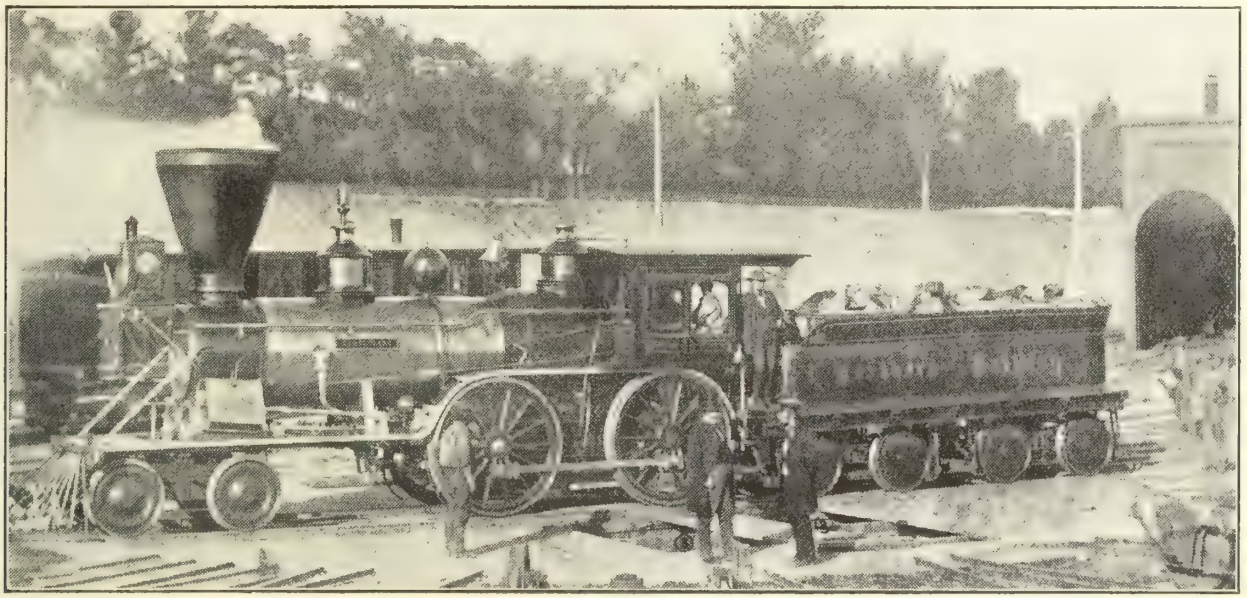
J. M. Williams, wrote the Buffalo Express recently as follows:—

"It is not generally known that when King Edward VII. visited Canada and the United States, in 1860, as Prince of Wales, the special train, consisting of two coaches, the Prince's observation car and the finest locomotive in Canada at that time, the Cumberland, named after the General Manager of the Northern Railway of Canada, was in charge of and run by two former Buffalonians. They were James Tillinghast, then superintendent of motive power of the Northern Ry. of Canada, who planned and supervised the construction of the observation car and had charge of the special train, and L. S. Williams, (the writer's father), who was the engineer chosen to handle the Cumberland.

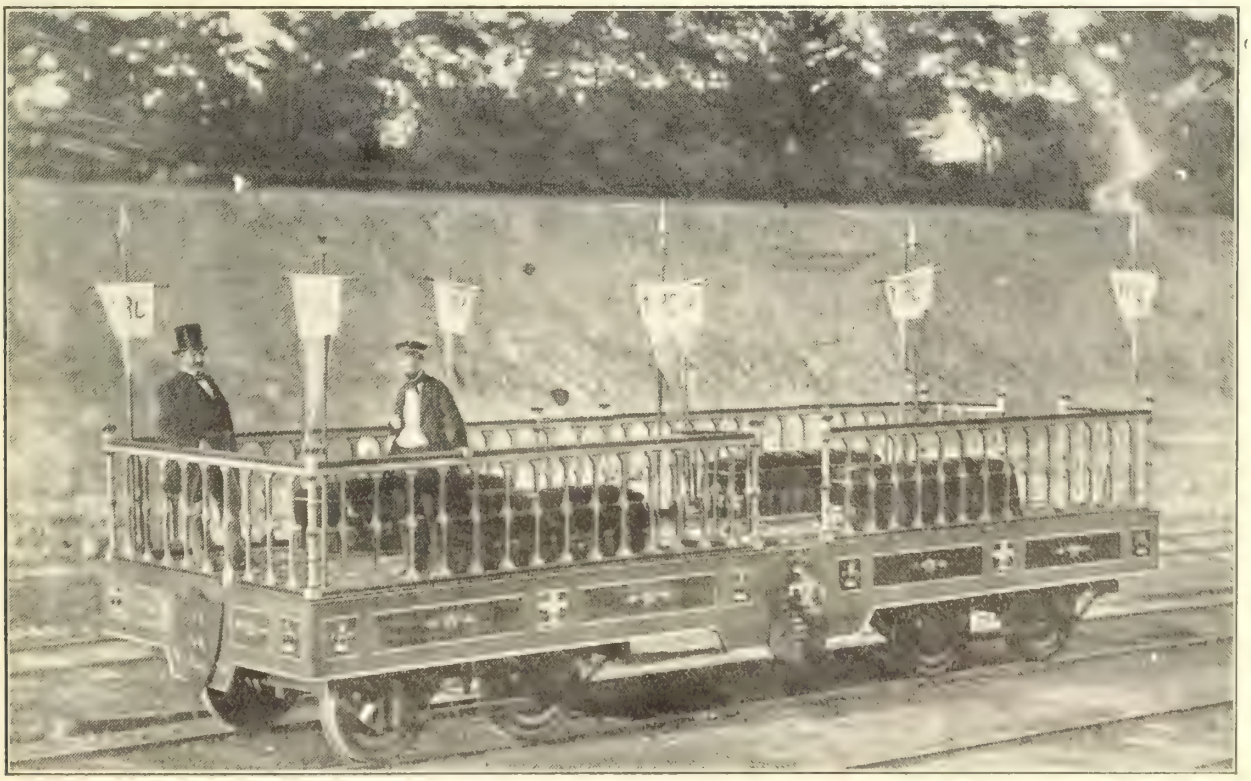
Messrs. Tillinghast and Williams, with J. L. Grant, superintendent of the Northern Ry. of Canada, helped to build the Rome, Watertown & Ogdensburg Rd., and held the same positions relatively, on this road as were afterwards tendered to them on the Northern Ry. of Canada. At the beginning of the Civil War J. L. Grant returned to the U.S. and was made superintendent of the Buffalo & Erie Rd., now part of the Eastern division of the Lake Shore & Michigan Southern Ry. Messrs. Tillinghast and Williams returned with him, and Mr. Tillinghast received the appointment of Division Superintendent of the New York Central, and Mr. Williams that of Master Mechanic of the Buffalo & Erie at Erie, Pa.

The special time-table of Sept. 10, 1860, for the train of the Prince of Wales, with the photographs of the observation car and the engine Cumberland, which are herewith reproduced, the writer believes are the only ones in existence. The time-table shows that the Prince travelled at the rate of 21 miles an hour, or from Toronto, Ont., to Collingwood, Ont., on Georgian Bay, 94½ miles, in 4½ hours. After the train had covered 18½ miles, in 45 minutes, which was pretty fast for those days, it had to stop for water at Richmond Hill, then again at Aurora, Ont., 30.2 miles from Toronto, for wood for fuel arriving at Collingwood at 1 p.m. The Prince, in returning, left Collingwood at 3 p.m., and arrived at Toronto at 7 p.m., the return trip being made in just four hours, or at the average rate of 23.625 miles per hour."

We are indebted to the Buffalo Express for the use of the accompanying illustrations.



Wood-burning, inside connected, Northern Railway locomotive Cumberland.



The Prince of Wales' Observation Car on Northern Railway, 1860

The Quickest Route to MUSKOKA

CANADIAN NORTHERN

is by way of the Canadian Northern Ontario Railway, which gives direct access by rail to the head of the lakes and has boat-side stations at Bala Park and Lake Joseph.

THE LAKE SHORE EXPRESS

with Parlor-Observation and Dining Cars is the best appointed train in the Muskoka service, and provides the quickest, most comfortable way to reach

Lake Simcoe **Sparrow Lake**

The Muskoka Lakes

Parry Sound District **The Georgian Bay**

The Maganetawan Country

For literature and general information, call C.N.O.R. Ticket Offices, corner King and Toronto Streets, and Union Station, or write C. Price Green, Passenger Agent, Toronto, Ont.

The other railways of the Canadian Northern Railway System traverse the finest summering country in **Nova Scotia, Cape Breton Island, Quebec, Western Ontario,** and the **West.** For booklets and information write to the Information Bureau, Canadian Northern Railway System, Toronto, Ont.

KINDLY REMEMBER

that we manufacture

Boilers - Horizontal Tubular
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Tanks - Iron or Steel of all Kinds.
Air Reservoirs.
Wooden Tanks with Steel Superstructures.

We make a specialty of welded Tanks, without rivets or seams.

Structural Steel
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OTTAWA - - CANADA

CANADIAN NORTHERN BRANCH LINES COMPANY.

NOTICE is hereby given that application will be made to the Parliament of Canada at its next session, for an Act incorporating a company under the name of the Canadian Northern Branch Lines Company, with power to construct the following lines of railway:—

(a) From Grosse Isle, Manitoba, northerly to Grand Rapids, with a branch to Sturgeon Bay;

(b) From Wassewa, westerly and northerly to or near Ethelbert;

(c) From Yorkton, northerly to or near Hudson Bay Junction;

(d) From Craven, north-easterly to or near Hudson Bay Junction;

(e) From Craven, easterly to the Rossburn Branch of the Canadian Northern Railway east of Yorkton.

(f) From Craven, northerly through or near Humboldt to or near Prince Albert.

(g) From the line (d) westerly to a point between Davidson and Aylesbury.

(h) From a point between Brancepeth and Kinistino, north-easterly to or near Pas Mission;

(i) From line (d) in or near Tp. 40, Rge. 7, w. 2 m., westerly to or near Jack Fish Lake, north-west of North Battleford.

(j) From or near Moose Jaw, northwesterly to join the Vegreville-Calgary line of the Canadian Northern Railway between Camrose and Setttler.

(k) From the International Boundary near Range 7, W. 4 M., northerly and easterly to a point near or west of Battleford;

(l) From or near Macleod, northeasterly to the Saskatoon-Calgary line of the Canadian Northern Railway in or near Ranges 1 to 4, W. 4 M.;

(m) From the Maryfield-Lethbridge line of the Canadian Northern Railway at or near Ranges 1 to 4 W. 4 M., westerly via Cardston to or near Pincher;

(n) From the Maryfield-Lethbridge line of the Canadian Northern Railway in or near Ranges 1 to 4, W. 4 M., northwesterly via Taber to a junction with line (l);

(o) From the Maryfield-Lethbridge line of the Canadian Northern Railway between ranges 1 and 10, w. 4 m., northwesterly to a point at or near Tps. 20 to 23, Rge. 6, W. 5 M.;

(p) From Lloydminster northwesterly and westerly to Bruderheim;

(p) From the Edmonton and Slave Lake Railway north or Morinville to a point in or near Tp. 56, Rge. 8, W. 5 M.;

(r) From or near Fort Pitt, northwesterly to the Athabasca River.

With power to acquire and navigate vessels, wharves, elevators and other facilities, to generate and use electrical and other energy, and to dispose of the surplus thereof, to construct and operate telegraph and telephone lines and to charge tolls for the use thereof; also fixing the amount and nature of securities to be issued with respect to the lines authorized and the manner of securing the same; also authorizing amalgamation with other companies and the guarantee and holding of securities and shares of any company; with power to construct, acquire and manage hotels, restaurants, and parks, and to authorize the issue of securities on properties of the company other than its railways; with other usual and customary powers.

GERARD RUEL.
Solicitor for the applicants.

Dated at Toronto, this 10th day of November, 1910.

Chatham, Wallaceburg and Lake Erie Ry.—The Board of Railway Commissioners has authorized the opening of this line from opposite the blind lane of con. 4, Dover East tp., to Pain Court, but limiting the speed of trains over it to 18 miles an hour. (Nov., pg. 963.)

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers to distinctly understand that we are not paid for the publication of any of this matter and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

The Canada Rolling Stock Co. has passed a resolution changing the location of its head offices from Amherst, N.S., to Montreal.

The McConway and Torley Co., Pittsburg, Pa., has issued an illustrated booklet, "The McConway Wheel," especially dealing with its steel tired wheels for steam and electric railway service.

The Dearborn Drug and Chemical Co., McCormack Building, Chicago, has issued a booklet on the treatment of boiler feed waters, which is of interest to all boiler users, and especially to steam and electric railway mechanical officials.

The Duckworth-Boyer Engineering & Inspection Co., Ltd., Montreal, are the inspecting engineers for the steel work entering into the construction of the C.P.R. Windsor St. station extensions, the Place Viger station extension, the Dominion Express Co.'s new building in Montreal and Bank of Montreal's new building in Winnipeg.

Jas. W. Pyke & Co., Limited, has been incorporated under the Dominion Companies Act, with a capital stock of $300,000, and head office in Montreal, to acquire the business heretofore carried on by J. W. Pyke & Co. as general merchants, importers, etc., and with other extensive powers, including manufacturing, railway and other contracting.

The Thermit Process of Rail Welding is the title of an illustrated booklet issued by the Goldschmidt Thermit Co., 103 Richmond St. west, Toronto, in which the method of welding rails by the Thermit process is fully described and illustrated. The application of the same process to repairing motor cars and truck frames is also dealt with.

The Canadian Car and Foundry Co., Ltd., held its annual meeting in Montreal Nov. 15. Press reports state that the reports showed the past year's business amounted to $8,500,000, that orders are booked for $7,000,000 worth of work, and that it is expected the output for the current year will amount to $11,000,000. The old board was re-elected, and the same officers. N. Curry is President, and W. W. Butler Vice President.

The Ajax Manufacturing Co., Cleveland, Ohio, has issued a beautifully printed and well bound reference book and catalogue of about 100 pages, describing its hot metal working machinery, including rivet and bolt headers, axle upsetting machines, bolt headings, upsetting and forging machines, standard and new high speed bulldozers, hot sawing and burring machines, universal forging machines, hot pressed nut machines, taper forging rolls, and reclaiming rolls.

Aurelien Boyer, Vice President of the Duckworth-Boyer Engineering & Inspection Company, Ltd., Montreal has been elected a director of l'Ecole Polytechnique, the applied science branch of Laval University. Mr. Boyer, whose grandfather was the first Superintendent of Education for Lower Canada, has always taken a good deal of interest in the cause of education. He will represent on the board the graduates of the above named school.

C. E. Cartwright, C.E., of Vancouver, B.C., who a short time ago resigned his position as Division Engineer C.P.R. to practice as a consulting engineer, has entered into partnership with A. J. Matheson, C.E., formerly of Ottawa, who has had 18 years experience in civil engineering, specializing in hydraulics. The new firm, Cartwright, Matheson & Co., will undertake reports, surveys, plans, superintendence of construction for railways, wharves, bridges, townsites, power plants, irrigation, water supply, etc.

The Baldwin Locomotive Works, Philadelphia, Pa., has issued its record no. 67, describing 14 locomotives built recently for passenger service. The extent to which superheated steam is used in locomotive practice is indicated by the fact, that seven of the 14 locomotives shown are equipped with superheaters. Improvements in design have rendered the maintenance of the superheater a comparatively simple matter. Furthermore, a locomotive using superheated steam can, with an increased economy and without decreasing its efficiency, be worked at a lower boiler pressure than one using saturated steam. Consequently the expense of boiler maintenance is reduced and this, in consideration of the high ratio which boiler repairs bear to total repairs, is a distinct advantage. The use of superheated steam undoubtedly increases the capacity of a locomotive. This is an important feature, especially in express passenger service, where the margin of reserve power is frequently small.

Among the Express Companies.

The Canadian Northern Ex. Co. has closed its office at Lavenham, Man.

The Canadian Northern Ex. Co., has opened an office at Kakabeka Falls, Ont., and has closed its office at Rounthwaite, Man.

F. W. Forster, C.P.R. agent, 14 Redcross St., Liverpool, Eng., has been appointed agent there for the Dominion Ex. Co., vice M. Beck and Co.

A. E. Seeley, Dominion Ex. Co.'s agent at Perth, Ont., has retired, after many years service. He acted as an express agent at Perth for 50 years.

The Dominion Ex. Co., has instructed its agents that under no circumstances, are they to receive or hold any money on deposit, pending the arrival of goods by express.

J. D. Fraser, C.P.R. station agent, and who also acted for the Dominion Ex. Co., at Rutter, Ont., was arrested recently on charges of stealing several sums of money from the C.P.R. and the Dominion Ex. Co.

The Dominion Ex. Co. is notifying its agents, that shipments of millinery, which for any reason, remain on hand for 24 hours, must be reported to the superintendent and to the agent at the shipping point.

The Trunk Line Association has issued a notice that aeroplanes will not be transported as baggage, and all applications concerning such transportation will be referred to the freight departments or express companies.

The Dominion Ex. Co., has opened offices at Amisk, Cairns, Cadogan, Alta.; Walhachin, B.C.; and has closed its offices at Beaumaris, Minet, Port Carling, Port Cockburn, Port Sandfield, Rosseau, Royal Muskoka, Waldemar and Windermere, Ont.

The Canadian Ex. Co. has opened offices at Vancouver, B.C., agent W. H. Nattress; Stewart, B.C., agent, P. A. Godenrath; Prince Rupert, B.C., agent, A. E. McMaster; Victoria, B.C., agent, W. E. Duperow; Seattle, Wash., agent, J. H. Burgess.

The Dominion Ex. Co., has advised its agents that they will be held responsible for any money advanced to individuals on shipments to be forwarded by express, unless previous authority has been obtained from the agent at point of destination.

The Dominion Ex. Co. has notified its agents east and south of Sudbury, Ont., that after Nov. 26, the date of the last sailing from Owen Sound for Georgian Bay local ports, shipments for Manitoulin Island, must be forwarded according to instructions in the express guide.

Shipments of goods consigned to a person or firm to the order of a bank, or some other person or firm, or to instructions accompanying them, which would require the agent to notify such bank, firm or person, must not be accepted by agents, but shipments addressed to a person or firm, in care of another person, or firm, may be.

The attention of agents is called to the necessity of seeing that the name and address of the shipper are attached to all goods returned to departmental stores, and to parts of vehicles and machinery returned to manufacturers, as such shipments are apt to accumulate at destination stations owing to consignees refusing to accept them, owing to the omission.

Express packages of valuables, exceeding in size, 8 by 11 by 16 ins., must not be accepted by agents, unless specially advised by the superintendent, as they cannot be placed in the car safes. Packages or vehicles, exceeding 4 ft. 7 ins. wide, by 5ft. 10 ins. high, should not be accepted unless advised by superintendent, as the dimensions given are the average of express car doors.

The Dominion Ex. Co. gives notice that the Alaska Pacific Ex. Co., having withdrawn from the White Pass and Yukon Ry., shipments should only be accepted at tariff rates to Skagway, and subject to the rates of the White Pass and Yukon Route, beyond; also that shipments for Skeena River points, including Hazelton and McIntosh, B.C., should not be accepted until the reopening of navigation.

The Canadian Ex. Co. was fined $30 and costs at Toronto, Nov. 11, for shipping two dogs from a rabies infected district at Blair to Shawanagan, Ont. in contravention of the Animal Contagious Diseases Act. For the defence it was urged that the shipping bill contained nothing to show the contents of the box, which was done up in such a way as not to show the contents, and that the agent at Blair was given to understand that the dogs were billed for an infected district.

On account of rabies known to exist in parts of Western Ontario, the area situated west of the eastern boundaries of York and Simcoe counties, is declared to be infected, and express agents are advised that no dogs must be moved out of that section, until Dec. 7, or until further advised. This does not affect dogs passing through Canada in bond, nor such dogs as may be passing through the infected area. No dogs must be accepted for transportation to Montreal, until further notice.

The Dominion Ex. Co., is cautioning its agents against persons representing themselves to be route agents or other officers of the company, and who may try to obtain possession of money or money orders, and instructs that such persons must not be permitted to have access to any books, etc., unless identified by letter or other satisfactory evidence of the superintendent of that particular division, and even then the agent must satisfy himself that such superintendent's signature is genuine.

The Dominion Ex. Co. has issued special instructions to its agents regarding Christmas traffic to England. In order to avoid serious delay at the Liverpool customs office duplicate invoices with descriptive and value of each article

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Here is what one Railroad has done with Booth Water Softeners

Increased the life of fireboxes—stay bolts and radial stays, 75%

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That's only half the story, too. Haven't room to tell it all here. Write us for the rest

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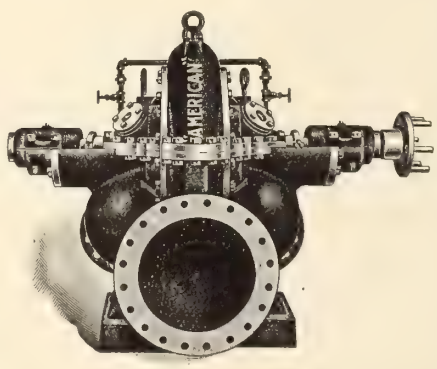
The reason why "American" volute Centrifugal Pumps attain higher mechanical efficiencies than others is they are so designed that there is a shorter passage and less friction of fluid in passing through the pump.

The impeller is accurately machined to fit the casing, leaving clearance for only a film of fluid and preventing back-flow.

At the entrance of the discharge pipe is a cut-off, preventing fluid passing the discharge pipe and being repumped.



The same care that is employed in designing the principal features of the pump is carried out in every detail of construction; in balancing the impeller, overcoming the end thrust, water-sealing the inner end bearings and oiling the main outer end bearings with rings and chains and oil cellars.

"American" Volute centrifugals are made in both horizontal and vertical types in any number of stages, in any size from 1 inch to the largest installations made and equipped with any power.

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with outward entries, must accompany shipments. Invoices simply describing goods as Christmas presents are useless, and should not be accepted, and charges if not prepaid, should be covered by guarantee or deposit. Marine insurance is only affected if specially requested, and shipments should be specially marked for marine insurance.

Express companies have notified their agents that owing to the provisions of the Canada Temperance Act, they must refuse to accept shipments of intoxicating liquors, when destined to points in Albert, Carleton, Charlotte, York, Kings, Northumberland, Queens, Sunbury and Westmoreland counties, N.B., and Annapolis, Cape Breton, Cumberland, Digby, Guysboro, Hants, Inverness, Kings, Pictou, Queens, Shelburne and Yarmouth counties, N.S., unless it is represented that they are for the consignee's personal or family use, which must be endorsed on the shipping bill by the shipper. All shipments of intoxicating liquors for these counties, sent c.o.d., must be refused, whether for consignee's personal use or not.

Judgment was recently delivered in the Ontario courts, on a claim of the Ontario Wheel Co., against the Canadian Ex. Co., in favor of the defendants. The claim was for damages for delay, owing to the Ex. Co. having delivered goods to a place for which they were not intended. It appeared in the evidence, that the goods were delivered to the Ex. Co. for shipment to a point in Quebec, there being several places of the same name in that province, but only one reached by the Canadian Ex. Co., and the goods were forwarded to that point. In giving his decision, Judge Reynolds said: "I hold that it is the duty of the consignors to furnish clear and unambiguous addresses to the express companies, and, if in consequence of the address being ambiguous, delay or expense occurs, they must bear the loss. I therefore find that neither the plaintiffs, nor the consignee can recover in this action."

Telegraph and Cable Matters.

The Canadian Northern Telegraph Co. has closed its office at Lavenham, Man.

Press reports state that the C.P.R. is to erect a telegraph wire connecting Merritt with Vancouver, early in the coming year.

The Canadian Northern Telegraph Co. has opened an office at Kakabeka Falls, Ont., and has closed its office at Rounthwaite, Man.

The Western Union Telegraph Co., has filed with the Board of Railway Commissioners, its tariff of maximum telegraph tolls, between points in Nova Scotia, New Brunswick and Quebec.

The Board of Railway Commissioners recently extended the time for the approval of the G.T.P. Telegraph Co.'s tariff of tolls between points in Canada, with the exception of the tolls between its local offices on its Ottawa Division, and Quebec, and between them and Swanton, Vt., to Dec. 1.

The Department of Public Works has completed the laying of a cable between Gannett Rock and Seal Cove, Grand Manan, which will materially lessen the danger to ocean steamships at that point. It was near Gannett Rock that the s.s. Hestia, with a number of lives, was lost about a year ago.

The Board of Railway Commissioners recently extended the time for the approval of the C.P.R. tariff of telegraph tolls between points in Canada west of and including Sudbury, Ont., to and from points west of Sudbury from and to points east thereof and east of and including Windsor, Ont., to Dec. 1.

The Maritime Telegraph and Telephone Co.'s cable across the Northumberland Strait, between Pictou, N.S., and Prince Edward Island, has been satisfactorily laid and connected. The line has been leased for private telegraph work, but it is stated that there is a possibility of arranging for its use for a public telephone service.

During the year ended Mar. 31 the Dominion Government built 31 miles of new line in Cape Breton, from Enon to Gabarus, and 63½ miles from Strathlorne to Whycocomagh. In Quebec, two short lines were built, totalling 27 miles, while in the Northwest 70 miles of line were erected from Athabasca Landing towards Peace River Landing, and the remaining distance of 220 miles was being proceeded with. This line skirts the western shore of Lesser Slave Lake for 80 miles, and from thence runs northwesterly for 90 miles. The Dominion Government, at that date, had 7,748½ miles of pole line.

The Board of Railway Commissioners reserved its decision, Nov. 15, in connection with the application of several telegraph companies for approval of their message forms, on the question of the companies' liability for the proper delivery of messages. On the present tariffs the companies only hold themselves responsible to the amount of the tolls for the proper transmission of ordinary messages and for 50 times the tolls for repeated messages. The Board suggested a maximum liability of $500, and the companies suggested a maximum liability of $200 for ordinary messages and $400 for repeated messages.

In the course of the hearing of the Marconi Wireless Telegraph Co.'s application for approval of its tariff of tolls, Nov. 15, the question arose as to the Board's jurisdiction over the rates for wireless messages to and from foreign registered vessels in Canadian waters. The company claimed that the Board had no jurisdiction. J. P. Mabee, Chief Commissioner, in reserving judgment, said. "It seems to me that British or foreign ships come under the Canadian Law the moment they enter the waters of the Gulf of St. Lawrence. The waters of the St. Lawrence Gulf are territorial waters, just as the Canadian part of Lake Superior."

Grain Elevator Notes.

The Western Terminal Elevator Co., Ltd., has been licensed to carry on its business in Manitoba.

The Western Canada Flour Mills Co.'s elevator at Goderich, Ont., will, it is expected, be opened for business Dec. 15.

A bill respecting terminal elevators at the head of Lake Superior will be introduced at the Dominion Parliament's current session.

The name of the Caron Farmers' Elevator Co., Ltd., has been changed to the Caron Farmers' Elevator and Trading Co., Ltd., Caron, Sask.

The Homewood Farmers Elevator Co. Ltd., has resolved to voluntarily wind up its affairs, and to apportion its assets among the contributories.

D. Horn Chief Grain Inspector, Winnipeg, was presented with a cabinet of silver by the western grain inspection staff Nov. 2, on his retirement from that position, which he held for 11 years.

The G.T.P. Elevator Co.'s elevator at Tiffin, Ont., during the past 20 months handled 13,804,000 bush. of grain, the largest amount for one day being 527,000 bush. in 22 hours, the record for one hour being 40,000 bush.

A. McD. Allan, who is connected with a U.S. firm, was in negotiation, recently, with the Goderich board of trade regarding the proposal to erect a large elevator there. A site has been located, and estimates are in course of preparation. It is stated to be the intention to utilize the elevator in connection with the shipment of grain to Buffalo.

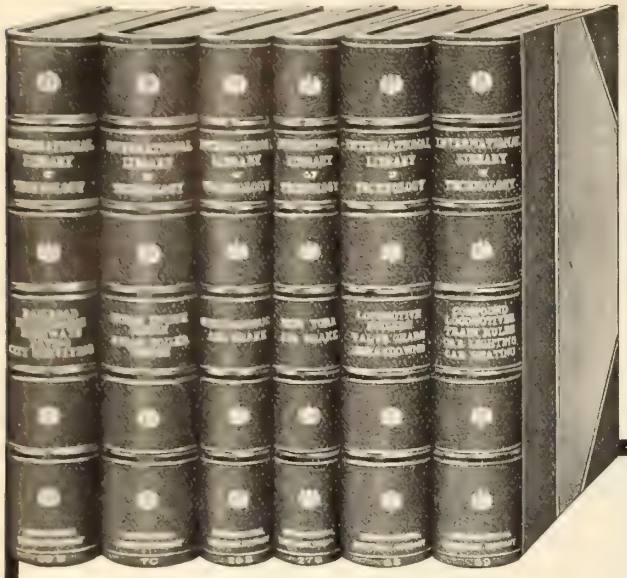
A special general meeting of the Reston Farmers' Elevator Co., Ltd., was held at Reston, Man., Nov. 17, to approve and confirm a bylaw passed by the board, providing for the transfer of all the undertakings, property and interests of the company to the Manitoba Government, and providing for the discharge of any mortgage or encumbrance affecting the company's assets.

A Winnipeg report states that 33,557,460 bush. of the 1910 crop has passed inspection there, or about 750,000 bush, less than for the same period 1909. Of this total, there are, 18,000,000 bush. required for seed; 6,000,000 bush. required for interior mills, and 6,000,000 bush. in interior elevators. The stock in the terminal elevators at the end of Oct. was ,721,203 bush. wheat; 5,479,271 bush. oats, 648,017 bush. barley; and 548,040 bush. flax.

The Western Grain Standards Board of Canada, at a recent meeting, passed a resolution drawing the attention of the Dominion Government to the advisability of acquiring and operating the terminal elevators at Fort William and Port Arthur, and elsewhere in Canada, including the eastern transfer elevators, with a view to assuring and maintaining the admitted high standard of Canadian grain in all markets, and as inspected at Winnipeg.

Saskatchewan Elevator Commission.

The Commission, which was appointed in Feb. to enquire into the various schemes submitted for the Government control of elevators has submitted its report, which does not favor any of the schemes placed before it, entirely, but has evolved a scheme embodying the best points of each. State aided farmers' elevators, and modifications of similar ideas have been discarded, and a plan submitted by the Commission, on the basis of a co-operative joint stock company, owned entirely by the agriculturalists of the province, without Government representation on the executive. It is suggested that a minimum of 15% shall be paid up by the farmers, upon as many of the $50 shares as are subscribed for, that the maximum number of shares allotted to any one person shall be 10, and that 25 elevators shall be the minimum proposed to be operated before the central body shall be organized and Government asistance called for. The proposed assistance shall take the form of a loan for each elevator, secured by mortgage, repayable in 20 annual instalments, principal and interest. The Saskatchewan Grain Growers' Association executive is named as suitable provisional directors to carry out the first details of the plan. To secure the maximum amount of local control, consistent with ownership by the whole body of shareholders and management through the central board of directors, it is recommended that each elevator be a separate unit, with a local board elected by the local shareholders. Each local board shall have one representative for the organization and subsequent annual meetings at which the whole board shall be elected, and it is suggested that the stock subscribed for each unit should be equal to the cost of the elevator, and the annual aggregate crop acreage of the shareholders should not be less than 2,000 acres for each 10,000 bush. of capacity of the elevator, or one acre for every dollar of the proposed expenditure at each unit. The Commission consisted of Prof. R. Magill, Dalhousie University, N.S.; G. Langley, M.L.A., Redberry, Sask., and F. W. Green, Secretary-Treasurer Saskatchewan Grain Growers' Association Moose Jaw.



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THE CANADIAN NORTHERN ONTARIO RAILWAY COMPANY.

NOTICE is hereby given that the Canadian Northern Ontario Railway Company will apply to the Parliament of Canada, at its next Session, for an Act extending the time within which it may construct the following lines of railway:—

(a) From Washago to Kincardine;
(b) From Arnprior to Gananoque;
(c) From Pembroke to Cobourg or Port Hope;
(d) From the Township of Pickering to Owen Sound;
(e) From within ten miles east of Toronto to Hamilton, London and Windsor, with a branch from London to St. Thomas and Sarnia, and a loop line in the Townships of York and Scarborough, north of Toronto;
(f) From the International bridge, northwesterly to Goderich;
(g) From between Deseronto and Port Dover to Owen Sound or Meaford;
(h) From Washago to Midland;
(j) From Hawkesbury to a point in the County of Leeds or Lanark;
(j) From Parry Sound to North Bay; and to increase the limit to the amount of the securities which the Company may issue in respect of its authorized lines.

GERARD RUEL,
Chief Solicitor.

Dated at Toronto, this 16th day of November, 1910.

ELECTRIC RAILWAYS.

Canadian Street Railway Association.

PRESIDENT, D. McDonald, General Manager Montreal St. Ry.; VICE PRESIDENT, J. Anderson, Manager Sandwich, Windsor and Amherstburg Ry.; SECRETARY-TREASURER, Acton Burrows, Managing Director Railway and Marine World.

ASSOCIATION'S OFFICE, 70 Bond St., Toronto.

EXECUTIVE COMMITTEE.—C. E. A. Carr, General Manager Quebec Ry. Light, Heat and Power Co.; P. Dubee, Secretary Montreal St. Ry.; H. M. Hopper, Secretary-Treasurer, St. John Ry.; J. E. Hutcheson, Superintendent and Purchasing Agent Ottawa Electric Ry.; C. B. King, Manager London St. Ry.; W. R. McRae, Superintendent Motor and Truck Department Toronto Ry.

ASSISTANT SECRETARY, Aubrey Acton Burrows, Secretary and Business Manager Railway and Marine World.

OFFICIAL ORGAN, THE RAILWAY AND MARINE WORLD.

Montreal Street Ry. Company.

The annual meeting, held Nov. 2, excited much more than the usual interest, as it was considered almost certain that a change in control would occur, a majority of the stock having been secured by persons interested in the Canadian Light, Heat and Power Co. The President, Hon. L. J. Forget, who is not in good health, did not attend, and the chair was taken by the Vice President, K. W. Blackwell. Only one ticket was suggested for the directorate, the following being unanimously elected:—E. A. Roberts, J. W. McConnell, G. C. Foster, K.C., F. H. Wilson, W. C. Finlay, J. M. Wilson, D. L. McGibbon The old directors were Hon. L. J. Forget, President; K. W. Blackwell, Vice President; W. G. Ross, Managing Director; Sir H. Montagu Allan, J. Caverhill. The new board met immediately after the annual meeting and elected E. A. Roberts President and J. W. McConnell Vice President. P. Dubee was reappointed Secretary; D. McDonald, heretofore Manager, was appointed General Manager, and H. A. Lovett was appointed General Counsel.

REPORT FOR YEAR ENDED SEPT. 30, 1910.

Your directors beg to submit their 50th annual report, accompanied by the financial statements, which show the following results:—

Gross earnings		$ 4,352,551.18
Operating expenses		2,455,301.06
Net earnings		1,897,250.12
Interest from M.P. & I. Ry. Co.		85,878.04
Total income		$ 1,983,128.16
From which deduct:—		
City percentage on earnings	278,084.93	
Interest	175,421.07	
Rental leased lines	6,472.05	
Taxes	48,000.00	
		507,973.05
Net income		$ 1,475,150.11
Dividend 10%		1,000,000.00
Surplus		$ 475,150.11
From which has been appropriated for:—		
Contingent account	$250,000.00	
Fire insurance fund	25,000.00	
		275,000.00
Transferred to general surplus		$ 200,150.11

The gross earnings increased during the year $477,712.67, or 12.33%, the operating expenses $200,281.86, or 8.88%, the net earnings $277,430.81, or 17.13%. The gross earnings continue to show very satisfactory increases. The per cent. of expenses to gross earnings is 56.41%, against 58.20% for the previous year.

Your directors appropriated $25,000 from surplus earnings as a credit to the fire insurance fund. The interest on the investments for the year was $26,766.66. The amount now at the credit of the fund is $521,560.24.

During the year the Company secured an amendment to its charter authorizing the construction and operation of underground railways. Preliminary plans for the construction of the same have been prepared by Jacobs & Davies, of New York, and the question will be taken up with the city during the coming year. Owing to the continued rapid growth and congestion of the city, your directors again took up the question of securing additional routes which would relieve the present congestion, but regret that no definite action has been taken as yet by the city. It is hoped, however, that the matter will receive early attention. The delay has added to the difficulties of operation in, at best, a difficult and dangerous city to operate in.

The Supreme Court of Canada rendered judgment in favor of this company's appeal from the decision of the Board of Railway Commissioners, relative to the rates of fares from Cote des Neiges to the city. The city of Montreal has appealed from this decision to the Privy Council.

During the past year negotiations were entered into between your directors and the directors of the Montreal Light, Heat & Power Co., with a view to bringing about closer relations between the two companies. The scheme submitted did not, however, receive the support of the shareholders of either company to the extent anticipated, and has been abandoned; and your directors have been notified by the Montreal Light, Heat & Power Co. of its withdrawal from any further negotiations in this connection.

Duncan McDonald,

General Manager Montreal Street Ry. and President Canadian Street Ry. Association.

The property has been maintained in a high state of efficiency, and a considerable sum has been spent in the upkeep of the tracks and rolling stock; the power plants and buildings are in excellent condition, it being the policy of your directors to spare no efforts or expense in this direction; yet notwithstanding this the surplus earnings of the company are the largest in its history. There has also in addition been carried over to the credit of the snow account a substantial balance towards this year's expenses. Notwithstanding the above the operating expenses percentage of earnings have decreased.

The company has continued its liberal policy towards its employes in respect to their wages, having increased them during the year, and to the Men's Benefit Association, which is now in a flourishing condition.

The large expansion of the company's business necessitated the erection of new shops for the construction and repair of cars, etc., and work in connection therewith has been commenced. These shops are to be completed during the coming year, and will be most complete and up to date in every respect.

The Company has paid to the city of Montreal taxes and percentages on earnings amounting to $387,264.25, on account of snow removal $50,919.30, a total of $438,183.55, being an increase over the previous year of $51,998.39.

The Company has recently received a proposition from the Montreal Light, Heat & Power Co., offering to make a contract to furnish additional power to this company, but owing to the annual meeting of shareholders being so near at hand, your directors decided to leave the matter to the incoming board to deal with.

The Montreal Park and Island Ry.'s gross earnings show a gross increase of $57,270.80, the operating expenses an increase of $28,450.32, the net results being $85,878.04, against $57,057.56 for the previous year.

The Montreal Terminal Ry.'s gross earnings increased $23,697.66, the operating expenses increased $5,933.09, and the net surplus for the year was $23,-159.71, against $5,477.08 for the previous year.

STATISTICAL STATEMENT.

	1910.	1909.
Expenses % of earnings	56.41	58.20
Passengers carried	107,241,406	95,376,373
Car earnings per passenger	3.95c.	3.96c.
Transfers	36,437,123	32,285,208
Total passengers carried	143,678,529	127,661,581
Car earnings per pass. total carried	2.95c.	2.96c.

GENERAL BALANCE SHEET.

ASSETS.	1910.	
Cost of road and equipment:		
Construction, etc.	$ 5,004,238.74	
Equipment, etc.	5,334,452.02	
Real estate and buildings	2,198,732.84	
Stock and bonds of other companies	3,672,473.73	
		$16,209,897 [illegible]
CURRENT ASSETS:		
Montreal Park & Island Ry. advances	654,109.00	
Montreal Terminal Ry. advances	[illegible]	
Accounts receivable	115,673.47	
Stores	336,408.16	
Cash	930,084.19	
		2,036,274.82
Fire insurance fund investment		395,597.50
		$18,641,769.65

LIABILITIES:		
Capital stock	$10,000,000.00	
Bonds 4½% payable Aug., 1922	681,333.33	
Bonds 4½% payable Nov., 1922	1,500,000.00	
Bonds 4½% payable May, 1922	2,238,666.67	
Mortgages	1,863.00	
		$11,421,863 [illegible]
CURRENT LIABILITIES:		
Accounts and wages payable	207,732.05	
Accrued interest	75,530.00	
Accrued tax on earnings	290,387.41	
Employes' securities	18,699.93	
Unclaimed dividends	1,956.57	
Unredeemed tickets	69,105.92	
Dividend payable Nov. 2.	250,000.00	
Suspense account	298,244.61	
Montreal Terminal Ry.	19,537.99	
		1,231,194.48
Fire insurance fund	521,560.24	
Contingent account	83,540.75	
Surplus	2,383,611.18	
		2,988,712.17
		$15,641,769.65

COMPARATIVE STATEMENT OF OPERATIONS.

	1910.	1909.
Gross earnings	$4,352,551.18	$3,874,838.31
Operating expenses	2,455,301.06	2,255,019.20
Net earnings from operation	1,897,250.12	1,619,819.31
Interest from M.P. & I. Ry. Co.	85,878.04	55,606.67
Total income	1,983,128.16	1,675,425.98
FIXED CHARGES:		
City percentage on earnings	278,084.93	221,054.47
Interest	175,421.07	179,724.70

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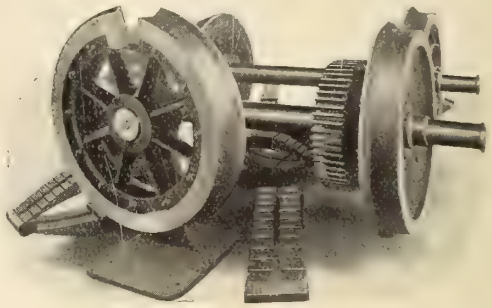

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STANDARD STEEL PLATFORMS

Used by all Canadian Railways

Rental leased lines	6,472.05	5,821.35
Taxes	48,000.00	*
Total	507,978.05	445,749.47
Net income	1,475,150.11	1,229,676.51
Dividend 10%	1,000,000.00	976,332.08
Surplus	475,150.11	253,344.43
From which has been appropriated:		
Contingent account	250,000.00	175,000.00
Fire insurance fund ...	25,000.00	25,000.00
Transferred to surplus account .....$	200,150.11	$ 53,344.43

*Taxes 1909 in operating expenses.

Toronto Railway By-Laws.

The Toronto Ry. Co. has passed two bylaws relating to traffic. One prohibits smoking and spitting on any part of closed and open motor and trailer cars.

The other has the following provisions: All passengers shall enter closed motor and trailer cars by the rear door and shall leave by the front door. No person riding on any closed motor or trailer car shall stand or remain on the platform or step in such a position or for such time as to obstruct free entrance or exit of any passenger. No person shall ride on the step, bumper, draw bar, railing, cross chain, nor on any fixture on the outside of dash of any motor or trailer car.

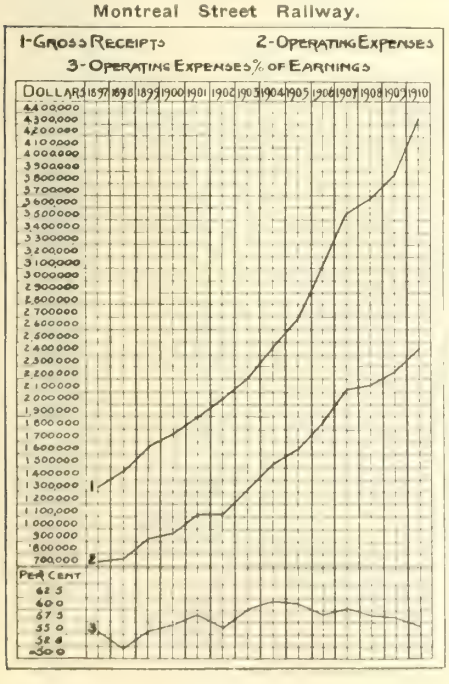
All persons entering the body of the car after the seating space is occupied shall immediately pass up to the front end, if there be any available standing room there, and shall not occupy any standing space at the rear end while there is room forward in the car, nor under any circumstances in such a manner as to block the free entrance of passengers. Whenever the number of persons on the platform of any motor car or trailer shall be such as to block the entrance, or whenever it shall appear to the conductor that the entrance is not unobstructed, any person riding on the platform shall on being requested to do so by the conductor or motorman, enter the body of the car, or, if inside, shall move up to the front end. Any person riding on any platform of, or inside any car who shall refuse or fail to forthwith comply with the request of the conductor or motorman to enter the body of the car or pass up to the front end, shall on request of the conductor or motorman of the car forthwith leave the car and upon failure or refusal, the conductor or motorman shall eject said person from the car, using for that purpose no unnecessary force.

No passengers shall ride on any platform of any closed motor car, or in the vestibule occupied by the motorman, nor shall any passenger remain on front platform of a closed motor car or in the vestibule occupied by the motorman or on the steps of the car for a longer time than is necessary to enable such passenger to alight. Motormen and conductors shall require passengers to conform to this bylaw, and shall see that the free entrance or exit of passengers is not prevented, hindered, or delayed by any persons standing on any of the platforms or steps or in the aisle at rear of car directly in the way of entrance door and for this purpose every conductor or motorman may and whenever necessary shall require any passenger to occupy such place or places on or in the cars as will prevent any obstruction of the entrance to or exit from the same.

Every person committing any violation of this bylaw shall forfeit a penalty not exceeding $20 in addition to all other penalties by law provided.

Application has been made to the Ontario Railway and Municipal Board to approve the bylaws.

Montreal Street Railway.



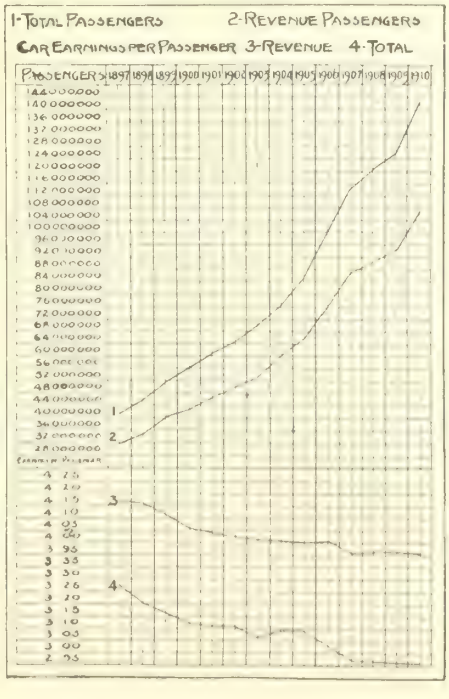
Toronto Railway Cars.

The Toronto Railway has put into service recently a number of its latest type of standard convertible cars, which are the invention of its Master Car Builder, M. Powers. They are 30 ft. long over body and 44¾ ft. long over all. The bottom framework is of semi-steel construction. The side sill-plates are placed on the extreme outside of body, reinforced by an angle on the inside allowing the wheels to curve under it. This angle carries all the cross floor supports which are reinforced by truss-rods in order to take care of the floor load. The posts on the inner side are tapered. The heavy steel construction usually used in supporting large platforms, in this case, is dispensed with. The only steel used is the two outside platform supports made of light steel on the cantilever principle, reinforced on the bottom side by a light angle. The platform centres are supported by adjustable trusses having their bearing on the bottom of the cantilever under the car-body sill. In this position the weight is taken care of by the ordinary platform suspension bolts.

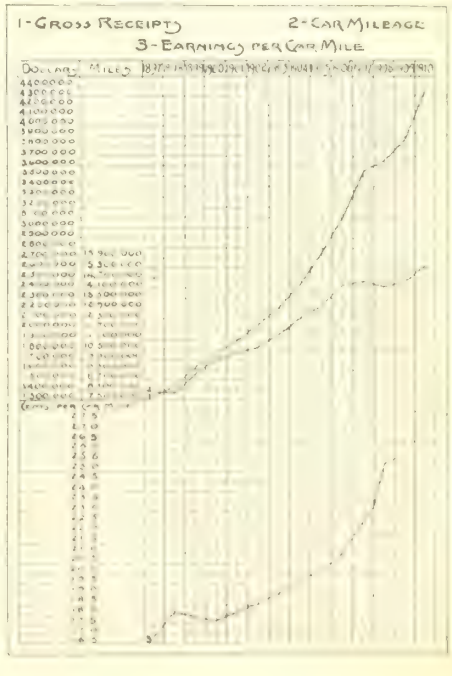
The vestibule is surrounded by the usual angle bumper, placed on the centre of which, and curved to suit, is a piece of the same material bolted securely about 2½ ft. long to protect a higher car should they collide. Both vestibules are of the same size. The front is fitted with a wide sliding door, operated by the motorman, locking each time it closes. Two switch-irons are inserted in the floor over the tracks, alongside of which is placed a metallic frame containing plate glass. This frame is so constructed as to open in order to be cleaned. The object of this device is to enable the motorman to see the switch, and at the same time to prevent the cold from entering the car. This system assures the motorman of his switch-iron every time, and saves the company the cost of replacing lost ones. There is a rail behind the motorman, which performs the double purpose in separating the motorman from the passengers, and providing a location for the sand-box, the lid of which, when open, conforms to a comfortable seat for the motorman. The placing of the sand box in such a position is certain to prevent dampness, and being in full view of the operator he may see the condition of the sand. Over this rail a blind is suspended from the roof, which can be drawn down to prevent the light of the car from interfering with the motorman's view. The vestibule is also provided with an outside mirror, giving the motorman a clear view of the whole car side. There is only one hand-rail placed on the front of the vestibule, for the use of persons alighting, making it almost impossible to get off backwards. The steps are very wide and spacious, having a ribbed lead covering to prevent slipping.

The back vestibule is large, the inside being sheeted upright, having a base well scalloped up from the floor to prevent dampness at the post bottoms. The entrance to the car is large on the inside of vestibule, making it very convenient for the pay-as-you-enter system, as all passengers have to pass over the entire platform in order to enter. The practice in Toronto is to leave by the front door. In order to make this more convenient and comfortable, the General Manager, R. J. Fleming, it is said,

Montreal Street Railway.



Montreal Street Railway.



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conceived the idea of dispensing with the front door, or bulkhead, leaving almost all the end open. This gives excellent operating results as well as extra capacity both winter and summer. Both seasons are mentioned as the foregoing description is of a convertible car in its closed form.

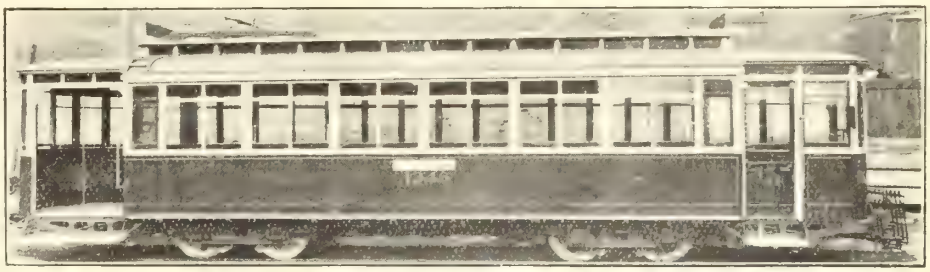
The car interior is finished in quarter-cut white oak relieved by cherry. The trimmings are of bronze. The upholstering is of the finest red plush. The exterior is of cherry sheeting 1½ ins. wide, which can easily be replaced in the event of damage from collisions. The cross seats used in summer are placed longitudinally for winter use, and covered by a cushion, a leg being required only at the extreme end of each length of cross seat. They are supported in the centre by truss-rods underneath the seat. There are very few legs required, thus leaving the space under the seat open, and giving the interior of the car a very sanitary appearance. There is a space left at each door in order to give a clear passage in and out. The seatbacks are very light to handle, each side having two sections. They rest on the seats, being securely held by means of clips which they engage. The top of this seat is secured by gate hooks, making the removal of the backs an easy task.

The cars are brilliantly lighted, the bulbs being situated on each side of roof, directly above the seats, giving a very fine illuminating effect, and providing the passengers with plenty of light to read by in any part of car. By the aid of a special switch, controlling an extra number of bulbs, additional light can be provided during the rush hours, thus giving the conductor an excellent opportunity to collect fares and examine transfers.

For summer use, the side sections of the car are removed, and cross-seats placed in position and supported by lugs on the panels and car wall, and held in place by buttons. Wooden backs are dropped into slotted castings, making a cool and comfortable seat. The bottom step is attached by means of suitable suspending castings and connected to both platform steps. The second step is contained in the wall of the car, making a support for the sections in winter, and also a guard to prevent the car side from damage by wagons. All the hand-rails remain in position; the removable parts are all secured by bolts which remain in place. The seating capacity of this car in closed form is 38; in open form 70.

Following are some particulars of the equipment:—Double trucks, all steel frame swinging bolster; axles, 4½ inch open hearth cold rolled steel; wheels, 33 ins. diameter. 2¼ ins. tread, chilled iron; brakes, storage air, with power brakes as an auxiliary; automatic fenders.

Following are some particulars of the electrical equipment:—Four motors, rated at 40 h.p. each; two on each truck, single reduction gear drive, open hearth.



Toronto Ry. Standard Convertible Car, closed for Winter.

cut steel gears and pinions; new type pressed steel gear housings, replacing old type heavy malleable iron cases; Toronto standard rheostat, removable grid type; K. 6 series parallel controller and M.R. type automatic circuit breaker; standard car lightning arresters; Toronto Ry. roller bearing trolley stands, steel trolley pole.

A special feature of these new cars is the buzzer system for passengers signalling motorman. The electric current operating these buzzers is supplied from the trolley wire and not from batteries, as heretofore. This system of operating buzzers is one of recent developments in the electric field. The principal reason why electric bells or buzzers were not used more extensively by electric railways was on account of the batteries being so unreliable, the energy contained in cells giving out unexpectedly and the signal device refusing to respond to contact at the push buttons. Hence the reliable pull bell has always been adhered to in car construction, and the pull bell will continue to be used for conductor's signals and for emergency use, in conjunction with any other system which may be used.

Projects, Construction, Betterments, Etc.

Alberta Electric Ry.—Application is being made to the Dominion Parliament to incorporate a company with this title to build the following lines:—From Calgary to Banff, Alta.; from Calgary south to Bow River through or near Thigh Hills to Medicine Hat, crossing the Bow River between Rolling Hills and Grand Forks; from the last mentioned line near Long Coulee to Lethbridge; from near Expense Coulee, on the Calgary-Medicine Hat line, to Taber and Lethbridge, and back to the Calgary-Medicine Hat line, at Long Coulee; from the Calgary-Medicine Hat line, near Thigh Hills to Macleod; from Calgary to Carbon, and on to the point of junction of the Knee Hill Creek and Red Deer River; from Lethbridge to the International boundary at the Milk River; from Medicine Hat to Wood Mountain; also power to build lines in Calgary, Medicine Hat, Lethbridge, Banff, Taber, Macleod and Carbon. The company also asks power to acquire and operate coal mines, and to dispose of any surplus electric power or energy over and above that required for the operation of its railways, for power and lighting purposes in towns along its lines. Stewart and Lathwell, solicitors, Calgary, Alta., are solicitors for the applicants.

Brandon, Man.—The city council has under consideration a plan for granting a franchise for an electric railway in the city to a Vancouver syndicate. A petition, signed by over 2,000 citizens, was sent to the council, Nov. 15, protesting against the granting of the franchise. (Jan., pg. 57.)

British Columbia Electric Ry.—The contract for the erection of a passenger station for the company's interurban traffic at New Westminster was, Nov. 15, reported let to Martin and Broley. The building is estimated to cost about $80,000.

The Vancouver, Fraser Valley and Southern Ry., a subsidiary line of the B.C.E. Ry., is under construction from the Hastings townsite, Vancouver, via Burnaby to Sapperton, where it will connect with the present interurban line between Vancouver and New Westminster. Grading is expected to be completed Dec. 31. M. P. Cotton & Co., Vancouver, the contractors, are represented by J. A. Mallory, as engineer.

The company has notified the Point Grey town council of its readiness to start tracklaying as soon as the grading of the streets has been completed by the council. An application has been made to the courts on behalf of residents in Point Grey, to quash the by-law under which the work is proposed to be done. (Nov., pg. 963.)

Buffalo, Niagara Falls and Toronto Ry.—The Dominion Parliament is being asked to extend the time for the construction of the lines authorized to be built by the act passed in 1907; to authorize the branch line mentioned in sec. 8, to be built from Niagara-on-the-Lake and St. Davids to St. Catharines, and to authorize the use of any motive power except steam. The notice is signed by H. H. Collier, St. Catharines, Ont., solicitor for the company. (July, 1909, pg. 522.)

Edmonton Radial Ry.—The Board of Railway Commissioners has authorized the Edmonton city council to cross at rail level with its street railway the tracks of the Edmonton, Yukon and Pacific Ry. (Canadian Northern Ry.) at several points within the city. (Nov., pg. 963.)

Electric Railways Construction Co.—A proposition has been laid before the Stanley Park board of Vancouver, B.C., by the E. Ry. Construction Co. for building a double track, foreshore, scenic railway encircling the park. The company asks for a lease of the necessary right of way between high and low water for 21 years, the city to have the right of way over the line at cost of construction, plus a bonus of varying percentages at the end of six, 11 or 16 years, or at the end of the franchise period. If the city does not then take the line over the franchise to be renew-

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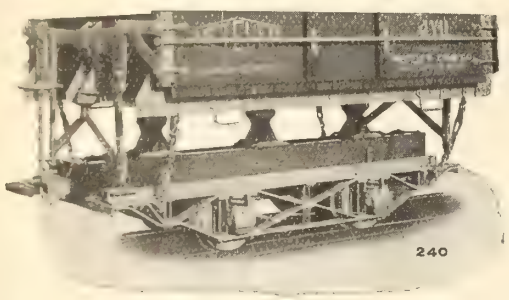

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ed for a further period of 21 years on an equal division of the profits. During the first 21 years the net profits to be divided, 25% to the board and 75% to the company. The Park Board does not favor the proposition, and several members have expressed themselves against granting a franchise to any company.

Grand Valley Ry.—Application has been made to the Brantford, Ont., city council for permission to build a line along the river bank from Church St., under Lorne bridge, along Wharf St. to Market St. (Oct., pg. 875.)

Monarch Radial Ry.—The agreement which is under consideration by the Barrie, Ont., town council, provides for an exclusive franchise; that the service on the line from Toronto to Barrie and from Barrie to Orillia shall be such as the Ontario Railway and Municipal Board shall direct; that the service may be extended on the streets in the town by agreement, and that the tracks may be used by other companies for running through Barrie. The town council offers a 25 year franchise without special privileges. At a recent committee meeting the company's representatives agreed to submit modified proposals. The Barrie board of trade has considered the whole matter and has passed a resolution advising the council not to approve of any agreement containing a provision for an exclusive franchise. (Nov., pg. 965.)

Montreal Street Ry.—The Metropolitan Parks Commission has been giving some consideration to the question of improved means of communications in the city, which it is authorized to do by its act. One of the plans suggested with a view of relieving the congestion of traffic is to construct a triple-tunnel from Sherbrooke and Guy St. to Belvedere and Cote des Neiges Road, the centre section of which would be utilized for laying a double track electric railway. The Commission expects to be able to report on the question at its December meeting. D. McDonald, General Manager M.S.R., was present at the meeting, and explained that the proposed tunnel would be 5,500 ft. long. The company had also under consideration plans for a subway along St. James St., from near Gosford St. west to near Bonaventure St. (Oct., pg. 875.)

Morrisburg and Ottawa Electric Ry.—The provisional officers and directors are: Chairman, J. McFarlane, Ottawa; Vice Chairman, W. H. Fetterly, Morrisburg, Ont.; other directors: E. J. Laverdure, R. A. Bishop, H. McDonald, Ottawa; J. W. Bogart, J. H. Longbridge, Morewood, Ont.; W. C. Strader, Williamsburg, Ont.; C. Munro, Chesterville, Ont. The company's stock is being put on the market, and it is reported that it is being well taken up by residents in the townships through which the line will pass. The chairman is quoted as having stated in an interview, Nov. 11, that while it was proposed not to sell more than 10 shares to any single subscriber, already half of the amount required to start work on a permanent basis had been subscribed, that the length of the proposed line was 43 miles, that the cost of construction was estimated at $750,000, and that the farmers were offering land for right of way at a very low price and to do a considerable amount of team work free. (April, pg. 311.)

Nanaimo, B.C.—The agreement granting a franchise for building an electric railway in the city is to be submitted to the ratepayers for approval at an early date. (Oct., pg. 875.)

Ontario West Shore Electric Ry.—The draft of an agreement for a franchise in Goderich, Ont., was approved by the town council, Nov. 5, and has been submitted to the company for approval. There are a few points upon which the company's engineer and secretary expressed dissent at the meeting, but it is thought they will be arranged by the company. It is hoped to be able to have a by-law approving the agreement submitted to a vote at an early date.

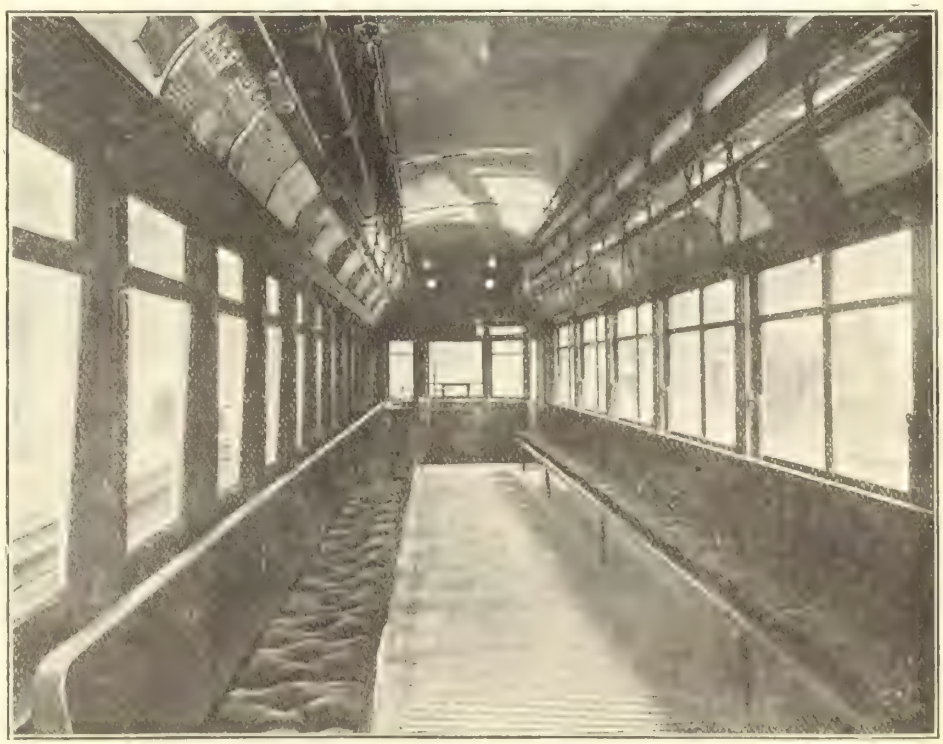
The section of the line under construction extends from the Goderich town boundary to Prince Albert. Track has been laid to Prince Albert and ballasting has been done as far as Sheppardton. Beyond Prince Albert grading work is in progress but no more track laying will be done until the bridge has been built across the river. This will be of steel on stone piers with trestle approaches. Reports from Kincardine state that right of way is being secured through Huron tp. and that grading will shortly be started. There are 26 cars of rails lying at Kincardine station for the line. The project for the extension of the line from Kincardine to Tiverton, Port Elgin and Owen Sound, it is said, will shortly be taken up by J. W. Moyes. (Nov. pg. 965.)

Ottawa and Kingston Electric Ry.—A letter signed by G. L. Dickinson, Manotick, Ont., has been received by the Kingston, Ont., city council inviting consideration to a project for building an electric railway from Kingston to Ottawa. It is proposed to apply for a provincial charter with the above title, the route suggested being from Ottawa via Perth to Lanark, thence along the west bank of the Rideau river to Kingston. A meeting in support of the proposal was held at Ottawa, Nov. 2, at which the following were appointed provisional directors for the purpose of securing a charter, etc. R. McElroy, M.L.A., Carp, Ont.; G. L. Dickinson, D. Clark, Manotick, Ont.; T. Kidd, Burritte's Rapids, Ont.; F. A. Heney, Westboro, Ont.; G. Boyce, Merival, Ont.; J. C. Graham, A. E. Baker, Merrickville, Ont.; J. E. Caldwell, City View, Ont.; Rev. D. A. Clayton, Kars, Ont.; E. P. McGrath, Ottawa; J. S. McCann, Kingston.

Ottawa Electric Ry...A press report states that the company has agreed to build extensions through Ottawa South as soon as a high level bridge is constructed over the Rideau Canal at Bank St. (Nov., pg. 965.)

Pigeon Lake and Ferintosh Ry.—R. M. Angus, a member of the Wetaskiwin, Alta., town council is engaged in the formation of a company with this title to build an electric railway from Wetaskiwin, westerly to Pigeon Lake, and easterly to Ferintosh, Alta. The suggestion is that as soon as the plans are completed the company will endeavor to secure assistance from the municipalities through which the line will run. A plan showing the proposed route of the line has been prepared. The total length of the proposed line from Pigeon Lake to Ferintosh is 60 miles. Pigeon Lake is about 35 miles due west of Wetaskiwin; while the line towards Ferintosh will run south easterly for about 12 miles to Lewisville, passing through Swenson Corners and Angus Ridge, and then for about 13 miles due east, passing through Beaver Lake and Highland Park to Ferintosh.

Quebec Ry., Light and Power Co.—In a recent interview, C. E. A. Carr, General Manager, is quoted as having said that just as soon as an opportune time arrived and the company could do away with locomotives, the present system of using steam and electric motive power would be abandoned, and electric power only used. Plans were being prepared for the complete electrification of the Montmorency division, on which steam locomotives were used to haul part of the traffic. "We have now the control of the Quebec County Ry." added Mr. Carr, "which runs to St. Patrick's Seminary, or close to the Quebec Bridge, and this line is paying well. We have applications from three suburban municipalities to have the company's lines extend into these places.". There have been deposited in the registry office for the county by the Quebec County Ry. a plan, profile and book of reference of the proposed line from Victoria Park Bridge, to the Charlesbourg Road. The plans have also been submitted to the Quebec Minister of Public Works for approval. (Nov., pg. 965.)



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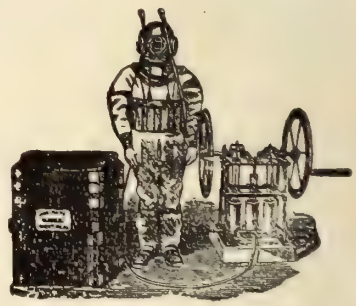

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Hamilton Street Ry.—A committee has been appointed by the Hamilton, Ont., city council to discuss with the H.S.R. management a plan for the carrying out of improvements next year. The city is desirous of laying permanent pavement on sections of King and Main Streets, and wants to arrange with the company to lay new tracks thereon at the same time. (Nov., pg. 963.)

Huron and Ontario Ry.—Application is being made to the Dominion Parliament to extend the time within which the company may build its projected railway from Georgian Bay, via Port Perry to Lake Ontario. (Oct., 1907, pg. 761.)

Lacombe and Blindman Valley Electric Ry.—The Alberta Legislature is being asked to extend the time within which this projected line may be built. (Aug., 1909, pg. 609.)

Lacombe, Bullocksville and Alix Electric Ry.—An extension of time for the construction of this projected electric railway is being asked from the Alberta Legislature. (Aug., 1909, pg. 609.)

Levis County Ry.—It was reported at the annual meeting recently held that the entire track had been reballasted, and was now in excellent condition. (April, 1909, pg. 281.)

The London and North Western Ry. Co. was reported, Nov. 16, to be preparing the necessary documents asking for the submission of a bylaw to the ratepayers of a number of municipalities at the forthcoming elections. The places interested are London, Sarnia, and the townships of Plympton, Lobo, Lucan, Arkona, Parkhill and Strathroy. These bylaws are to provide for a guarantee of bonds, $150,000 being asked from London, $100,000 from Sarnia, and about $50,000 from each of the townships. A press report states that the charter is controlled in the interests of the C.P.R.

The company is making application to the Dominion Parliament to extend the time for building their projected railway from London to Sarnia. (Nov., pg. 963.)

London Street Ry.—It is said that no further work will be done in the way of improving the electric railway tracks on Richmond and Dundas streets, London, Ont., this season. C. B. King, Manager, stated Nov. 3, that the tracks had been undermined in several places, and it would be necessary for the filling to become properly settled before any further work could be done. The directors are reported to have decided that "it would be impossible to accept the offer of hydro-electric power at $31 per horse power on the peak load basis."

Montreal Park and Island Ry.—The Dominion Parliament is being asked to extend the time for the construction and completion of the authorized lines; to change the date of the annual meeting and for other powers. (Dec., 1908, pg. 891.)

Niagara, St. Catharines and Toronto Ry.—Press reports state that the company is planning to extend its lines from Fonthill to Fernwick, and to construct a second track between Port Dalhousie and Niagara Falls, Ont. (Nov., pg. 965.)

Peoples Ry.—The work of grading on the line between Guelph and New Hamburg, Ont., it is announced, will be commenced at once, the right of way having been acquired. At the municipal elections in Jan. bylaws will be submitted in six townships subscribing for stock in the company, as follows:—Proton, $36,000; Luther, $30,000; Garafraxa, $25,000; Arthur, $20,000; Fergus, $20,000; Elora, $15,000.

W. A. Bugg and F. J. Todd, of Berlin, have completed a trip northerly to Collingwood, Thornbury and Meaford, looking into the prospects of these places as possible points to which the Peoples Ry. may be extended. (Nov., pg. 965.)

The Peterborough Radial Ry., is now part of the system operated by the Electric Power Co., Ltd. The officers of the P.R.R. Co., now are: President, J. G. Kerry; Secretary, E. A. MacNutt; Assistant Secretary, A. B. Colville; General Manager, J. H. Larmonth; Local Manager, W. H. Munroe. We are advised that the company expects to make several extensions next year, including about three miles of track. A new car barn will probably be built and several cars are likely to be added to the equipment.

Rural Ry. of Manitoba.—Jos. Bernier has withdrawn his application to the St. Vital, Man., township council. The council adjourned the question at a previous meeting until Nov. 5, in order to compare the terms of the franchise asked for with an offer from the Winnipeg Electric Ry., and as a result Mr. Bernier withdraws. (Nov., pg. 965.)

St. Thomas Street Ry.—The rebonding of the line on Talbot St., from the car barn to Manitoba St. has been completed, and the defective bonds on the rest of the line replaced. (June, pg. 497.)

Saskatoon, Sask.—W. S. Weeks, Edmonton, Alta., is negotiating with the Saskatoon city council for a franchise for an electric railway in the city. (Nov., pg. 965.)

Toronto, Niagara and Western Ry.—In connection with recent press reports that the building of this line will soon be started, it may be recalled that when the question of the approval of the route plans was before the Board of Railway Commissioners the company's representative stated that there was no intention to go on with construction for some time. One of the questions in connection with the route plans is the entrance into Hamilton. The Board of Railway Commissioners' Chief Engineer recently made an inspection of the various routes suggested, and has the whole matter under consideration. Until he has reported nothing can be done in the way of approving plans. (Nov., pg. 965.)

Toronto and York Radial Ry.—The question of providing a better service on the Metropolitan Division came before the Ontario Railway and Municipal Board recently. It was suggested that the only solution of the difficulty was to lay a second track, but the various municipalities object to this, and propose that the company should buy a private right of way. Further consideration of the matter was adjourned until Feb. 1, 1911.

The Toronto city council, Nov. 21, passed a resolution authorizing the taking of the necessary steps for acquiring the section of the Mimico Division from Sunnyside to the Humber River, the franchise for which is about to expire. The townships of York and Etobicoke are interested in the line between the Humber and Long Branch, the franchise for which is also about to expire, and have been considering what steps to take in regard thereto. (Nov., pg. 965.)

Western Central Ry.—Application is being made to the Dominion Parliament by the company incorporated by the Ontario Legislature under this title for an act declaring the company's undertaking to be one for the general advantage of Canada, and extending the time for the building of the authorized lines. It is also desired to have power to guarantee the securities of other companies, to lease and operate municipally owned lines, and to extend its powers to lines acquired by it. Mowat, Langton and Maclennan, Toronto, are solicitors for the company. (April, 1908, pg. 232.)

Electric Ry., Finance, Meetings, Etc.

British Columbia Electric Ry.—Gross earnings for Sept., $311,803; working expenses, $174,237; net operating earnings $137,566; renewal funds, $22,417; net earnings $115,149; approximate income from investments, $20,000; net income $135,149, against $240,185 gross earnings; $130,426 working expenses; $109,759 net operating earnings; $16,394 renewal funds; $93,365 net earnings, $16,500 approximate income from investments; $109,865 net income for Sept. 1909. Aggregate gross earnings for three months ended Sept. 30, $897,458; net earnings $377,856, against $702,866 gross and $321,563 net for same period 1909.

Calgary Street Ry.—Total earnings for Sept., $19,293.76; operating expenses, $10,104.37; net revenue, $9,189.39; passengers carried, 464,543; car mileage, 60,666; hours operated, 7,219; car earnings, $31.32 per mile, and $2.63 an hour per car.

Cape Breton Electric Co.—Dividends of 1½% on the common stock and 3% on the preferred stock have been declared. The company does the lighting and operates the street railway in Sydney, N.S., also the ferry service between Sydney and North Sydney, and owns half of the Sydney and Glace Bay Ry., between Sydney and Glace Bay.

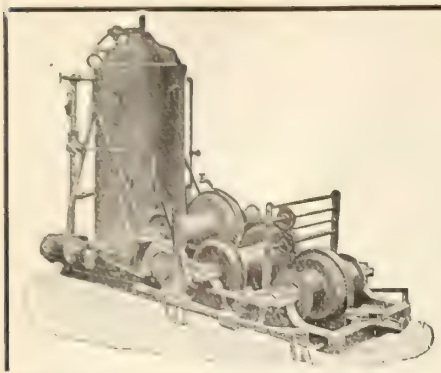
Halifax Electric Tramway.—Railway receipts for Oct., $19,455.30, and for three weeks ended Nov. 21, $10,926.19, against $17,803.09 and $9,934.75 for same periods 1909.

Levis County Ry.—The retiring directors were re-elected at the annual meeting recently. S. H. Ewing was re-elected President, and Hon. R. Turner, Vice President. It is said that the gross earnings for the year ended June 30 showed an increase of 7%, and the net earnings a larger percentage of increase over the figures of 1908-09.

London St. Ry.—Gross earnings for Oct., $21,021.06; expenses, $14,866.12; net earnings, $6,154.94; deductions, $2,441.75; net income, $3,713.19, against $19,339.01 gross earnings; $13,811.54 expenses; $5,527.47 net earnings; $2,453.63 deductions; $3,063.84 net income for Oct., 1909. Aggregate for 10 months ended Oct. 31:—Gross earnings, $211,745; expenses, $149,723.10; net earnings, $62,022.69; deductions, $23,945.20; net income, $38,077.49, against $202,721.11 gross earnings; $140,149.87 expenses; $62,571.24 net earnings; $24,082.76 deductions; $38,488.48 net income for same period 1909.

Montreal St. Ry.—Passenger earnings for Oct., $372,487.35; miscellaneous earnings, $14,200.31; total earnings, $386,687.66; operating expenses, $205,750.06; net earnings, $180,937.60; city percentage on earnings, $12,392.74; interest on bonds and loans, $15,052.37; rent leased lines, $552.90; taxes, $4,000; total charges, $31,998.01; surplus, $148,939.59; expenses per cent. of earnings, 53.21, against $336,765.13 passenger earnings; $17,241.82 miscellaneous earnings; $354,006.95 total earnings; $174,734.97 operating expenses, $179,271.98 net earnings; $13,254.20 city percentage on earnings; $14,329.61 interest on bonds and loans; $498.67 rent leased lines; $4,000 taxes; $31,079.48 total charges; $148,192.50 surplus; 49.36 expenses per cent. of earnings for Oct., 1909.

Port Arthur & Fort William Street Ry.—Total earnings for Sept., $14,091.76; operating expenses, $7,592.60; net earnings, $6,499.16. General statistics:—Car mileage, 55,890; gross earnings per mile, 25.213 cents; operating expenses per car mile, 13.585 cents; net earnings per car mile, 11.628 cents.



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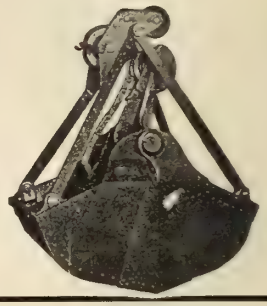

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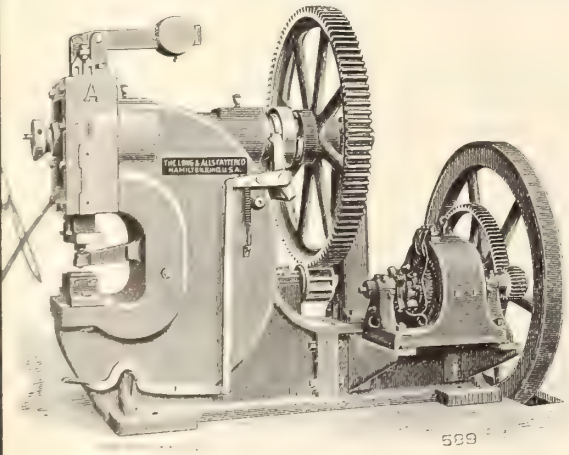

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Quebec Ry., Light, Heat and Power Co.—Steps are being taken to have the company's stock listed on the London Stock Exchange, and on the Geneva Bourse.

St. Thomas Street Ry.—Car receipts for Sept., $369.91, against $352.63 for Sept., 1909; pay roll, $1,457.10, against $1,263.45 in Sept., 1909. The committee in charge of operations has overdrawn $829.61, and the city council voted $1,000 to enable it to meet current expenditure.

Toronto Ry.—Gross earnings for Oct., $379,720.88; expenses, $188,567.67; net earnings, $191,153.21, against $332,976.40 gross earnings; $168,657.64 expenses; $164,318.76 net earnings for Oct., 1909. Aggregate gross earnings for 10 months ended Oct. 31, $3,575,658.89; expenses, $1,841,334.61; net earnings, $1,734,-324.28, against $3,190,267.70 aggregate gross earnings; $1,618,379.06 expenses; $1,571,888.64 net earnings for same period 1909.

Winnipeg Electric Ry.—Gross earnings for Sept., $267,127; expenses $131,-969; net earnings $135,158, against $218,088 gross earnings; $109,005 expenses; $109,083 net earnings for Sept. 1909. Aggregate gross earnings for nine months ended Sept. 30, $2,298,384; net earnings $1,144,626, against $1,840,-897 gross and $921,627 net for same period 1909.

Electric Railway Notes.

The British Columbia Electric Ry. has received four cars from the Preston Car and Coach Co., Preston, Ont.

The Quebec Public Utilities Commission has been provided with accommodation in the Court house at Quebec.

The Brantford St. Ry. (Grand Valley Ry.) put in operation a new time table for its main line service in Brantford, Ont., Nov. 4.

The British Columbia Electric Ry. has ordered one heavy double broom electric sweeper from the Ottawa Car Co., Ottawa.

The St. Thomas city council has granted an increase of pay to the older motor men and conductors from 18 to 19 cents an hour.

A press report states that J. P. Fitzpatrick, President, has sold his interest in the Nipissing Central Ry., and will shortly sever his relations with the line.

The Quebec Ry. Light and Power Co. has received six 18 ft. pay-as-you-enter cars, 30 ft. long over all, from the Ottawa Car Co., Ottawa.

The Toronto city council decided Oct. 24, by 12 votes to nine, against proceeding any further with the proposition to acquire the Toronto Ry.

The Hamilton St. Ry. has received four 31 ft. car bodies, 44 ft. long over all, mounted on 27 G1 trucks, from the Ottawa Car Co., Ottawa.

The Nelson St. Ry. has received two 30½ ft. semi-convertible car bodies, 41½ ft. long over all, mounted on 27 G1 trucks, from the Ottawa Car Co., Ottawa.

The Calgary St. Ry. has received one 33½ ft. semi-convertible pay-as-you-enter car body, 46½ ft. long over all, mounted on 27 G1 truck, from the Ottawa Car Co., Ottawa.

The Sherbrooke St. Ry. has ordered one heavy double broom electric sweeper, and two 18 ft. single truck pay-as-you-enter car bodies, 30 ft. over all, from the Ottawa Car Co., Ottawa.

Proceedings are to be taken against the London and Lake Erie Ry. and Transportation Co. under the Lord's Day Act, for operating a car service over its line between London and Port Stanley, Ont.

The Board of Railway Commissioners has approved of standard passenger tariff at two cents a mile, and standard maximum freight rates to be applied where no separate tariff is given, for the Hamilton Radial Electric Ry.

The Hamilton Radial Ry. has ordered three suburban car bodies, 55 ft. long over all, mounted on Baldwin trucks, with steel wheels and equipped with Westinghouse 101B motors, from the Preston Car and Coach Co., Preston, Ont.

The Queen Victoria Niagara Falls Park Commission gave consideration, Nov. 25, to the fares charged on the electric lines of the International Ry. and the Niagara Falls Park and River Ry. Tourists are charged a higher rate than residents.

W. G. Ross was presented with a diamond stick pin by the officers of the Montreal Street Ry., on retiring from the position of Managing Director, Nov. 10. Accompanied by Mrs. Ross, he left Montreal, Nov. 11, to spend the winter in Great Britain.

The Dominion Power and Transmission Co. has granted increases of pay to the motormen and conductors employed on all its electric railway lines in and radiating from Hamilton, Ont. The new schedule goes into effect Dec. 1, and means an extra outlay of about $13,000 a year.

A new schedule of pay has been approved for the employes of the Port Arthur and Fort William Street Ry., as follows:—First six months service, 21c. an hour; second six months service, 23c. an hour; second year, 25c. an hour; third year, 27c. an hour; fourth year, 29c. an hour; time and a quarter to be allowed as overtime on Sundays.

L. L. Pelletier, mayor of Fort William, Ont., has been nominated by the employes of the Winnipeg Electric Ry., and Capt. Wm. Robinson, Winnipeg, has been nominated by the company as members of the arbitration board to investigate the differences between the employes and the company. W. J. Christie has been appointed third arbitrator.

The Toronto Ry. Co. has decided to adopt the pay-as-you-enter car system. Application will be made to the Ontario Railway and Municipal Board for an order limiting the number of passengers who may stand on rear platforms. The General Manager stated recently that smoking on these platforms will be prohibited in the near future.

The Ontario Division Court has given judgment for $1,000 in favor of J. McR. Selkirk and W. Simpson against the Windsor, Essex and Lake Shore Rapid Ry. The action was brought under the agreement under which they were to support the company in its application for a franchise and to abandon their efforts on behalf of the Essex and Kent Ry., a rival project.

A Montreal dispatch says:—"It is stated here that the financial plans of the syndicate which controls the Montreal St. Ry. stock are gradually maturing, and that in the course of the next few months a large block of stock will be retired and debentures sold against it in London. At present nearly $9,000,-000 is tied up in M.S.R. stock. It is believed that interests identified with Vickers Sons & Maxim, who took a large interest in the syndicate which purchased the control of the M.S.R., will be prominently identified with the debenture issue across the water."

C. B. Vorce, until recently with Sanderson and Porter, Consulting Engineers, New York, has been appointed Chief Engineer British Columbia Electric Ry., with full charge of construction work, excepting hydro-electric work, and including railway location, civil engineering, surveying, laying out of property and drafting room.

The Montreal St. Ry. has communicated with the Montreal board of control in connection with the removal of snow, offering, if the city will supply 500 teams and deliver the snow at specified landing places, to transport it in cars to outside dumps, for 40c. a cubic yard. The board of control estimate the amount to be moved at 1,000,000 cubic yards, thus costing $400,000 for removal, half of which is paid by the city and half by the Montreal St. Ry.

The Hamilton city council fire and police committee on Nov. 7 discussed the question of the free use of the Hamilton St. Ry. cars by firemen, and the company's refusal to grant the privilege. It was stated that the company would be willing to carry the firemen to and from their homes three times a day for about $4,000 a year. The company also stated that on the termination of its present contract with the Government, for carrying postmen on its cars for $4,000 a year, it had decided not to renew, but to charge the Government on a mileage basis. The committee took no action in the matter.

The Quebec Public Utilities Commission, which has been investigating street car accidents in Montreal, has given its decision, the principal feature of which is as follows:—"That no further cars of the single truck pattern be placed in use upon any of the routes without the special permission of the commission; that the number of such cars be reduced each year by 50. Upon application and for reasons shown and satisfactory to the commission, the use of such cars on certain routes will be permitted, and sufficient cars may be retained for the purpose. That all cars 30 ft. or more in length and weighing 25,000 lbs. or over be equipped with air brakes in addition to hand brakes; that cars on routes with severe grades be equipped in addition with emergency brakes. The speed limit of eight miles per hour must be adhered to."

Duncan A. L. McDonald, who has been appointed General Manager Montreal St. Ry., and whose portrait appears on another page in this issue, was born at St. Thomas de Montmagny, Que., June 17, 1859, and removed to Montreal in 1875. He entered Montreal St. Ry. service in 1881, as a driver, in order to acquire a thorough knowledge of street railway work from its very commencement. He was soon changed to conductor, and, after about twelve months service in that capacity, was appointed roadmaster. In 1886 he severed his connection with the company, and engaged in other business. Anticipating the progress that the trolley system would make, he went to St. Paul and Minneapolis, Minn., in 1889, and secured a practical knowledge of the operation of electric tramways. He returned to Montreal in 1892, and re-entered Montreal St. Ry. service as inspector, and in 1894 was appointed Superintendent of Transportation, which position he held until 1898, when he resigned to become General Manager Parisian Tramway Co., with headquarters in Paris, France, in which position he organized the Parisian system to a high degree of efficiency. In 1903 he returned to Montreal, having been offered the position of Manager Montreal St. Ry., which position he held up to his present appointment. He is a director of the Montreal Park and Island Ry., President of the Pay-As-You-Enter Car Co., director of the Automobile Club of Canada, a member of the Civil Engineers' Society of France, and is interested in several other corporations.

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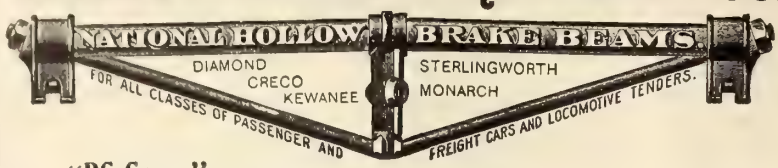

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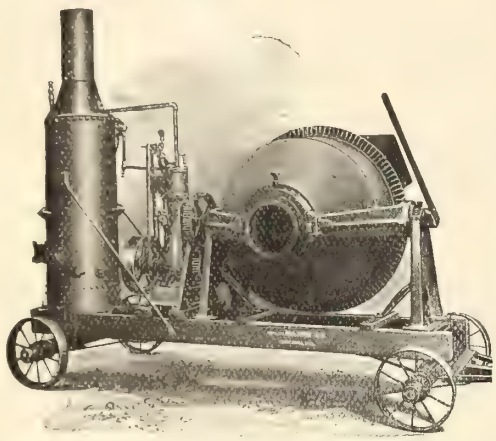

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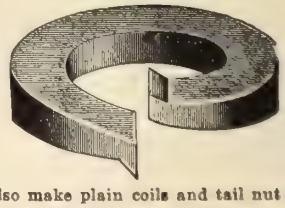

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PRESIDENT, A. A. Allan, Montreal; MANAGER, AND SECRETARY, T. Robb, 526 Board of Trade, Montreal.

Ship Masters' Association of Canada.

GRAND MASTER, Capt. J. H. McMaugh, Toronto, Ont.; GRAND SECRETARY-TREASURER, Capt. H. O. Jackson, 376 Huron St., Toronto.

The Water Carriage of Goods Act.

A memorandum prepared by Peers Davidson, K.C., of the Quebec Bar, upon the Water Carriage of Goods Act, passed last session of the Dominion Parliament has been published by the Canada Law Book Co., Toronto. The act is dealt with under the following heads: Introductory; application and scope of the new act; contracting out of negligence prohibited; exemptions of liability in favor of shipowner; obligation to issue bill of lading; delivery in case of wood goods; notice of arrival of ship; offences; dangerous goods; onus of proof; priority of lien; effect of act in respect to general average construction. The concluding section of the memorandum is a summary covering the several heads as follows:

1. Application and scope of act: The act applies to all articles capable of carriage except live stock, and to all ships carrying goods from a Canadian port. The Merchant Shipping Act must be applied to British ships not registered in Canada in respect of liability for loss or damage to goods, when it conflicts with the new act. The conflict is slight.

It is probable that the act would be held to be intra vires of the Canadian Parliament, and that it could be recognized by courts without Canada, as forming part of the contract of carriage. The foreign law would possibly be applied only in so far as it was consistent with the terms of the act.

2. Contracting out of negligence.—Contracting out of negligence is no longer lawful in Canada, in respect to the water-carriage of goods, and to do so involves a penalty.

3. Exemptions of liability in favor of the shipowner.—The act materially improves the position of the shipowner in giving statutory approval of exemptions of liability, which it has heretofore been necessary to ensure by elaborate bill of lading clauses. The more important among these statutory exemptions are as to "faults or errors in navigation or in the management of the ship, or from latent defect," and generally as to all "loss arising without their (shipowners) actual fault or privity or without the fault or neglect of their agents, servants or employees."

Probably, but not with certainty, the shipowner will not be allowed to rely upon the exemptions contained in section 7, notwithstanding its absolute terms, where his own negligence or the negligence of his servants has brought the excepted cause of loss (e.g., fire) into operation, unless the negligence of the servants consist of faults or errors in navigation or relate to the management of the ship.

4. Onus of proof.—The onus of proof would, by law, be upon the ship to prove that the loss fell within one of the exemptions in its favor; but a clause whereby the onus was placed on the cargo owner would, apparently, be valid. This, however, remains to be settled.

5. Priority of lien.—It has yet to be settled whether the cargo owner would have a prior lien over the shipowner on a fund insufficient for both, when the loss has resulted from the negligence of the shipowner's servants, for which he is not responsible under the act.

6. General average.—Several questions arise as to the respective rights and obligations of shipowner and cargo owner of a more or less complicated character, which also await decision.

7. Conclusion.—On the whole, it would appear that the new legislation will be beneficial to Canadian trade; and, while opposed and severely criticized by shipowners, it may prove ultimately of benefit to them.

Trent Valley Canal Constuction.

The section of the Trent Valley Canal, known as the Ontario Rice Lake Division under construction, is dealt with in the report of the Superintending Engineer for the year ended Mar. 31. The division is 56½ miles long, and extends from Trenton on Lake Ontario to Rice Lake. This mileage has been divided into 7 sections, and of these five are under construction. The route chosen follows the Trent River and comprises 9½ miles of canal, 13 miles of subaqueous channel, and 34 miles of deep river. The total rise between low water level on Lake Ontario and normal navigation level at Rice Lake is 369 ft., which is to be overcome by 18 locks. The river level will be controlled by 14 concrete dams and the completed waterway will be crossed by 16 bridges of which six will be for the accommodation of railways. With one exception, the bridges will be swing or bascule spans. The locks will be of concrete, 175 ft. in length, 33 ft. in width, and having 8 ft. 4 in. of water on the sills. They will be capable of accommodating barges 150 ft. long, 30 ft. wide, drawing 8 ft. of water and having a capacity of 1000 tons. The work involved requires the removal of about 1,500,000 cubic yards of earth, 1,250,000 cubic yards of loose and solid rock, and the building of about 400,000 cubic yards of concrete. The estimated cost of the entire section is $6,750,000 and there has been expended to Mar. 31, $1,285,092.40. The work done to that date included the building of the following locks: No. 2, at 2.4 miles from Trenton; lift, 20 ft., no. 3, at Glen Miller, 3.9 miles from Trenton, lift, 27 ft.; no. 6, at Frankford, 7.3 miles from Trenton, lift, 16 ft.; no. 7, at Glen Ross, 13.9 miles from Trenton, lift, 9 ft.; no. 14, at Middle Falls, 33.6 miles from Trenton, lift, 25 ft. Dams, 2, 3, 6, 7, 11 and 12 are also built. The contractors are: Sec. 1, Trenton to Glen Miller, 4½ miles, Larkin and Sangster; sec. 2, Glen Miller to Frankfort, 4½ miles, Dennon and Rogers; sec. 3, Frankfort to three miles beyond Glen Ross, 7½ miles, Canadian General Development Co.; sec. 4, Adams Landing to Campbellford, 14 miles, contract let since the report was issued; sec. 5, Campbellford to Crow Bay, about three miles, Brown and Aylmer; sec. 6, Crow Bay to Heely Falls bridge, about three miles, Haney, Quinlan and Robertson; sec. 7, Heely Falls to Rice Lake, about 19¾ miles, Randolph Macdonald Co., Ltd. When this work is finished there will be a complete navigable channel from Lake Ontario to Orillia on Lake Simcoe, about 180 miles, with a branch from near Sturgeon Point, through Lindsay to Port Perry via Scugog River and Lake, 144 miles. A branch canal from Lake Simcoe, via Holland Landing, to Newmarket, is also under construction.

A hydrographic survey of the chain of lakes which forms part of this system of connected waterways is being made. The field work for the surveys of Rice, Lovesick, Sturgeon, Cameron and Balsam lakes and Otonabee river have been completed, and during the winter of 1910-11 the surveys of Katchewannoe, Clear, Stoney, Deer, Buckhorn, and Pigeon lakes will be proceeded with. Very little office work in connection with the charts has been done.

Survey Steamboat of British Columbia.

Tenders are under consideration by the Dominion Department of Public Works, for the building of a steel tug, to be used as a survey boat on the Pacific Coast. The specifications call for the delivery of the vesel complete with full equipment at New Westminster, B.C., under steam and ready for service, and to guarantee the same for three months after delivery. The vessel is to be built of steel, and is to class 100 A in Lloyds' Register, and to be of the following general dimensions: Length, over all, 91½ ft.; length between perpendiculars, 78½ ft.; moulded beam 20 ft.; moulded depth, 12¾ ft.; draught, aft, about 10½ ft. The hull is divided into six watertight compartments by five bulkheads, extending from floor plates to the deck. The forward compartment contains the chain locker, etc., the next one a fresh water tank on the floor plates, and above this berth accommodation for eight of a crew; the two next compartments contain the furnace, boiler and engines, while that to the rear contains fresh water tank, on the floor plates, a section of the shaft tunnel, and over this berth accommodation for four officers; the stern compartment contains the continuation of the shaft tunnel. The deck house contains forward, a pilot house, with lamproom and lavatory accommodation to the rear, and aft of the engine room space is the messroom, galley and pantry. There will be two pole masts; two boats, each 17 ft. long, provided with proper davits, etc., fogbell and search light on top of pilot house. The propeller is to be supplied by the Department, and the specifications provide for a shaft 7¾ in. in diameter. The driving machinery will consist of an inverted fore and aft compound surface condensing engine, cylinders, 15 and 34 in. diameter, having a stroke of 24 in., to which steam will be supplied by a single ended Scotch marine type boiler, 12 ft. internal diameter at largest course, by 11 ft. long inside, at a working pressure of 150 lbs. a square inch. There are to be three furnaces, each 36 in. mean diameter, and 216 tubes, 3 in. diameter, 72 to each furnace.

Vessels Removed from the Register.—The following vesels were removed from the register during October, for the reasons assigned:—Steam, Osso, Kingston, Ont., 4 tons, destroyed by fire; Pilot, Victoria, B.C., 5 tons, destroyed by fire; Tokolo, Kingston, Ont., 8 tons, destroyed by fire. Sailing, Alika, Chatham, N.B., 12 tons broken up; Havana, Lunenburg, N.S., 100 tons, sold to foreigners.

The Kenora Boat Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $50,000 and office at Kenora, to build, own, operate and dispose of steamboats and other vessels; to carry on a general transportation, boat building and livery business. The provisional directors are R. J. Parrott, N. C. Parrott, G. Brunsel, J. Burns, and J. M. MacFarlane, Kenora.

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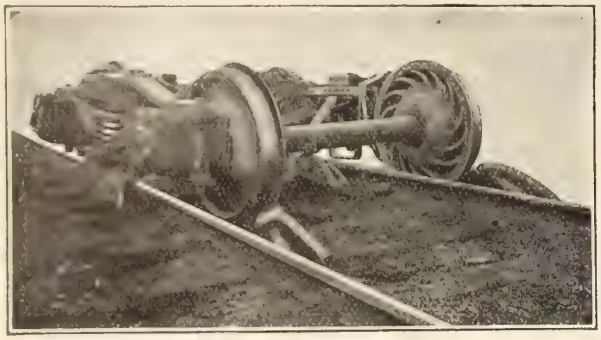

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Notices to Mariners.

The Department of Marine has issued the following:

107. Oct. 28. 285. Quebec, River St. Lawrence, ship channel between Quebec and Montreal, Cap Levrard channel, buoys established, change in position of Grondines upper range lights.

108. Oct. 29. 286. Nova Scotia, south coast, Port Bickerton, hand fog horn at lightstation. 287. Newfoundland, south coast, Cape Freels, fog alarm established. 288. United States of America, Maine, St. Croix River mouth, Clark ledge, beacon established.

109. Nov. 2. 289. Ontario, Lake Ontario, Cobourg harbor, gas beacon established on west pier. 290. Ontario, Georgian Bay, east side, approach to Waubaushene, off Long point, beacons.

110. Nov. 4. 291. Quebec, Gulf of St. Lawrence, Anticosti island, Ellis bay, hydrographic information. 292. Quebec, north shore of Gulf of St. Lawrence, corrections to charts and sailing directions, hydrographic information.

111. Nov. 7. 293. Nova Scotia, south coast, Lunenburg bay, Halifax harbor and approach, gas buoys to be placed for testing purposes. 294. United States of America, Maine, Portland harbor, Diamond island road, House island, light established. 295. England, west coast, Bristol channel, Monkstone beacon light, alteration in character.

112. Nov. 9. 296. British Columbia, Vancouver island, southeast coast, Victoria harbor, buoy established. 297. British Columbia, Strait of Georgia, Sandheads at entrance to Fraser River, old disused lighthouse removed. 298. British Columbia, Strait of Georgia, Cortes island, off Reef point, gas buoy replaced by gas and bell buoy. 299. United States of America, Washington, Bellingham bay, Post point bell buoy to be moved and renumbered.

113. Nov. 10.—300. Ontario, St. Joseph channel, depths in channel at Bamford island. 301. Ontario, Lake Superior, Thunder bay, Port Arthur, intended change in character of light. 302. United States of America, River St. Mary, Vidal shoals, channel range lights moved, provisional lights, gas buoy moved.

114. Nov. 12.—303. Ontario, Lake Huron, chart of Goderich harbor issued. 304. Ontario, Lake Huron, off Great Duck island, Jennie Graham shoal, bell buoy not in position.

115. Nov. 14.—305. Nova Scotia, Bay of Fundy, Lurcher shoal, light replaced on her station. 306. Newfoundland, east coast, Trinity bay, Trinity harbor, Fort point, fog alarm established.

116. Nov. 16. 307. Ontario, Bay of Quinte, shoal spot east of Baker island. 308. Ontario, Lake Erie, Port Burwell, bell buoy not in position. 309. United States of America, Michigan, River St. Mary, Sault Ste. Marie, Branch Hydrographic Office and time ball moved.

117. Nov. 17. 310. Nova Scotia, Cape Breton island, west coast, entrance to Cheticamp harbor, Caveau shoals, bell buoy to be established. 311. United States of America, Massachusetts, Boston harbor, Castle rocks bell buoy to be replaced by gas buoy.

118. Nov. 18. 312. Quebec River St. Lawrence ship channel between Quebec and Montreal Pointe aux Trembles gas buoy established.

Traffic on Canadian Canals.

The total traffic through the several canals of the Dominion for the season of navigation of 1909, was 33,720,748 tons, an increase of 16,217,928 over 1908. There were 272,222 passengers carried, an increase of 8,608 over 1908. Following are the principal statistics:

SAULT STE. MARIE.—Tons carried, 27,861,245; increase over previous year, 15,102,029 tons; no. of passages of vessels, 6331.

WELLAND.—Tons carried, 2,025,951; increase over previous year, 322,498 tons. Carried in Canadian vessels, 1,247,694 tons; in U.S. vessels, 728,346 tons; freight through the canal to U.S. ports, 445,419 tons.

ST. LAWRENCE CANALS.—Tons carried, 1,564,584 eastbound, and 846,045 westbound; total 2,410,629 tons, an increase of 123,652 tons over the previous year.

OTTAWA RIVER CANALS.—Tons carried, 336,939; an increase of 78,412 over 1908.

CHAMBLY.—Tons carried, 752,117, an increase of 248,841 over 1908.

RIDEAU.—Tons carried, 91,774, an increase of 2,134 over 1908.

ST. PETER'S.—Tons carried, 79,850, an increase of 7,835 over 1908.

MURRAY.—Tons carried, 102,291, an increase of 76,390 over 1908.

TRENT.—Tons carried, 59,952.

Atlantic and Pacific Ocean Marine.

The Canadian Northern Steamships' s.s. Royal Edward, in arriving at Quebec, Nov. 2, beat her own previous record by four hours.

The captain of the Thomson Line s.s. Cairnrona was recently fined $20 in each of 14 cases, with costs, 15 other similar cases being withdrawn, for not reporting sickness on board his vessel at Quebec.

The Canada Line's s.s. Prinz Adalbert collided with a barge near Sorel, Nov. 6, and returned to Montreal for examination. The damage, which was confined to the rudder, was repaired without the vessel going into dock.

The s.s. Regulus, owned by Harvey and Co., St. John's, Nfld., which became a total loss, with her crew, while homeward bound from New York, as mentioned in our last issue, was valued at £7,000 and insured in London, Eng.

An Australian dispatch of Nov. 15 states that the Government will not accept the Canadian Government's proposal to renew the Canada-Australia mail service subsidy contract, with calls at Auckland and Sydney only.

Capt. F. D. Lugg, Marine Superintend-

LIST OF STEAM VESSELS REGISTERED IN CANADA DURING OCTOBER, 1910.

Name	No.	Where and When Built.	Engines, etc.	Length	Breadth	Depth	Gross Tons	Reg. Tons	Port of Registry	Owners
Aggie B. Reid (1)	126,865	Toledo, O., 1897	Screw 8 n. h. p.	43.0	12.0	5.5	17	10	Sault Ste. Marie, Ont.	R. C. Reid, Cockburn Island, Ont.
Arthur W.	126,905	Dartmouth, N.S., 1910	" 2 "	60.4	17.0	7.9	36	33	Halifax, N.S.	E. F. Williams, Dartmouth, N.S.
Emma G.	130,384	Coulonge River, Que., 1900	Paddle 2 "	39.0	12.0	3.3	29	16	Ottawa, Ont.	Gilmour & Hugeson, Ottawa, Ont.
Fisherman's Pride	126,775	Richibucto, N.B., 1909	Screw 1 "	29.0	11.0	4.6	11	10	Richibucto, N.B.	A. Logie, Dalhousie, N.B.
H. A. Root	126,195	Saugatuck, Mich., 1883	" 343 "	114.0	24.6	9.2	208	172	Windsor, Ont.	S. H. Braund, and C. W. Cadwell, Windsor, Ont.
Hanaco	126,614	Naas River, B.C., 1909	" 3 "	40.2	11.4	4.5	14	10	Prince Rupert, B.C.	N. Hamadi, Claxton, B.C.
Hattie M.	130,342	Shelburne, N.S., 1904	" 2 "	27.7	10.4	5.6	9	8	Liverpool, N.S.	A. G. Pentz, Beachmeadows, N.S.
Iviza	126,010	Mill Village, N.S., 1910	" 3 "	42.0	9.6	4.6	10	9	"	W. N. Reinhardt, M. O., Mill Village, N.S.
Kaleden	130,297	Okanagan L'nd'g, B.C., 1910	Paddle 4 "	94.0	18.4	4.6	180	113	Vancouver, B.C.	C. P. R., Montreal
Kealey	130,263	River Desert, Que., 1907	" 2 "	36.0	12.0	3.3	23	14	Ottawa, Ont.	Gilmour & Hugeson, Ottawa, Ont.
Kitaro	130,299	Vancouver, B.C., 1910	Screw 3 "	45.0	9.0	3.9	14	10	Vancouver, B.C.	K. Asari, Atkinson Point, B.C.
Monobel	130,295	" " "	" 4 "	40.1	9.6	5.0	14	10	"	Hamilton Powder Co., Montreal
Royal Edward (2)	125,656	Govan, Scotland, 1907	" 14,500 "	525.1	60.2	18.8	11117	5669	Toronto	Canadian Northern Steamships Ltd., Toronto
Royal George (2)	125,643	" " "	" 14,500 "	525.8	60.2	19.0	11146	5685	"	" " "
Seugog	116,634	Port Perry, Ont., 1910	" 2 "	39.0	7.2	3.4	6	4	Lindsay, Ont.	J. Bowerman, Port Perry, Ont.
Wawa	126,908	Mahone Bay, N.S., 1910	" 1 "	32.6	10.0	6.0	9	8	Halifax, N.S.	F. U. Anderson, Halfax, N.S.
Wayne Isbell	126,866	East Saginaw, Mich., 1876	" 18 "	70.0	17.6	6.0	48	29	Sault Ste. Marie, Ont.	N. Trotter, Little Current, Ont.

(1) Formerly Victor. (2) Turbines.

LIST OF SAILING VESSELS AND BARGES REGISTERED IN CANADA DURING OCTOBER, 1910.

Name	No.	Where and When Built	Rig	Length	Breadth	Depth	Reg. Tons	Port of Registry	Owners
Delima	126,907	Magdalen Islands, Que., 1909	Schr.	42.9	15.2	5.7	17	Halifax, N.S.	B. Lester, Halifax, N.S.
Dorothy M.Smart	126,874	Shelburne, N.S., 1910	"	90.0	22.9	9.9	94	Digby, N.S.	[illegible]
Fort No. 1	130,298	N. Westminster, B.C., 1910	Scow	61.0	26.1	7.0	99	Vancouver, B.C.	J. Hind, Vancouver, B.C.
Frank D. Ewen	130,321	West Bay City, Mich., 1888	Barge	202.4	34.8	15.5	878	Kingston, Ont.	[illegible]
Gladys G. Hart	126,817	Tancook, N.S., 1910	Schr.	53.2	13.8	7.0	27	Lunenburg, N.S.	J. L. Hart, Sambro, N.S.
*Gladys H. (3)	126,469	West Bay City, Mich., 1892	"	212.0	35.0	16.6	919	Kingston, Ont.	[illegible]
J.E.A.F. No. 1	126,729	Peterboro, Ont., 1909	Scow	92.0	25.6	4.6	74	Peterboro, Ont.	J. E. A. Fitzgerald, Peterboro, Ont.
J.E.A.F. No. 2	126,730	Bobcaygeon, Ont., 1909	"	92.0	26.0	5.0	91	"	" " "
J.E.A.F. No. 3	130,371	" " 1910	"	94.0	24.5	5.3	89	"	" " "
Jane Anderson	126,906	Petpiswick, N.S., 1910	Schr.	67.0	19.8	6.7	53	Halifax, N.S.	G. A. W. Rowlings, Musquodoboit Harbor, N.S.
Murray R.Munroe	126,296	Whitehaven, N.S., 1910	"	45.0	14.8	8.9	21	Canso, N.S.	T. Munroe, Whitehaven, N.S.
Myrtle L.	126,873	Hillsburn, N.S., 1910	"	63.2	18.0	8.8	47	Digby, N.S.	A. Longmire, Hillsburn, N.S.
V.T.B. 9	130,296	Vancouver, B.C., 1910	Scow	83.5	30.1	8.0	184	Vancouver, B.C.	Vancouver Tug & Barge Co., Vancouver, B.C.
W.S.M. Bentley	126,597	Port Greville, N.S., 1910	Schr.	141.4	34.1	11.9	364	Parrsboro, N.S.	G. E. Bentley, Port Greville, N.S.
Zapotec	126,470	Marine City, Mich., 1890	Barge	207.5	34.7	14.8	779	Kingston, Ont.	Quebec Transportation & Forwarding Co., Quebec.

(3) Formerly Aberdeen.

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ent Elder-Dempster Co., London, Eng., and for seven years, subsequent to the taking over of the Beaver Line, by the C.P.R., also Marine Superintendent for the C.P.R. there, has retired from active service.

Reports from England state that the results of the service between Montreal and Manchester for the past two years have been so satisfactory that the service to Canada will be continued throughout the winter, Manchester Liners, Ltd., running a vessel each week.

The Department of Public Works is reported to have circularized the shipping companies asking them to appoint a representative to meet the Superintendent of Immigration to discuss the requirements and possible site of additional immigration sheds at Quebec.

The Montreal pilots have entered a complaint against the use of the ship channel by tugs and their tows. They claim that the deep water way was made for the use of ocean going vessels, and there is no necessity for tugs and tows using it, as there is ample water on either side.

An Ottawa press dispatch, Nov. 3, stated that the Union Steamship Co. was the only firm to tender for the service between Vancouver, New Zealand and Australia. The company at present holds the contract for the service, and it is probable that it will be renewed on its expiry in Aug., 1911.

The schooner F. W. Pickels, owned in Quebec, Que., which was abandoned in a waterlogged condition, in the Gulf of Mexico in October, has been set on fire and destroyed. She was built at Bridgetown, N.S., in 1902, and was of the following dimensions:—Length, 146 ft.; breadth, 33 ft.; depth, 12.5 ft.; 386 tons register.

A Montreal dispatch of Nov. 21 says: G. M. Bosworth, Vice President C.P.R., stated to-day that the company had no information to give out re the report that two new lines would be added to its fleet, to run from St. John, N.B., to South American and West Indian ports. It can be definitely stated, however, that negotiations are proceeding with the C.P.R. whereby the introduction of vessels to run on these routes is contemplated.

The President of the Montreal Chamber of Commerce, at a recent meeting, in speaking of the recent inspection trip of the St. Lawrence channel, which he undertook with the Minister of Marine, said that the channel had been considerably straightened and widened. At St. Thomas de Montmagny, where there were considerable difficulties encountered, there is now a channel 500 ft. wide and 30 ft. deep, and from Quebec to the sea, the depth is nowhere less than 30 ft.

J. B. Ismay, President International Mercantile Marine Co., while in Montreal, Nov. 8, is reported to have said that the experiment of placing the White Star-Dominion Line steamships Laurentic and Megantic on the St. Lawrence routes had been so successful that a proposal was being considered to replace the steamships Canada and Dominion with vessels of equal, or larger capacity, than the two first mentioned. Much, however, would depend on the question of mail contracts, tenders for which had been submitted to the Government.

R. W. Brock, Director of the Geological Survey, in speaking before the Canadian Club at Hamilton, Ont., recently, referred to his trip through Hudson Bay with the Governor-General. He is reported to have said that many Hudson Bay ports were farther south than some important European ports. The railway would open up an immense territory. With light-houses, ice-breakers, wireless telegraphy, etc., the Hudson Bay route would be navigable seven months in the year. He predicted that Hudson Bay would become as important in future to Canada as it had been historically.

A Montreal press dispatch of Nov. 4 stated that it had been officially announced that the C.P.R. had decided to build four new steamships for a fast direct service between Nova Scotia ports and Boston and New York, this being one of the important developments that would follow on the absorption of the Dominion Atlantic Ry. next spring. The vessels, it was stated, would be of the ocean liner type, about 450 ft. long, with a carrying capacity of 5,000 tons and a speed of 20 knots an hour. We were officially advised, Nov. 8, that the press report was incorrect.

The St. Lawrence season of navigation was officially closed for passenger steamers, by the sailing of the C.P.R. s.s. Lake Champlain, Nov. 24. The last vessel of the Allan Line to leave Montreal, was the Corsican, Nov. 18. Halifax and St. John will be the winter ports of these lines. The last Canadian Northern Steamships' sailing from Montreal was the Royal George Nov. 19, and the service will be continued throughout the winter to Bristol, from Halifax. The White Star-Dominion Line will call at Portland, Me., through the winter, and at Halifax, inward only; the s.s. Laurentic will be taken off the route after Dec. 3, and the service continued with the Megantic, Canada and Dominion.

Canadian Northern Steamships Ltd. has transferred its two turbine steamships Royal Edward and Royal George from the British to the Canadian register, the port of registry being Toronto. These vessels were built at Govan, Scotland, in 1907, and overhauled, partially reconstructed and renamed last year, being formerly known as the Cairo and Heliopolis, and being run in the Mediterranean service. The Royal Edward is of the following dimensions:—Length, 526.1 ft.; breadth, 60.2 ft.; depth, 18.8 ft.; tonnage, 11,117 gross, 5,669 register, and are equipped with steam turbine engines of 14,500 n.h.p. driving screws. The dimensions of the Royal George are as follows:—Length, 525.8 ft..; breadth, 60.2 ft.; depth, 19 ft.; tonnage, 11,146 gross, 5,685 register, with steam turbine engines of 14,500 n.h.p. driving screws. These are the largest vessels on the Canadian register.

Maritime Provinces and Newfoundland.

J. G. Peters, lightkeeper at Low Point, N.S., has been awarded the Imperial service medal for long and meritorious service.

Boring operations were undertaken recently, at the mouth of St. Andrew's harbor, to determine the possibilities of dredging there.

Capt. W. Dixon, a well known New Brunswick pilot, was drowned while launching his boat at Hopewell Cape recently.

The Grand Manan Steamship Co.'s s.s. Aurora is being re-timbered, etc., at Liverpool, N.S. The repairs and overhauling will, it is expected, be completed by the end of the year.

Work has been commenced on the site of the proposed new piers to be constructed in Courtenay Bay, St. John, N.B. These will be built on the western side, and will accommodate four vessels.

The Newfoundland members of the crew of the vessel Roosevelt utilized in the Polar expedition of 1908-9, have been awarded bonuses varying between $125 and $250 each, for their services.

A press dispatch from St. John, N.B., Nov. 9, states that if private companies do not undertake the construction of dry docks at St. John and Levis, it is probable that the work will be undertaken by the Government.

C. T. White and Sons, have under construction, at Shelburne, N.S., a steamboat to take the place of the steamboat Mikado. She will be about 90 ft. long, and will be equipped with the most modern machinery and electric lighting arrangements.

Bowring Bros., St. John's, Nfld., recently received a cablegram from Great Britain, to the effect that owing to a serious fire at the shipbuilding yards, the completion of their steamship, which it was hoped to have ready for next spring, would be delayed.

The Marine Department has erected a Marconi wireless telegraph station, and also a life-saving station on the Magdalen Islands. The latter is placed at Entry Island, and both were expected to be fully equipped before the St. Lawrence season closed.

The Department of Public Works has awarded contracts for construction, as follows: wharf at Barrington's Cove, N.S., $29,900, to J. W. Dobson, Sydney; breakwater at New Edinburgh, N.S., $11,900, to J. E. and H. Bigelow, Canning, N.S., and breakwater at Great Salmon River, N.B., $10,740, to C. A. Huntley, Parrsboro, N.S.

C.P.R. officials, in conjunction with others representing the Government, were reported to have examined the shipping facilities at Digby, N.S., recently, with a view to the extension of buildings on the wharf there, to accommodate C.P.R. freight traffic through Digby, between Ontario, Montreal, St. John and Halifax.

The Department of Marine has issued the Tidal and Current Survey reports, covering the eastern coast, including the River and Gulf of St. Lawrence, the Bay of Fundy, and Northumberland and Cabot Straits, for 1911. The present is the fifteenth annual issue, and is compiled by W. Bell Dawson, D.Sc., M.I.C.E., F.R.S.C., Superintendent of Tidal Surveys.

The survey ship Ellinor, which will winter at Halifax, N.S., has accomplished considerable work in the neighborhood of Newfoundland, during the past season. A complete survey was made of St. John's Bay, and about 20 banks, dangerous to navigation were located and charted. Other similar work was undertaken at Hare Bay, Gracis Islands, White Bay and near the Great and Little Meccatina Islands.

Press reports from Halifax state that a company is in course of formation to establish a ferry between Halifax and Dartmouth, in opposition to the service operated by the Dartmouth Ferry Commission. There are two boats run on this service, both being in by no means first class condition. The Chebucto is, at present, undergoing repair, and, it is stated, that the Dartmouth's machinery will not stand steady running.

Newfoundland press reports state that the largest steamer yet built on the Isherwood system of longitudinal framing has recently been launched at Wallsend-on-Tyne, Eng., for the iron ore trade between Wabana, Nfld., and Sydney, N.S. Her dimensions are given as:—Length overall, 425 ft.; breadth, extreme, 58 ft.; total dead weight capacity, 10,650 tons on a moderate draught. She has been built to the British Corporation Survey and Norske Veritas, and is equipped with 10 powerful steam winches and 10 derricks. The engines are of the triple expansion type, with cylinders 28½, 47 and 78 ins. diar. by 54 ins. stroke, supplied with steam by three boilers, 15 ft. diar. by 12 ft. long, at 180 lbs. pressure.

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The Canadian Pacific Railway Co.

A dividend of 2% on the Common Stock of the Company for the quarter ended 30th September, 1910, being at the rate of 7% per annum from revenue and 1% per annum from interest on the proceeds of land sales, is hereby declared, payable on 31st December next to Shareholders of record in Montreal, New York and London, at 3 p.m. on Wednesday, 30th November instant.

Warrants will be mailed on 30th December next.

By order of the Board,

W. R. BAKER,
Secretary.

Montreal, November 14th, 1910.

BAY OF QUINTE RAILWAY COMPANY.

NOTICE is hereby given that application will be made to the Parliament of Canada at its next session, for an Act authorizing the Bay of Quinte Railway Company to enter into agreements with the Canadian Northern Ontario Railway Company and the Ontario and Ottawa Railway Company for any of the purposes specified in section 361 of The Railway Act.

GERARD RUEL,
Solicitor for the applicants.

Dated at Toronto, this 16th day of November, 1910.

BROCKVILLE, WESTPORT & NORTH-WESTERN RAILWAY COMPANY.

NOTICE is hereby given that application will be made to the Parliament of Canada at its next session, for an Act authorizing the Brockville, Westport & Northwestern Railway Company to enter into agreements with the Canadian Northern Ontario Railway Company and the Ontario & Ottawa Railway Company for any of the purposes specified in section 361 of The Railway Act.

GERARD RUEL,
Solicitor for the applicants.

Dated at Toronto, this 16th day of November, 1910.

Province of Quebec Marine.

The Montreal Harbor Commission held its annual inspection of the works in the harbor, Nov. 15.

A deputation from Quebec visited Ottawa, Nov. 8, to urge on the Premier that the appropriations to be voted at the ensuing session should include an amount for the construction of locks on the River St. Charles.

The Montreal harbor revenue for Oct. was $51,984.54 and for the period from the opening of navigation to Oct. 31, $336,149.65, against $50,766.59, and $288,982.09 for the same periods 1909. The number of steamship arrivals to Oct. 31, was 674, with a total tonnage of 2,010,924, against 601 with a total tonnage of 1,705,570, for 1909.

The Richelieu and Ontario Navigation Co., has declared a dividend of 1½% for the quarter recently ended, payable Dec. 1 to shareholders of record on Nov. 18. This is the first time since 1903 that the company has paid a dividend at the rate of 6%. The earnings for the year are said to have been equivalent to about 12% on the common stock.

The Department of Public Works has awarded contracts for the following constructions: Wharf at Bic, $33,810, to T. Beaumont, St. Thomas de Montmagny; wharf at Aylmer, $8,974, to T. and J. Moran, Arnprior, Ont.; piers at Riviere des Prairies, $8,520, to Morrow and Beatty, Peterboro, Ont., and wharf at St. Andrews, $3,245 to the Bridge and Wharf Builder Co., Montreal.

Eastern Canada Fisheries, Ltd., has been incorporated under the Dominion Companies Act. with a capital of $1,-500,000, and office at Montreal, to take over the Magadlen Islands Development Co., Ltd., to carry on a general fishing business, etc., and to build, own and operate steam and other vessels, wharves, docks, warehouses, railway sidings, and other transportation facilities.

The Levis Ferry Ltd., is reported to have decided to order two additional ferry steamers for the summer service between Levis and Quebec. These, it is stated, will be built during the winter, and will be strictly in accordance with the terms of the contract, relating to the ferry service between these points. The vessels which were running last summer, were claimed to have been not in accordance with the contract, and as a result a number of suits have been entered against the company.

The British Board of Trade is reported to have entered an objection to the naming of the steamboat for which the Dominion Government is asking tenders, and which is to be utilized for the St. Lawrence buoy and lighthouse service. The name which it is proposed to use, is Dollard, and the objection is on the ground that there is already a vessel of that name on the register. It is stated that an effort will be made to have the vessel, which already bears that name, change it, so that it may be adopted by the Canadian vessel, and so perpetuate the name of one of Canada's heroes.

The Montreal board of control, in discussing the question of building a landing pier at St. Helen's Island, adopted the plans which had been approved by the old parks and ferries committee, and recommended to the council that the Harbor Commissioners should build the landing and fix a tariff of charges for the ferry company landing passengers there. It is stated that the Harbor Commissioners are opposed to this course, and consider their offer to erect the pier, the city paying 6% per annum on the cost of about $25,000, reasonable. The city council is considering the question of asking the Government to make a grant to the Harbor Commissioners to enable them to erect the pier without cost to the city.

The Montreal Harbor Commissioners recently announced that the negotiations for the construction of a dry dock at Montreal have been suspended, pending the decision of the Government as to the nature of the subsidy to be granted. It is stated that the Government favors the granting of a second class subsidy, and that the company with which negotiations have been proceeding has declined to go on unless a first class subsidy is assured. In this connection the Minister of Public Works is reported to have said recently that the Government is quite prepared to give Montreal the kind of dock which the Harbor Commissioners decide, namely, one for commercial purposes, and carrying with it a subsidy on an outlay of $2,500,000. While the Government expected the promoters to submit plans for a dock of the second class, they had put in an application for a subsidy on $4,000,000, which is of the first class. Regarding the Quebec dock, the application, as filed, exceeded in financial demands, the statutory limitations, and the company had been asked to modify them.

Ontario and the Great Lakes.

The last steamboat of the season for Georgian Bay local ports sailed from Owen Sound Nov. 26.

The International Waterways Commission, at a recent sitting at Toronto, discussed the question of the demarcation of the International boundary through the St. Lawrence.

The Reid Wrecking Co., Sarnia, has been awarded the contract for the raising of the steamboat W. C. Moreland, which was recently wrecked at Eagle River, Lake Superior.

Capt. Lepine, of the Montreal Transportation Co.'s tug Emerson, suffered a compound fracture of his right leg at Kingston, Nov. 13, while assisting in raising the anchor.

The steamboat Roberval, which struck a rock and sank in the Ottawa River, below the Grenville canal, in October, has been raised and taken to Montreal for examination and repairs.

W. C. Barr, who retired from the position of Superintendent Algoma Central Steamship Line at Sault Ste. Marie, about a year ago, on account of ill health, died at Detroit, Mich., Nov. 2, aged 55.

J. B. Foote, formerly Superintendent Canadian Lake and Ocean Navigation Co., has been appointed surveyor to the British Corporation for the Survey and Registry of Shipping at Toronto.

The Lake Champlain and Ship Canal Co. is applying to the Dominion Parliament to revive its corporate powers and to extend the time for the construction of the works authorized by chap. 107, Vic. 61.

The Board of Railway Commissioners, Nov. 4, dismissed the application of the Mutual Transit Co. for permission to unload and tranship freight from its vessels to C.P.R. trains on the Lord's Day.

The Montreal River Transportation Co. has assigned to N. L. Martin and Co., Toronto, with liabilities estimated at $50,000. The cause of the failure is given as keen competition and the fact that trade at Gowganda and Elk Lake was lighter than expected.

At a recent meeting of the Montreal board of trade and chamber of commerce, the Mayor of Ottawa supported the immediate construction of the proposed Georgian Bay canal, and opposed the proposal for deepening the Welland canal.

A number of men have been charged, at Sault Ste. Marie, with the theft of cargo from the steamboat Wissahickon, which was wrecked on the Outer Duck island, south of Manitoulin Island, last winter. It is claimed that cargo valued at $20,000 has disappeared.

E. Bassett, contractor for the handling of Northern Navigation Co.'s freight at Point Edward, was found not guilty, there recently on a charge of violating the immigration laws by bringing alien laborers into Canada without their having passed inspection.

The dredge Russell which has been at work in the Welland River and Chippewa Creek for some time, has been moved to Toronto for the winter, and it is stated that dredging will be continued early in the spring, with a view to making the creek navigable and giving Chippewa Wharf Builder Co., Montreal.

Revillion Bros'. steamboat Ombabika was reported to be fast aground at Jackfish Island in Lake Nipigon, at the end of Oct. She was built at Lake Nipigon

SAULT STE. MARIE CANALS TRAFFIC.

The following commerce passed through the Sault Ste. Marie Canals in October.

ARTICLES.			CANADIAN CANAL	U. S. CANAL	TOTAL
Copper	Eastbound	Net tons	1,352	18,368	19,720
Grain	"	Bushels	2,105,176	2,512,432	4,617,608
Building stone	"	Net tons	300	820	1,120
Flour	"	Barrels	389,788	958,241	1,348,029
Iron ore	"	Net tons	3,133,726	1,590,729	4,724,455
Pig iron	"	"		8,317	8,317
Lumber	"	M. ft. B.M.	3,690	68,581	72,272
Silver ore	"	Net tons	....	....	....
Wheat	"	Bushels	16,743,389	4,780,946	21,524,335
General merchandise	"	Net tons	10,833	11,829	22,662
Passengers	"	Number	1,022	450	1,472
Coal, hard	Westbound	Net tons	66,528	135,528	202,056
Coal, soft	"	"	392,516	1,260,229	1,652,745
Flour	"	Barrels	....	....	....
Grain	"	Bushels	....	....	....
Manufactured iron	"	Net tons	18,784	20,351	39,135
Iron ore	"	"	3,248	....	3,248
Salt	"	Barrels	3,444	52,837	56,281
General merchandise	"	Net tons	88,345	94,102	182,447
Passengers	"	Number	1,142	91	1,233
Vessel passages		Number	915	1,795	2,710
Registered tonnage		Net	2,676,137	3,437,085	6,113,222
Freight—Eastbound		Net tons	3,738,137	2,043,009	5,781,146
" —Westbound		"	569,512	1,518,135	2,087,647
Total freight		"	4,307,649	3,561,144	7,868,793

in 1906, and is a screw driven vessel, with engine of 11 n.h.p. Her dimensions are:—Length, 70 ft.; breadth, 15 ft..; depth, 6 ft.; tonnage, 76 gross, 51 register.

The Minister of Public Works, in reply to a deputation from London regarding proposed improvements at Port Stanley, said recently that the suggested works would be well considered by the Department. He pointed out that it would be necessary to spend about $640,000 to carry out the suggestions, the breakwater costing about $400,000, the balance being for general improvements.

The new lock which the U.S. Government is constructing in the Sault Ste. Marie canals, will be 1,350 ft. long by 80 ft. wide, with a depth of 24½ ft. at extreme low water. It will connect with an independent canal about 8,000 ft. long by 300 ft. wide. The drawing showing the various details of construction are about completed, and bids for the work will shortly be invited.

The Department of Public Works has awarded contracts for the following constructions: wharf at Pelee Island, $13,000, to D. McDermid, Toronto; wharf and retaining walls at Hamilton, $60,844, to J. Battle, Thorold; reconstruction of wharf at Lakeport, $16,430, to S. Gowan, Brockville, and breakwater at Goderich, $140,417, to M. Connolly, Montreal.

The Government scow Pioneer, which is built entirely of reinforced concrete, was launched at Port Dalhousie, Nov. 9. Her dimensions are:—Length, 80 ft.; breadth, 24 ft.; depth, 7 ft., with deck, sides and bottom 2½ ins. thick. She is built with two bulkheads running crossways and one lengthways, the work having been conducted under the supervision of Superintendent Weller of the Welland canal.

A Kingston press dispatch states that the U.S. Consul there has been instructed to locate and report on naturalized U. S. citizens, who reside in and about Kingston, and who go across the line and obtain positions as steamboat captains and engineers. The U.S. law relating to citizenship will not allow such to reside outside the country for more than two years, without forfeiting all rights as U.S. citizens, and thus losing their steamboat licenses.

The U.S. Lake Survey reports the levels of the Great Lakes in feet above tidewater for Oct., as follows:—Superior, 601.89; Michigan and Huron, 580.12; Erie, 571.77; Ontario, 245.38. Compared with the average October levels for the past 10 years, Superior was 1.14 ft. below; Michigan and Huron, 0.68 ft. below; Erie, 0.37 ft. below, and Ontario, 0.42 ft. below. It was anticipated that, during November, there would be a fall of 0.1 ft. in Superior and 0.3 ft. in each of the other lakes.

The Collingwood Shipping Co.'s steamboat Wasaga, operated by the Merchants' Mutual Line, was burned to the water's edge at Copper Harbor, Nov. 6. She was built at Buffalo, N.Y., in 1875, and was on the U.S. register under the name of Wissahickon. She was a screw driven vessel, with engine of 120 n.h.p., and of the following dimensions:—Length, 244.4 ft.; breadth, 36.6 ft.; depth, 14.8 ft.; tonnage, 1,745 gross, 1,108 register.

The Board of Railway Commissioners, by order 12162, Nov. 4, granted permission to the C.P.R., in order to prevent any undue delay to its passenger steamers running between Owen Sound and Fort William, Ont., to do on the Lord's Day any work necessarily incidental to the loading or unloading of freight and merchandise upon or from the said steamers or transhipping of freight and merchandise between the said steamers and its cars, at Owen Sound and Fort William, and the coaling of the said steamers at Owen Sound.

The Manager of the Niagara, St. Catharines and Toronto Navigation Co. has received tenders for a steamboat to replace the Lakeside and run between Toronto and Port Dalhousie. It is said that the new boat, which must be ready by June 15, 1911, will be 200 ft. long and carry 1,000 passengers. She will have triple expansion engines with a single screw and will be capable of making 16 knots. A wireless telegraph system will be installed. The Garden City, a sister boat, will undergo extensive repairs and remodelling this winter. The order was reported to have been placed in Collingwood, Nov. 28.

The Department of Marine has issued notice that all Canadian lights and fog alarms on Lake Superior will be kept in operation until Dec. 10, with the exception of those on Caribou Island, which may not be kept in operation later than Dec. 5, subject to weather conditions or early closing of navigation. The Canadian lights and signals on the other lakes will be kept in operation until Dec. 15, and mariners must not rely upon finding any of these lights in operation later than the dates specified.

The Peterborough and Lake Simcoe Navigation Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $250,000 and office at Peterboro to carry on the business of a navigation company and common carriers of passengers and freight on Ontario navigable waters, and in connection therewith to build, own and operate steam, electric and other railways on the company's property. The provisional directors are, W. J. Thomson, W. H. Smith, A. Eyer, W. J. Taylor and E. Barber, Toronto.

We are advised that press reports to the effect that the Northern Navigation Co. has placed, or is about to place a contract for the construction of an additional vessel for its fleet, are incorrect. The company does not propose to build a vessel this year, but, in connection with its contract with the G.T.R., it may have to do so by next winter. With reference to the report that new cabins are to be placed on the Huronic and other large alterations to the fleet, we are advised that it is improbable that any such work will be undertaken this winter.

The preliminary survey work on the proposed enlarged Welland canal is nearing completion. The route surveyed is generally north and south from Jordan harbor on Lake Ontario to Morgan's point, on Lake Erie, 27 miles. Leaving Jordan harbor it follows Twenty Mile Creek past Jordan station and village, due south, touching Pelham Union and passing Rosedene, then south past Boyle to the Welland river, which would be utilized for about three miles to Forks Creek, where the survey runs southward past Cranberry marsh to Morgan's point. The cost of the proposed works is estimated at $30,000,000. No definite decision has been reached as to the outcome of the work undertaken, and it is stated that nothing will be done in the way of any cutting or construction until the whole matter has been considered from every standpoint. The object of the survey is chiefly for the purpose of gathering information on behalf of the Department of Railways and Canals.

Manitoba, Saskatchewan and Alberta.

In the early part of Nov. reports were received at Winnipeg that the Northern Fish Co.'s steamboat Wolverine, with a number of other vessels, were held in mid-lake, owing to a sudden freeze-up. It was also rumored that the Wolverine was considerably damaged, and in danger. Relief parties were dispatched by dog train, and by Nov. 24 it was reported that passengers and crew had been landed safely. The vessel has sustained damages to

The Victoria Rolling Stock & Realty Co., of Ontario, Limited

Notice is hereby given that a dividend of three per cent. on the paid-up capital stock of the Company for the half-year ended Nov. 30th, 1910, has been declared payable Dec. 1st, 1910, to the shareholders on record as of the 30th of Nov., 1910.

By order of the Board.

G. T. CHISHOLM, Secretary.

Toronto, Nov. 15th, 1909.

NOTICE is hereby given that the Grand Trunk Pacific Branch Lines Company will apply to the Parliament of Canada, at the next session thereof, for an Act further amending the Act incorporating the company, chapter 99 of the Statutes of 1906, as amended by chapter 86 of the Statutes of 1909, and by chapter 103 of the Statutes of 1910, by authorizing the construction of the following additional lines of railway:—

28. From a point on the Western division of the Grand Trunk Pacific Railway between the east limit of Range 21 and the west limit of Range 23, west of the Second Meridian, thence in a westerly direction to a junction with the line mentioned in paragraph 24 between the north line of Township 29 and the south line of Township 37.

29. From Moose Jaw or a point on the line mentioned in paragraph 24 between the east limit of Range 24 west of the Second Meridian, and the west limit of Range 5, west of the Third Meridian, thence in a generally westerly direction to Calgary, or to a junction with the line mentioned in paragraph 23 or the line mentioned in paragraph 24 between the north line of Township 23 and the south line of Township 30.

30. From a point on the Western division of the Grand Trunk Pacific Railway between the east limit of Range 9 and the west limit of Range 13, west of the Fourth Meridian, thence in a southwesterly and westerly direction to a junction with the line mentioned in paragraph 14 within or near Townships 39, 40 or 41.

31. From a point on the line mentioned in paragraph 25 between the East limit of Range 24, west of the Third Meridian, and the West limit of Range 2, west of the Fourth Meridian, thence in a northwesterly and westerly direction to a point on the Western division of the Grand Trunk Pacific Railway within or near Ranges 21, 22, 23, 24 or 25.

32. From a point on the Western division of the Grand Trunk Pacific Railway between the east limit of Range 21 and west limit of Range 25, west of the Fourth Meridian, thence in a southerly and southeasterly direction to a connection with the line mentioned in paragraph 14 within or near Townships 46, 47 or 48.

33. From a point on the Western division of the Grand Trunk Pacific Railway between the east limit of Range 27 and west limit of Range 3, west of the First Meridian, thence in a generally westerly direction to a point on the line mentioned in paragraph 31, within or near Townships 18, 19, 20 or 21.

34. From a point on the line mentioned in paragraph 11 between the East limit of Range 12, and the West limit of Range 16, west of the Second Meridian, thence in a southerly direction to the International Boundary between the East limit of Range 10 and the West limit of Range 18, west of the Second Meridian;

And for authority to issue bonds in respect of each of the said lines of railway to the extent of $30,000.00 per mile.

W. H. BIGGAR,
Solicitor for applicants.

Dated at Montreal, this 3rd day of November, A.D. 1910.

her wheel and other equipment, and is partly submerged.

It is reported, from Winnipeg, that the Department of Marine is undertaking the survey of the water front there, on which it may base plans for the construction of docks and other shipping facilities. The steamboat Victoria is stated to be engaged on the work, after having carried out considerable survey work during the summer, along both shores of Lake Winnipeg. The mouth of the Berens, Black and Icelandic Rivers have been surveyed and charted, and extensive hydrographic notes taken regarding shoals, currents, etc. It is also stated that a larger and more up to date vessel may be provided for the service by next year.

The report of the Public Works Department for the last fiscal year, in referring to the surveys which have been undertaken, with a view to the establishment of a navigable waterway from Winnipeg to Edmonton, by way of the North Saskatchewan River, states that such development would make Canada unique in the matter of inland water transportation. The total distance from the sea, on the inland waters would be 3,300 miles, with only one break, between Fort William and Winnipeg, about 400 miles. The work has been suspended for the winter, and while the interim reports are said to show that the route is practicable, no details have been worked out.

B.C. and Pacific Coast Marine.

The C.P.R. has placed an order for the construction, at Wallsend-on-Tyne, Eng., of another steamship, similar to its s.s. Princess Adelaide, for its Pacific Coast service.

The C.P.R. Pacific Coast s.s. Princess Adelaide is expected to arrive at Vancouver, from Great Britain, about Dec. 24, after which she will be placed on the Vancouver, Victoria and Seattle route.

The ferry boat Vedder, which has been operating between Chilliwack and Harrison, for several years, is reported to have been taken off the service, owing to lack of business occasioned by the opening of the British Columbia Electric Ry. Fraser Valley branch.

The G.T.P. Steamship Co. is reported to have arranged with Capt. S. F. Mackenzie, who is now in Great Britain, to purchase a suitable steamer, of about 500 tons register, for service between Prince Rupert, Queen Charlotte Islands and Stewart.

Press reports from New Westminster state that the C.P.R. has commenced construction of a new pier at shed 2.

The Purchasing Agents' Guide

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Alloys
American Vanadium Co....Pittsburg, Pa.
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Hamilton Steel & Iron Co..Hamilton, Ont.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Anti Rail Creepers
The Holden Co., Ltd.....Montreal.
Automobiles
Preston Car & Coach Co...Preston, Ont.
Axes
James Smart Mfg. Co.....Brockville, Ont.
Axles
Canadian Car & Foundry Co....Montreal
Hamilton S. & I. Co., Ltd., Hamilton, Ont.
James Hutton & Co. .....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Jas. W. Pyke & Co.....Montreal.
Babbit Metal
Tallman Brass & Metal Co., Hamilton, Ont.
Beacons
International Marine Signal Co....Ottawa.
Bearings, Side
Canadian Car & Foundry Co....Montreal.
Chicago Railway Equipment Co..Chicago.
Blankets and Bedding
The Hudson's Bay Co. .....
Boilers
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S
Boilers, Portable
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
Boilers, Stationary and Marine
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
I. Matheson & Co.....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
Boiler Staybolt Iron or Steel Bars
Falls Hollow Staybolt Co..Cuyahoga Falls.
Boilers, Steam
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
Boilers, Water Tube
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
Bolsters
Canadian Car & Foundry Co....Montreal.
Canadian Ry. Equipment Co., Welland, Ont.
Bolts, Bridge
Montreal Rolling Mills Co.....Montreal.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Bolts, Track
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Borers, Car Wheel
John Bertram & Sons Co....Dundas, Ont.
Braces, Cross Arm
Montreal Rolling Mills Co.....Montreal.
Brake Beams
Canadian Car & Foundry Co....Montreal.
Chicago Railway Equipment Co..Chicago.
Brake Shoes
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd..Montreal.
The Holden Co., Ltd.....Montreal.
Brake Shoes, Locomotive Driver
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd..Montreal.
Railway Materials Co. ....New York.
Brass and Copper Cloth
The B. Greening Wire Co..Hamilton, Ont.
Brasses, Car
T. McAvity & Sons .....St. John, N.B.
Bridge Numbers
Acton Burrows, Limited .....Toronto.
Bridges
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Bronze
American Vanadium Co....Pittsburg, Pa.
Buckets, Coal, Ore and Concrete
M. Beatty & Sons, Ltd....Welland, Ont.
Brown Hoisting Machinery Co., Cleveland.
Williams & Wilson, Ltd .....Montreal.
Buildings, Steel
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Bumping Posts
The Holden Co., Ltd.....Montreal.
McCord & Co. .....Chicago, Ill.
Buoy Lighting
Safety Car Heat. & Light. Co..New York.
Buoys
International Marine Signal Co....Ottawa.
Cables, Electric and Feeder
Chapman & Walker, Ltd.....Toronto.
E. F. Phillips Electrical Works.Montreal.
The Wire and Cable Co.....Montreal.
Car Furnishings
Guilford S. Wood.....Chicago, Ill.
Car Loaders, Box
Mussens, Ltd. .....Montreal.
Car Movers
F. H. Hopkins & Co.....Montreal.
Mussens, Ltd. .....Montreal.
Cars
Crossen Car Mfg. Co.....Cobourg, Ont.
Canadian Car & Foundry Co....Montreal.
J. T. Gardner .....Chicago, Ill.
Hart-Otis Car Co., Ltd.....Montreal.
The Males Co., ... Cincinnati, O.
Ottawa Car Co., Ltd.....Ottawa.
Pay-As-You-Enter Car Co....New York.
Preston Car and Coach Co., Ltd..Preston.
Russel Wheel & Fdry Co...Detroit, Mich.
Silliker Car Co., Ltd.....Halifax, N.S.
Cars, Logging
Peteler Car Co. .....Minneapolis, Minn.
Russel Wheel & Fdry Co...Detroit, Mich.
Castings
Edgar Allen & Co., Ltd. ..... Montreal.
American Vanadium Co....Pittsburg, Pa.
Canadian Car & Foundry Co....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
John Inglis Co., Ltd. .....Toronto.
Lumen Bearing Co.....West Toronto, Ont.
I. Matheson & Co.....New Glasgow, N.S.
Russel Wheel & Fdry Co...Detroit, Mich.
Standard Steel Works Co..Philadelphia, Pa.
Castings, Brass
Canadian Bronze Co. .....Montreal.
Canada Iron Corporation, Ltd...Montreal.
Kerr Engine Co. .....Walkerville, Ont.
Lumen Bearing Co.....West Toronto, Ont.
I. Matheson & Co.....New Glasgow, N.S.
Tallman Brass & Metal Co., Ltd.Hamilton.
Castings, Car
Edgar Allen & Co., Ltd. ..... Montreal.
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd...Montreal.
Russel Wheel & Fdry.. Co..Detroit, Mich.
Castings, Iron
Allis-Chalmers-Bullock Ltd. ....Montreal.
Canada Iron Corporation, Ltd...Montreal.
Kerr Engine Co.....Walkerville, Ont.
Russel Wheel & Fdry.. Co..Detroit, Mich.
Castings, Iron and Steel
Edgar Allen & Co., Ltd. ..... Montreal.
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Castings, Malleable
Galt Malleable Iron Co.....Galt, Ont.
Taylor & Arnold .....Montreal.
Castings, Manganese Steel
Edgar Allen & Co., Ltd. ..... Montreal.
Lumen Bearing Co.....West Toronto, Ont.
Montreal Steel Works, Ltd.....Montreal.
Castings, Steel
Edgar Allen & Co., Ltd. ..... Montreal.
American Vanadium Co....Pittsburg, Pa.
Canada Iron Corporation, Ltd..Montreal.
W. Kennedy & Sons, Ltd., Owen So'd, Ont.
Montreal Steel Works .....Montreal.
Chains
B. J. Coghlin & Co.....Montreal.
Chisels for Pneumatic Chipping Hammers
Edgar Allen & Co., Ltd. ..... Montreal.
Cleveland Punch & Shear Wks., Cleveland.
Closets, Car
Duner Co. .....Chicago, Ill.
Coal
Nova Scotia S. & C. Co., New Glasgow, N.S.
Compressors, Air
Allis-Chalmers-Bullock Ltd. ....Montreal.
The American Well Works...Aurora, Ill.
Canadian Rand Co. .....Montreal.
The Holden Co., Ltd.....Montreal.
John Inglis Co., Ltd. .....Toronto.
Vandeleur & Nichols .....Toronto.
Concrete Mixers and Rock Crushers
Edgar Allen & Co., Ltd. ..... Montreal.
F. H. Hopkins & Co.....Montreal.
Mussens, Limited .....Montreal.
Contractors' Supplies
F. H. Hopkins & Co.....Montreal.
Rice Lewis & Son.....Toronto.
Peteler Car Co. .....Minneapolis, Minn.
Russel Wheel & Fdry.. Co..Detroit, Mich.
Williams & Wilson, Ltd ..... Montreal.
Conveyors, Coal and Ash
Babcock & Wilcox, Ltd.....Montreal.
Williams & Wilson, Ltd .....Montreal.
Copying Presses
James Smart Mfg. Co.....Brockville, Ont

The new pier, it is stated, will be about 800 ft. long, and at the same angle as pier A. Plans are said to be under consideration for an overhead bridge across the tracks to the docks.

W. Erwin, lightkeeper at Point Atkinson, has been awarded the Imperial service medal for long and meritorious service.

The Department of Marine will receive tenders to Jan. 3, 1911, for the construction of a buoy depot at Prince Rupert, B.C., including the erection of a re-inforced concrete wharf timber approach trestle, power house with chimney, buoy shed, stores, offices and dwellings, with installations of drainage and water systems.

The Yukon Transportation Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $50,000, and offices at Windsor, Ont., to carry on a general transportation business. The provisional directors are: F. H. Asam, Dawson, Yukon; J. G. Prance, Detroit, Mich.; A. R., and N. A. Bartlet, W. W. LaMarsh, Windsor, Ont.

The Department of Marine has issued a report on the tide tables of the Pacific Coast, including the Fuca Strait, the Strait of Georgia, and the Northern Coast, with data for slack water in the navigable passes and narrows, and information on currents, for 1911. This is the eleventh annual issue, and is compiled by Dr. W. Bell Dawson, Superintendent of Tidal Surveys.

The Pacific Towing and Contracting Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $10,000 and office at Vancouver, to carry on the general business of sand merchants, and that of towing, wharfingers and warehousemen, shipping and general agents, and in connection therewith to own and operate steam and other vessels.

The G.T.P. Steamship Co.'s s.s. Prince George has been taken off her route for a short time, and has been taken to Victoria for overhauling. When this is completed she will take the place of the s.s. Prince Rupert, which, in turn, will be overhauled, in readiness for her trip to the Hawaiian Islands in Feb., 1911. A weekly service only will be operated to the north during the winter.

The Imperial Fisheries, Ltd., has been incorporated under the B.C. Companies Act, with a capital of $150,000, to take over certain businesses in Vancouver and Nanaimo; to carry on a general fisheries business, and in connection therewith to own and operate steam and other vessels, wharves, docks, warehouses, etc., and to act as general carriers by land and water.

The Evans Coleman Wharf Co., Ltd., has been incorporated under the B. C. Companies Act, with a capital of $10,000, to carry on the business of wharfingers, warehousemen, stevedores and shipping agents, and in connection therewith to own and operate steam and other vessels of every description, and to make traffic arrangements with other steamboat, railway or other transportation companies.

The Sechelt Steamship Co. commenced a weekly service between Victoria and New Westminster, Nov. 9, with the steamboat B.C.P., leaving New Westminster every Thursday. The B.C.P. was built at Vancouver in 1908, for the Packers' Steamship Co., and is a screw driven vessel, with engine of 22 n.h.p. Her dimensions are:—Length, 80.5 ft.; breadth, 18 ft.; depth, 7.8 ft.; tonnage, 121 gross, 83 register.

In connection with the proposed dry deck, which the G.T.P.R. may build at Prince Rupert, C. M. Hays, President, in a letter to the Prince Rupert board of trade, Nov. 3, said that it was subject to agreement with the Government, and as soon as arrangements could be made work could be started and prosecuted to completion. The city would be asked to grant exemption from taxation for this property on the same basis as other G.T.P.R. property.

The Kingcome Navigation Co. Ltd., has been incorporated under the B.C. Companies Act, with a capital of $10,000, to take over the steamboat Teign, registered at Vancouver; to own and operate steam and other vessels, and to carry on a general carrying and navigation business. The Teign was built at Vancouver in 1909, and is screw driven, with engine of 3 n.h.p. Her dimensions are, length, 35.1 ft., breadth 9.4 ft., depth 3.3 ft., tonnage, 13 gross, 9 register.

Foley, Welch and Stewart's fleet of steamboats have been withdrawn from the Skeena River for the winter, and have been hauled out on the company's ways at Digby Island, where they will remain until the spring. The five boats, Distributor, Omineca, Operator, Conveyor and Skeena, have been operated throughout the season without serious accident, and have chiefly been engaged in conveying material and supplies to points on the Skeena River for G.T.P.R. construction.

The Hamlin Tug Boat Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $20,000, to purchase the steamboat Hamlin, to carry on the business of wharfingers, warehousemen, and general shipping agents, and to own and operate steam and other vessels. The steamboat Hamlin is a paddle wheel steamer, built in Vancouver in 1898, and is equipped with engine of 17 h.p. Her dimensions are, length, 146.2 ft.; breadth, 30.8 ft.; depth 4.6 ft.; tonnage, 515 gross, 323 register.

The appeal of the defendant in the case of the North Vancouver Ferry Co. v. Braim, against the decision of the lower court, granting an injunction to restrain defendant from engaging in a competitive business, came before the Court of Appeal, Nov. 3. The defendant claimed that the company did not have a valid franchise over the waters of Burrard Inlet from Vancouver to North Vancouver, on the ground that the license was granted for 15 years, instead of five only, and that it should have been voted on by the taxpayers.

Press reports from Victoria, recently stated that the acquirement of the Pacific Whaling Co., by interests connected with the Canadian Northern Ry., would be completed by Dec. 1, the amount involved approximating $1,000,000. It is also stated that whaling operations will be extended northerly, and that a station will built at the mouth of the Mackenzie River, which will be the base of two whaling steamers. The name of the recently incorporated Canadian Northern Fisheries, Ltd., has been changed by supplementary letters patent, to Canadian North Pacific Fisheries Ltd.

H. A. Bayfield, dredge superintendent for British Columbia, on his return to New Westminster from Ottawa recently, announced that the Dominion Government had ordered a steel elevator dredge for use in widening the Second Narrows, a steel tug boat for use in dredging work in Victoria harbor, and a pair of rockbreakers for submarine rock excavation in Victoria harbor. The dredge will have a capacity of 1,000 cubic yards an hour, and is being built in Scotland, as stated in our last issue. A contract is reported to have been awarded to Macdougall and Jenkins, North Vancouver, for building the steel tug boat, which, it is stated, will be 90 ft. long by 20 ft. beam, equipped with engines of 500 i.h.p. The rockbreakers are reported to be now en route to Vancouver from Scotland.

THE CANADIAN NORTHERN QUEBEC RAILWAY COMPANY

NOTICE is hereby given that the Canadian Northern Quebec Railway Company will apply to the Parliament of Canada, at its next session, for an Act, authorizing it to construct the following lines of railway:—

(a) From Rawdon, northerly to a junction with the National Transcontinental Railway;

(b) From St. Jerome to St. Eustache.

GERARD RUEL,
Chief Solicitor.

Dated at Toronto, this 16th day of November, 1910.

NOTICE is hereby given that an application will be made on behalf of the New Brunswick Southern Railway Company to the Board of Railway Commissioners for Canada at the expiration of four weeks from the date of this notice or as soon thereafter as the application can be heard, for a recommendation to the Governor in Council for the sanction of a lease of the railway of the New Brunswick Southern Railway Company to the Canadian Pacific Railway Company for a term of nine hundred and ninety-nine years from the first day of January, nineteen hundred and eleven upon the terms and conditions therein mentioned.

This notice is given pursuant to the provisions of section 361 of The Railway Act.

OSCAR RING,
Secretary, New Brunswick Southern Ry. Co.

Dated at St. John, N.B., the 16th day of November, 1910.

NOTICE is hereby given that an application will be made on behalf of the Kootenay Central Railway Company to the Board of Railway Commissioners for Canada at the expiration of four weeks from the date of this notice or as soon thereafter as the application can be heard, for a recommendation to the Governor in Council for the sanction of a lease of the railway of the Kootenay Central Railway Company to the Canadian Pacific Railway Company for a term of nine hundred and ninety-nine years from the first day of January, nineteen hundred and eleven, upon the terms and conditions therein mentioned.

This notice is given pursuant to the provisions of section 361 of The Railway Act.

H. C. OSWALD,
Secretary, Kootenay Central Ry. Co.

Dated at Montreal, the 16th day of November, 1910.

NOTICE is hereby given that an application will be made on behalf of the St. Maurice Valley Railway Company to the Board of Railway Commissioners for Canada at the expiration of four weeks from the date of this notice or as soon thereafter as the application can be heard, for a recommendation to the Governor in Council for the sanction of a lease of the railway of the St. Maurice Valley Railway Company to the Canadian Pacific Railway Company for a term of nine hundred and ninety-nine years from the first day of January, nineteen hundred and eleven, upon the terms and conditions therein mentioned.

This notice is given pursuant to the provisions of Section 361 of The Railway Act.

C. C. PANGMAN,
Secretary, St. Maurice Valley Ry. Co.

Dated at Montreal, the 16th day of November.

Capt. S. F. Mackenzie, of the Mackenzie Steamship Co., was entertained to dinner by a number of business men at Vancouver recently, and presented with a gold locket, on his leaving the Pacific coast for a prolonged holiday in Scotland.

Couplers, Car and Locomotive
Canadian Car & Foundry Co...Montreal.
McConway & Torley Co....Pittsburg, Pa.
Montreal Steel Works, Ltd.....Montreal.
Taylor & Arnold .....Montreal.

Couplers, Steam
Consolidated Car Heating Co., Albany, N.Y

Cranes
Brown Hoisting Machinery Co..Cleveland.
Northern Engineering Wks..Detroit, Mich.
Williams & Wilson, Ltd .....Montreal.

Cranes, Electric
Babcock & Wilcox .....Montreal.
Dominion Bridge Co. .....Montreal.
Mussens, Limited .....Montreal.
Northern Engineering Wks, Detroit, Mich.

Cranes, Locomotive
The Males Co., ... Cincinnati, O.

Cranes, Wrecking
Mussens, Limited .....Montreal.

Crowbars
B. J. Coghlin & Co.....Montreal.

Curtains and Fixtures, Car
The Holden Co., Ltd.....Montreal.
Preston Car & Coach Co...Preston, Ont.

Cuts
Acton Burrows, Limited .....Toronto.

Cylinders
American Vanadium Co....Pittsburg, Pa.

Derricks
M. Beatty & Sons .....Welland, Ont.
Mussens, Limited .....Montreal.

Diaphragms, Vestibule
Guilford S. Wood.....Chicago, Ill.

Dies
Butterfield & Co. ....Rock Island, Que.
A. B. Jardine & Co. .....Hespeler, Ont.

Ditchers
M. Beatty & Sons .....Welland, Ont.

Diving Outfits
John Date .....Montreal.
Mussens, Limited .....Montreal.

Doors, Steel Rolling
Mussens, Limited .....Montreal.

Door Signs
Acton Burrows, Limited .....Toronto.

Draft Gear
The Holden Co., Ltd.....Montreal.
McCord & Co. .....Chicago, Ill.
Standard Coupler Co.....New York City.
T. H. Symington & Co.....Baltimore, Md.

Draughtsmen's Supplies
John A. Hart & Co .....Winnipeg.

Dredges
M. Beatty & Sons .....Welland, Ont.
Polson Iron Works, Ltd.....Toronto.

Drills, Air
Canadian Rand Co.....Montreal.

Drills, Flat Twisted
Cleveland Punch & Shear Wks., Cleveland.

Dry Goods
The Hudson's Bay Co.....

Dump Cars, Contractors'
F. H. Hopkins & Co.....Montreal.
Peteler Car Co. .....Minneapolis, Minn.
Western Wheeled Scraper Co..Aurora, Ill.

Dump Cars, Hand
Meaford Wheelba'ow Co., Ltd., Meaf'd, Ont.

Dynamos
Northern Electric & Mfg. Co.....Montreal.
Vandeleur & Nichols .....Toronto.

Dynamo and Electric Castings
Am. Brake Shoe & F'dry Co., Mahwah, N.J.

Economizers
Babcock & Wilcox, Ltd.....Montreal.

Electric Apparatus
Allis-Chalmers-Bullock Ltd. ....Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co.....Montreal.
Vandeleur & Nichols .....Toronto.

Electric Car Route Signs
Acton Burrows, Limited .....Toronto.
Preston Car & Coach Co...Preston, Ont.

Electric Light Plant
Allis-Chalmers-Bullock Ltd. ....Montreal.

Elevators, Grain
John S. Metcalf Co. .....Chicago, Ill.

Enameled Iron Signs
Acton Burrows, Limited .....Toronto.

Engines, Automatic
Robb Engineering Co., Ltd..Amherst, N.S.
Polson Iron Works, Ltd.....Toronto.
Russel Wheel & Fdry Co..Detroit, Mich.

Engines, Corliss
Allis-Chalmers-Bullock Ltd. ....Montreal.
John Inglis Co., Ltd. .....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Engines, Gas
Allis-Chalmers-Bullock Ltd. ....Montreal.
Vandeleur & Nichols .....Toronto.
Williams & Wilson, Ltd .....Montreal.

Engines, Gasolene
Canadian Fairbanks Co., Ltd...Montreal.
Ontario Wind Engine & Pump Co. Toronto.
Vandeleur & Nichols .....Toronto.

Engines, Hoisting
Allis-Chalmers-Bullock Ltd. ....Montreal.
M. Beatty & Sons .....Welland, Ont.
John Inglis Co., Ltd. .....Toronto.
I. Matheson & Co.....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto.
Russell Wheel & Fdry. Co..Detroit, Mich.
Williams & Wilson, Ltd .....Montreal.

Engines, Pumping
John Inglis Co., Ltd. .....Toronto.

Engines, Stationary and Marine
John Inglis Co., Ltd. .....Toronto.
I. Matheson & Co.....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Engines, Steam
Allis-Chalmers-Bullock Ltd. ....Montreal.
Vandeleur & Nichols .....Toronto.

Explosives
Standard Explosives, Limited ..Montreal.

Express Office Signs
Acton Burrows, Limited .....Toronto.

Fencing
Owen Sound Wire Fence Co., Ltd., O'n S'd.

Fenders for Electric Cars
J. M. Moorhouse.....Winnipeg.

Ferro-Vanadium
American Vanadium Co. ..Pittsburg, Pa.

Fire Appliances
Missouri Lamp & Mfg. Co., St. Louis, Mo.

Flags
The Hudson's Bay Co.....

Flour
The Hudson's Bay Co.....

Forgings
Edgar Allen & Co., Ltd. ..... Montreal.
American Vanadium Co. ..Pittsburg, Pa.
Canadian Car & Foundry Co...Montreal.
Cleveland City Forge & Iron Co., Cleveland.
Crossen Car Mfg. Co.....Cobourg, Ont.
Hamilton Steel & Iron Co., Ltd., Hamilton.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Standard Steel Works Co., Philadelphia, Pa.

Foundry Appliances
Goldschmidt Thermit Co. .....Toronto.
Ont. Wind Eng. & Pump Co., Ltd., Toronto.

Frames, Steel for Cars
Canadian Ry. Equip't Co., Welland, Ont.

Frogs
Canadian Ramapo Iron Wks.Niagara Falls.
Peteler Car Co. .....Minneapolis, Minn.

Furnaces, Corrugated
Continental Iron Works....Brooklyn, N.Y.

Furnaces, Oil
Railway Materials Co. .....New York.

Furnaces, Shop
Railway Materials Co. .....New York.

Fuse Batteries
Standard Explosives Limited...Montreal.

Fuse Detonators
Standard Explosives Limited...Montreal.

Fuses, Electric
Standard Explosives Limited...Montreal.

Gaskets
Franklin Mfg. Co.....Franklin, Pa.
The Holden Co., Ltd.....Montreal.
McCord & Co. .....Chicago, Ill.

Gates
Owen Sound Wire Fence Co., Ltd., O'n S'd.

Gates, Crossing
The N. L. Piper Ry. Supply Co...Toronto.

Gauges, Locomotive
Taylor & Arnold .....Montreal.
Utica Steam Gauge Co.....New York.

Gears
American Vanadium Co. ..Pittsburg, Pa.

Generators, Electric
Northern Electric & Mfg. Co.....Montreal.

Grates, Shaking
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
Vandeleur & Nichols .....Toronto.

Groceries
The Hudson's Bay Co.....

Hammers, Cast Steel
American Brake Shoe & Fdry Co.Mahwah.
James Smart Mfg. Co....Brockville, Ont.

Handcars
Canadian Fairbanks Co., Ltd...Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
F. H. Hopkins & Co.....Montreal.
Mussens, Limited .....Montreal.
Rice Lewis & Son.....Toronto.

Hardware
The Hudson's Bay Co.....
Rice Lewis & Son.....Toronto.

Headlights
Commercial Acetylene Co.....Toronto.
The N. L. Piper Ry. Supply Co...Toronto.
Pyle National Elec. Headlight Co..Chicago.

Headlinings
Crossen Car Mfg. Co.....Cobourg, Ont.

Heaters, Feedwater
Robb Engineering Co., Ltd..Amherst, N.S.

Heaters, Oil-burning
Tate, Jones & Co. Inc. ..... Pittsburg, Pa.

Heating, Car
Canadian Gold Car H'g & L'g Co..Montreal.
Consolidated Car Heating Co., Albany, N.Y.
Safety Car Heating & L'ting Co.New York.

Hoists, Pneumatic
Taylor & Arnold .....Montreal.

Hollow Staybolt Iron and Steel Bars
Edgar Allen & Co., Ltd. ..... Montreal.

Hoppers, Car, Wet or Dry
Duner Co. .....Chicago, Ill.

Hose, Air Brake and Steam
Guilford S. Wood.....Chicago, Ill

Hydrants
Canadian Fairbanks Co., Ltd...Montreal
Kerr Engine Co.....Walkerville, Ont

Illustrations
Acton Burrows, Limited.....Toronto

Injectors
T. McAvity & Sons .....St. John, N.B.

Inspections
R. W. Hunt & Co.....Montreal.

Insurance, Accident
Can. Casualty & Boiler Ins. Co...Toronto.
Canadian Ry. Accident Ins. Co...Ottawa.
Imp. Guarantee & Acc. Ins. Co..Toronto.
London Guar. & Accident Co., Ltd.Toronto.

Insurance, Boiler
Can. Casualty & Boiler Ins. Co...Toronto.

Interlocking Plant and Signals
Montreal Steel Works, Ltd.....Montreal
Railway Signal Co. of Canada....Montreal.
Saxby & Farmer, Ltd.....Montreal.

Iron, Pig
Nova Scotia S. & C. Co., New Glasgow, N.S.

Iron Signs
Acton Burrows, Limited.....Toronto.

Iron Staybolt Bars
Falls Hollow Staybolt Co..Cuyahoga Falls.

Jacks
Canadian Fairbanks Co., Ltd...Montreal.
H. & E. Lifting Jack Co..Waterville, Que.
F. H. Hopkins & Co., Ltd.....Montreal.
Montreal Steel Works, Ltd.....Montreal.
Mussens, Limited .....Montreal.
A. O. Norton .....Coaticook, Que.
James Smart Mfg. Co....Brockville, Ont.
Williams & Wilson, Ltd .....Montreal.

Japans
The Dougal Varnish Co., Ltd...Montreal.

Journal Bearings
Canadian Bronze Co. .....Montreal.
Crossen Car Mfg. Co. .....Cobourg, Ont.
Kerr Engine Co. .....Walkerville, Ont.
Jas. W. Pyke & Co. .....Montreal.

Journal Boxes
The Holden Co., Ltd.....Montreal.
McCord & Co. .....Chicago, Ill.

Lager Beer, &c.
E. L. Drewry .....Winnipeg.

Lagging and Covering, Locomotive
Franklin Mfg. Co. .....Franklin, Pa.
Taylor & Arnold .....Montreal.

Lamps, Arc
Northern Electric & Mfg. Co.....Montreal.

Lamps, Incandescent
Canadian Westinghouse Co..Hamilton, Ont.

Lamps and Lanterns
The Hudson's Bay Co.....
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.

Lamps, Switch
The N. L. Piper Ry. Supply Co..Toronto.

Lathes
John Bertram & Sons Co.....Dundas, Ont.
Williams & Wilson, Ltd .....Montreal.

Lighting, Car
Canadian Gold Car H'g & L'g Co.Montreal.
Safety Car Heating & L'ting Co.New York.

Lights, Contractors' and Wrecking
F. H. Hopkins & Co., Ltd.....Montreal.
Mussens, Limited .....Montreal.

Locomotives, Compressed Air
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co..Kingston, Ont.
International Marine Signal Co...Ottawa.
Montreal Locomotive W'ks (Ltd.).Montreal.

Locomotives, Electric
Baldwin Locomotive Works..Philadelphia.
Montreal Locomotive W'ks (Ltd.).Montreal.

Locomotives, Logging
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co..Kingston, Ont.

Locomotives, Rack
Baldwin Locomotive Works...Philadelphia.
Canadian Locomotive Co..Kingston, Ont.
Montreal Locomotive Works.....Montreal.

Locomotives, Steam
Baldwin Locomotive Works...Philadelphia.
Canadian Fairbanks Co., Ltd...Montreal.
Canadian Locomotive Co. ..Kingston, Ont.
J. T. Gardner .....Chicago, Ill.
The Males Co., ... Cincinnati, O.
Montreal Locomotive Works.....Montreal.
Vulcan Iron Works .....Wilkesbarre, Pa.

Lorries, Tracklaying
Crossen Car Mfg. Co.....Cobourg, Ont.
F. H. Hopkins & Co.....Montreal.

Lubricators
McCord & Co. .....Chicago, Ill.
Taylor & Arnold .....Montreal.

Lumbe
Parry Sound Lumber Co. .....Toronto.
Machines and Plant, Contractors'
M. Beatty & Sons .....Welland, Ont.
Canadian Fairbanks Co., Ltd...Montreal.
J. T. Gardner .....Chicago, Ill.
F. H. Hopkins & Co. .....Montreal.
Mussens, Limited .....Montreal.
Machines and Tools, Prospecting
The American Well Works...Aurora, Ill.
Machines and Tools, Well Drilling
The American Well Works...Aurora, Ill.
Machines, Boring and Turning
John Bertram & Sons Co.....Dundas, Ont.
Machines, Car Shop
John Bertram & Sons Co., Ltd.Dundas, Ont.
Cincinnati Punch & Shear Co., Cincinnati.
Greenlee Bros. & Co. .....Chicago, Ill.
Machines, Cement
James W. Pyke & Co. .....Montreal.
Machines, Drilling
John Bertram & Sons Co. ..Dundas, Ont.
Machines, Earth and Stone Handling
Western Wheeled Scraper Co..Aurora, Ill.
Machines, Hoisting
Brown Hoisting Machinery Co..Cleveland.
Machines, Logging
Russel Wheel & Fdry. Co..Detroit, Mich.
Machines, Milling
John Bertram & Sons Co. ..Dundas, Ont.
Machines, Planing and Shaping
John Bertram & Sons Co. ..Dundas, Ont.
Cleveland Punch & Shear Wks., Cleveland.
Machines, Radial Drilling
John Bertram & Sons Co. ..Dundas, Ont.
Machines, Rivetting
Long & Allstatter Co. .... Hamilton, Ohio.
Machines, Slotting
John Bertram & Sons Co. ..Dundas, Ont.
Machines, Straightening
Cleveland Punch & Shear Wks.Cleveland.
Machines, Tire Welding
Long & Allstatter Co. .... Hamilton, Ohio.
Machines, Track
Greenlee Bros. & Co. .....Chicago, Ill.
Machines, Tracklaying
F. H. Hopkins & Co. .....Montreal.
Machines, Wood and Iron Working
Canadian Fairbanks Co., Ltd...Montreal.
Williams & Wilson, Ltd .....Montreal.
Machine Tools
John Bertram & Sons Co. ..Dundas, Ont.
Pratt & Whitney Co. .....Dundas, Ont.
Manhole Frames and Covers
American Brake Shoe & F'dry Co.Mahwah.
Canada Iron Corporation, Ltd...Montreal.
Marine Repairs
Goldschmidt Thermit Co. .....Toronto.
Marine Supplies
Rice Lewis & Son.....Toronto.
Metal, Babbit
Tallman Brass & Metal Co., Hamilton. Ont.
Metals
Goldschmidt Thermit Co. .....Toronto.
Metal Work, Structural
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Montreal Locomotive Works.....Montreal.
Jas. W. Pyke & Co. .....Montreal.
Milepost Numbers
Acton Burrows, Limited.....Toronto.
Motors
Canadian Fairbanks Co., Ltd...Montreal.
McCord & Co. .....Chicago, Ill.
Motors, Electric
Allis-Chalmers-Bullock Ltd. ....Montreal.
Canadian Crocker-Wheeler Co. ..Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co.....Montreal.
Vandeleur & Nichols .....Toronto.
Motor Generator Sets
Allis-Chalmers-Bullock Ltd. ....Montreal.
Chapman & Walker, Ltd.....Toronto.
Vandeleur & Nichols .....Toronto.
Motors, Turntable
Taylor & Arnold .....Montreal.
Nickel
The Orford Copper Co. .....New York.
Nickel for Nickel Steel
The Orford Copper Co. .....New York.
Numbers
Acton Burrows, Limited .....Toronto.
Nut Locks
Positive Lock Washer Co. ..Newark, N.J.
Nuts, Clevis
Cleveland City Forge & Iron Co.Cleveland.
Nuts, Square and Hexagon
Montreal Rolling Mills Co.....Montreal.
Oakum
The Hudson's Bay Co.....
Office Fittings
Can. Office & Sch'l Furn. Co....Preston.
Office Signs
Acton Burrows, Limited .....Toronto.
Oils
Galena Signal Oil Co..Franklin & Toronto.
Packing
Anchor Packing Co. of Can., Ltd.,.Montreal
The N. L. Piper Ry. Supply Co...Toronto.
Paints
R. F. Johnston Paint Co , Cincinnati, Ohio.
Pile Drivers, Railway
F. H. Hopkins & Co. .....Montreal.
Mussens, Limited .....Montreal.
Pinch Bars
The N. L. Piper Ry. Supply Co..Toronto.
Pipe, Culvert, Cast Iron
Gartshore-Thompson Pipe Co...Hamilton.
Pipe, Gas, Cast Iron
Gartshore-Thompson Pipe Co...Hamilton.
Pipe, Sewer, Cast Iron
Gartshore-Thompson Pipe Co...Hamilton.
Pipe Stocks
Butterfield & Co. ....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.
Pipe, Water (Cast Iron)
Gartshore-Thompson Pipe Co...Hamilton.
Planers
John Bertram & Sons Co. ..Dundas, Ont.
Platforms, Steel
Standard Coupler Co. ....New York City.
Ploughs, Contractors'
Meaford Wheelba'ow Co., Ltd., Meaf'd, Ont.
Mussens, Limited .....Montreal.
Porter
E. L. Drewry .....Winnipeg.
Powder, Blasting
Standard Explosives, Limited ..Montreal.
Preservative for Hose
Guilford S. Wood.....Chicago, Ill.
Printing
Southam Press .....Toronto.
Propellor Wheels
W. Kennedy & Sons, Ltd., Owen So'd, Ont.
Pumps
Canadian Fairbanks Co., Ltd...Montreal.
S. F. Bowser & Co., Ltd.....Toronto.
Ontario Wind Engine & Pump Co..Toronto.
James Smart Mfg. Co....Brockville, Ont.
Vandeleur & Nichols .....Toronto.
Pumps, Centrifugal
The American Well Works...Aurora, Ill.
M. Beatty & Sons .....Welland, Ont.
John Inglis Co., Ltd. .....Toronto.
Pumps, Deep Well, Steam and Power
The American Well Works....Aurora, Ill.
Pumps, Fire Pressure
The American Well Works....Aurora, Ill.
Pumps, Irrigating
The American Well Works....Aurora, Ill.
Pumps, Reclamation
The American Well Works....Aurora, Ill.
Pumps, Sprinkler Systems
The American Well Works....Aurora, Ill.
Pumps, Underwriters' Fire
The American Well Works....Aurora, Ill.
Punches and Shears
Cincinnati Punch & Shear Co., Cincinnati.
Cleveland Punch & Shear Wks., Cleveland.
Long & Allstatter Co. .... Hamilton, Ohio.
Williams & Wilson, Ltd .....Montreal.
Rail Benders, Roller
F. H. Hopkins & Co. .....Montreal.
Montreal Steel Works .....Montreal.
Rail Drilling Machines
A. B. Jardine & Co. .....Hespeler, Ont.
Rails, new
Dominion Iron & Steel Co....Sydney, N.S.
Drummond, McCall & Co.....Montreal.
J. T. Gardner .....Chicago, Ill.
J. J. Gartshore .....Toronto.
F. H. Hopkins & Co. .....Montreal.
Peteler Car Co. .....Minneapolis, Minn.
Rails, for relaying
F. H. Hopkins & Co. .....Montreal.
J. J. Gartshore .....Toronto.
Mussens, Limited .....Montreal.
Provincial Steel Co., Ltd. .. Cobourg, Ont.
Jas. W. Pyke & Co. .....Montreal.
Rail Joints
Goldschmidt Thermit Co. .....Toronto.
The Rail Joint Co. of Canada...Montreal.
Rails, Re-rolled
Provincial Steel Co., Ltd. .. Cobourg, Ont
Railway Supplies
Canadian Fairbanks Co., Ltd..Montreal.
Franklin Mfg. Co. .....Franklin, Pa.
T. McAvity & Sons .....St. John, N.B.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Rice Lewis & Son.....Toronto.
Russel Wheel & Fdry. Co..Detroit, Mich.
Williams & Wilson, Ltd .....Montreal.
Reamers
Butterfield & Co.....Rock Island, Que.
Cleveland Punch & Shear Wks.Cleveland.
A. B. Jardine & Co. .....Hespeler, Ont.
Replacers, Car and Locomotive
Alexander Car Replacer Mfg. Co.Scranton.
The Holden Co., Ltd.....Montreal.
F. H. Hopkins & Co. .....Montreal.
Rivets, Boiler, Bridge and Structural
Montreal Rolling Mills Co.....Montreal.

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F. H. Hopkins & Co. .....Montreal.
The Hudson's Bay Company.....

Ropes, Coal Haulage
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Ropes, Derrick
Dominion Wire Rope Co. .....Montreal.
The B. Greening Wire Co..Hamilton, Ont.

Ropes, Switch
The B. Greening Wire Co..Hamilton, Ont.
F. H. Hopkins & Co. .....Montreal.

Rubber Goods, Mechanical
Guilford S. Wood.....Chicago, Ill.

Scales
Canadian Fairbanks Co., Ltd..Montreal.

Scows, Dump and Deck
M. Beatty & Sons .....Welland, Ont.

Scrapers, Wheel and Drag
F. H. Hopkins & Co. .....Montreal.
Meaford Wheelba'ow Co., Ltd., Meaf'd, Ont.
Mussens, Limited .....Montreal.

Screw Plates
Butterfield & Co. ....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Screws, Coach and Lag
Montreal Rolling Mills Co.....Montreal.

Seats, Station
James Smart Mfg. Co....Brockville, Ont.

Semaphore Arms
Acton Burrows Limited .....Toronto.

Semaphores
The N. L. Piper Ry. Supply Co..Toronto.
Saxby & Farmer Ltd.....Montreal.

Shears, Angle, Bar and Plate
Cincinnati Punch & Shear Co., Cincinnati.
Cleveland Punch & Shear Wks., Cleveland.

Ships
Polson Iron Works, Ltd.....Toronto.

Shops
The Hudson's Bay Company.....

Signal House Numbers
Acton Burrows, Limited .....Toronto.

Signals
Railway Signal Co. of Canada..Montreal.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Saxby & Farmer, Limited .....Montreal.

Signals, Fog
International Marine Signal Co...Ottawa.

Signs
Acton Burrows, Limited .....Toronto.

Sills, Steel, for Cars
Canadian Ry. Equip't Co...Welland, Ont.

Skidders and Loaders
Russel Wheel & Fdry Co...Detroit, Mich.

Slack Adjusters
Chicago Railway Equipment Co..Chicago

Sledges
James Smart Mfg. Co...Brockville, Ont.

Smoke Jacks
Paul Dickinson, Inc. .....Chicago, Ill.

Snow Ploughs
Canadian Car & Foundry Co...Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.

Solder
Tallman Brass & Metal Co., Hamilton, Ont.

Spikes, Railway, Ship or Pressed
Hamilton S. & I. Co., Ltd., Hamilton, Ont.
F. H. Hopkins & Co.....Montreal.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S.& C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.

Spreader Cars
F. H. Hopkins & Co.....Montreal..

Spring Dampeners
McCord & Co. .....Chicago, Ill.

Springs
American Vanadium Co....Pittsburg, Pa.
B. J. Coghlin & Co. .....Montreal.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works .....Montreal.
Standard Steel Wks. Co..Philadelphia, Pa.

Sprinklers, Electric
Preston Car & Coach Co...Preston, Ont.

Stand Pipes
John Inglis Co., Ltd. .....Toronto.
T. McAvity & Sons .....St. John, N.B.

Steam Traps
Consolidated Car Heating Co., Albany, N.Y.

Station Name Signs
Acton Burrows, Limited .....Toronto.

Staybolt Bars, Charcoal Iron
Falls Hollow Staybolt Co..Cuyahoga Falls.

Staybolt Iron
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Taylor & Arnold .....Montreal.

Staybolt Iron or Steel Bars, Hollow
Falls Hollow Staybolt Co..Cuyahoga Falls.

Staybolts, Flexible
Flannery Bolt Co. .....Pittsburg, Pa.

Staybolts, Locomotive
Falls Hollow Staybolt Co..Cuyahoga Falls.
Flannery Bolt Co. .....Pittsburg, Pa.

Staybolt Taps
Butterfield & Co. .....Rock Island, Que.
A. B. Jardine & Co. .....Hespeler, Ont.

Steam Couplers
Safety Car Heating & L'ting Co.New York.

Steam Hammers
John Bertram & Sons Co. ..Dundas, Ont.

Steam Shovels
M. Beatty & Son .....Welland, Ont.
F. H. Hopkins & Co. .....Montreal.
The Males Co., ... Cincinnati, O.
Mussens, Limited .....Montreal.

Steamship Signs
Acton Burrows, Limited .....Toronto.

Steel
Hermann Boker & Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.

Steel, Air Hardening
Edgar Allen & Co., Ltd. ..... Montreal.

Steel, Fire Box
Taylor & Arnold .....Montreal.

Steel for Axes
Montreal Steel Works .....Montreal.

Steel for Saws
Montreal Steel Works .....Montreal.

Steel for Springs
James Hutton & Co. .....Montreal.

Steel Shafting
Nova Scotia S. & C. Co., New Glasgow, N.S.

Steel, Nickel, for Nickel
The Orford Copper Co. .....New York.

Steel Plates
Jas. W. Pyke & Co. .....Montreal.

Steel, Tool
Montreal Steel Works .....Montreal.

Stokers, Mechanical
Babcock & Wilcox, Ltd.....Montreal.

Stoves
James Smart Mfg. Co. ..Brockville, Ont.

Superheaters
Babcock & Wilcox, Ltd.....Montreal.

Switches
Can. Ramapo Iron Wks., Ltd. Niagara Falls.
Montreal Steel Works .....Montreal.

Switch Stands
Can. Ramapo Iron Wks., Ltd. Niagara Falls.

Switch Targets
Acton Burrows, Limited .....Toronto.

Tanks and Tank Fixtures
John Inglis Co., Ltd. .....Toronto.
Ontario Wind Engine & Pump Co..Toronto.
Polson Iron Works .....Toronto.

Tanks, Oil
S. F. Bowser & Co., Limited...Toronto.

Tapes, Measuring
Lufkin Rule Co. .....Saginaw, Mich.

Taps
Butterfield & Co. ....Rock Island, Que.
A. B. Jardine & Co. .....Hespeler, Ont.

Telegraph and Telephone Apparatus
Northern Electric & Mfg. Co.....Montreal.

Telegraph and Telephone Office Signs
Acton Burrows, Limited .....Toronto.

Thermit
Goldschmidt Thermit Co. .....Toronto.

Ticket Cases
Can. Office & School Furniture Co.Preston.

Tie Plates
B. J. Coghlin & Co. .....Montreal.
Hamilton S. & I. Co., Ltd., Hamilton, Ont.
Montreal Rolling Mills Co. ....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Guilford S. Wood.....Chicago, Ill.

Ties
Parry Sound Lumber Co. .....Toronto.

Tires, Steel
James Hutton & Co. .....Montreal.
Jas. W. Pyke & Co. .....Montreal.
Standard Steel Wks. Co..Philadelphia, Pa.

Tools and Supplies
Canadian Fairbanks Co., Ltd..Montreal.
James Smart Mfg. Co. ..Brockville, Ont.
A. B. Jardine & Co. .....Hespeler, Ont.
Pratt & Whitney Co. .....Dundas, Ont.
Williams & Wilson, Ltd .....Montreal.

Tools, Track
John Bertram & Sons Co. ..Dundas, Ont.
B. J. Coghlin & Co. .....Montreal.
F. H. Hopkins & Co. .....Montreal.
Montreal Steel Works .....Montreal.
Mussens, Limited .....Montreal.

Tools, Pneumatic
The Holden Co., Ltd.....Montreal.

Tools, Cast Steel Track
American Brake Shoe & Fdry. Co. Mahwah.

Track Equipment
Can. Ramapo Iron Wks., Ltd. Niagara Falls.

Tramway Equipment
J. J. Gartshore .....Toronto.

Transformers
Allis-Chalmers-Bullock Ltd. ....Montreal.

Transmission Appliances
Canadian Fairbanks Co., Ltd...Montreal.
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Trolley Wheels
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Trucks
James Smart Mfg. Co. ...Brockville, Ont.

Trucks, Electric Car
Baldwin Locomotive Works...Philadelphia.
Montreal Steel Works .....Montreal

Trusses, Roof.
Canadian Bridge Co. ...Walkerville, Ont.
Dominion Bridge Co. .....Montreal.

Tubes, Boiler.
Jas. W. Pyke & Co. ..... Montreal.

Turbines, Steam.
Allis-Chalmers-Bullock Ltd. ....Montreal.

Turnbuckles.
Cleveland City Forge & Iron Co..Cleveland.
Montreal Steel Works. .....Montreal.

Turntables.
Canadian Bridge Co. ....Walkerville, Ont.
Dominion Bridge Co. .....Montreal.

Valves
Consolidated Car Heating Co., Albany, N.Y.
Williams & Wilson, Ltd .....Montreal.

Valves, Brass Gate
Kerr Engine Co. .....Walkerville, Ont.

Valves, Brass Globe.
Kerr Engine Co. .....Walkerville, Ont.

Valves, Iron and Brass.
Canadian Fairbanks Co. Ltd. ...Montreal.

Valves, Iron Gate.
Kerr Engine Co. .....Walkerville, Ont.

Valves, Locomotive Pop.
T. McAvity & Sons .....St. John, N. B.
Taylor & Arnold .....Montreal.

Vanadium Steels.
American Vanadium Co. ....Pittsburg, Pa.

Varnishes.
Berry Bros. .....Walkerville, Ont.
The Dougal Varnish Co., Ltd...Montreal.
R. F. Johnston Paint Co, Cincinnati, Ohio.

Ventilators.
Paul Dickinson, Inc. .....Chicago, Ill.

Vessels.
Polson Iron Works .....Toronto.

Washers.
Montreal Rolling Mills Co. .....Montreal.

Waste.
B. J. Coghlin & Co. ..... Montreal.
N. L. Piper Railway Supply Co..Toronto.

Water Softeners.
Babcock & Wilcox, Ltd. .....Montreal.
L. M. Booth Co. .....Chicago, Ill.
Dearborn Drug & Chemical Co., Chicago.

Water Towers
John Inglis Co., Ltd. .....Toronto.

Welding.
Goldschmidt Thermit Co. .....Toronto.

Wheelbarrows
F. H. Hopkins & Co. .....Montreal.
Meaford Wheelba'ow Co., Ltd., Meaf'd, Ont.

Wheels, Car.
Canada Iron Corporation, Ltd..Montreal.
Canadian Car & Foundry Co. ....Montreal.
Peteler Car Co. .....Minneapolis, Minn.
Jas. W. Pyke & Co. .....Montreal.
Silliker Car Co., Ltd. .....Halifax, N.S.
Standard Steel Works Co.Philadelphia, Pa.

Wheels, Locomotive.
Canada Iron Corporation, Ltd..Montreal.

Wheels, Rolled, solid forged.
Standard Steel Works Co.Philadelphia, Pa.

Wheels, Steel Tired
Standard Steel Works Co.Philadelphia, Pa.

Windmills.
Ontario Wind Engine & Pump Co..Toronto

Wire and Wire Rope
Dominion Wire Rope Co. .....Montreal.
The B. Greening Wire Co...Hamilton, Ont.
Mussens Limited. .....Montreal.
The Wire & Cable Co .....Montreal

Wire Cloth.
The B. Greening Wire Co...Hamilton, Ont.

Wire, Copper.
E. F. Phillips Elec. Works, Ltd...Montreal
The Wire & Cable Co .....Montreal

Wire, Electric.
Chapman & Walker, Ltd.....Toronto
E. F. Phillips Elec. Works, Ltd...Montreal
The Wire & Cable Co .....Montreal

Wire, Insulated, Copper.
E. F Phillips Elec. Works, Ltd...Montreal
The Wire & Cable Co .....Montreal

Wire, Telegraph and Telephone.
Chapman & Walker, Ltd.....Toronto
E. F. Phillips Elec. Works, Ltd...Montreal
The Wire & Cable Co .....Montreal

Wire, Transmission and Trolley.
Chapman & Walker, Ltd. .....Toronto
The Wire & Cable Co. .....Montreal

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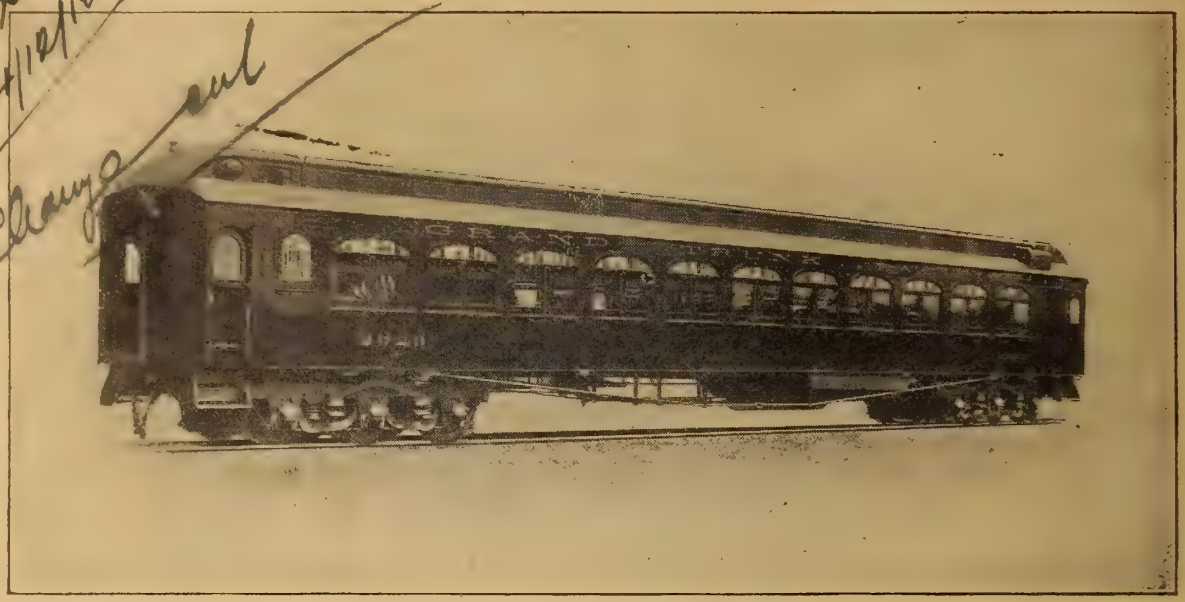

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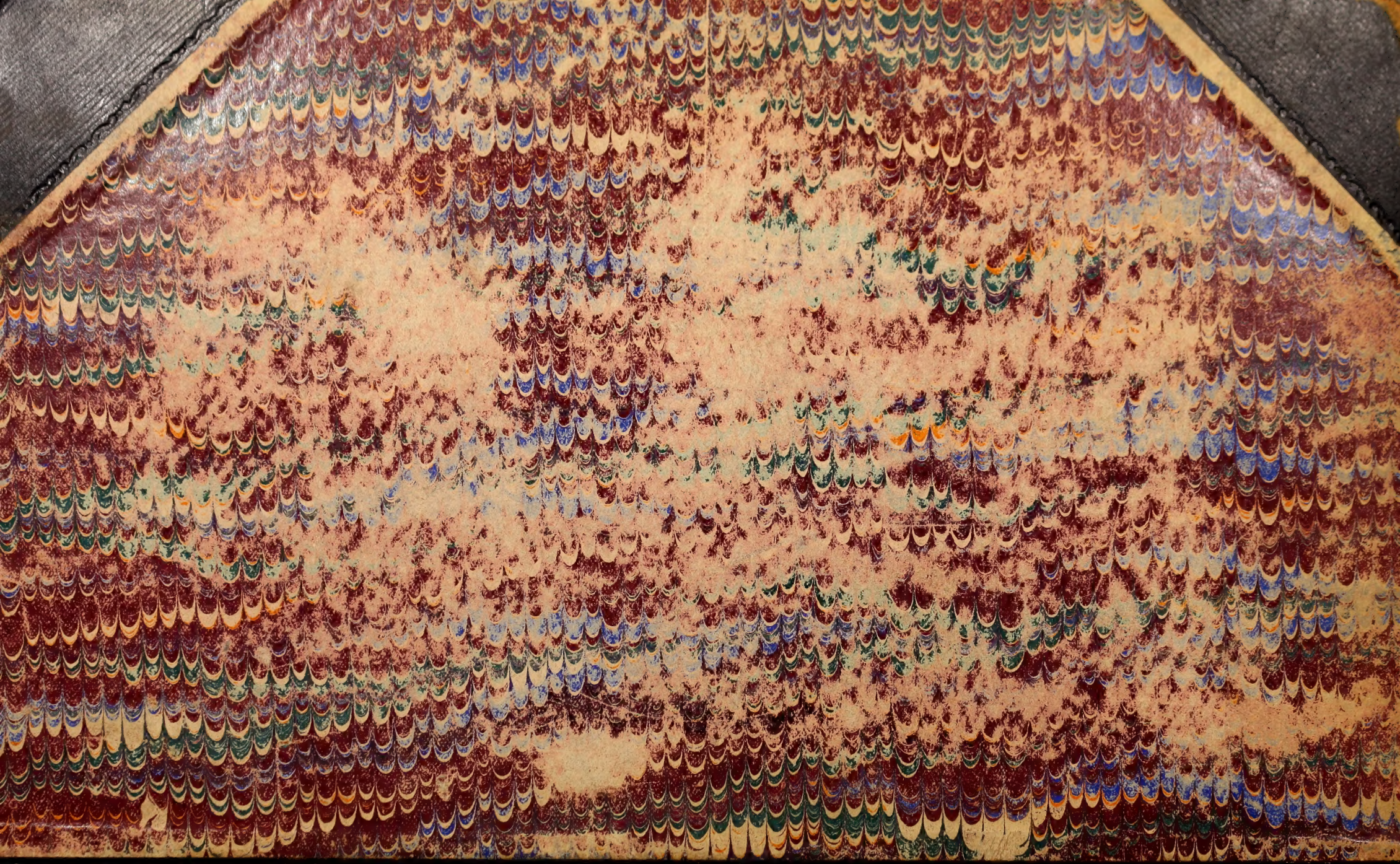
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